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Discussion Panel: Pathways Commission and the Future of Accounting Education

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Panel Members: Douglas Ziegenfuss, Old Dominion University

The American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA) have recently established a commission called The Commission on Accounting Higher Education (the Pathways Commission). The Commission considers the alternative paths to educate accounting students for entry into the accounting profession.

The panel will discuss issues that are related to the Pathways Commission, such as curricular issues to faculty shortage for specialized areas, such as ethics education.

Workshop: NASBA's Ethics Education Model Rule -Teach Ethics in Business and Accounting Programs

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The National Association of State Boards of Accountancy (NASBA) issued a model curriculum in 2009 for the CPA candidates. NASBA proposes that CPA candidates complete a curriculum that includes a standard three semester-credit-hour (3SCH) course on ethics, or integrate ethics into all accounting courses to equal 3SCH. If adopted by state boards of accountancy, the NASBA's requirement will mean that business schools and accounting programs will have to offer ethics courses so as to prepare their students for the CPA examination requirements. In this interactive workshop the speaker will provide a summary of the literature on individual ethics, professional ethics (including an ethics bingo game), corporate ethics, and ethics assurance to identify potential paths toward complying with the NASBA Model Rules.

PUBLIC SECTOR PENSION PLANS AND DISCOUNT RATES UNDER GASB STANDARDS: THE VALUATION DEBATE

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ABSTRACT

In Statements 25, 27, and 50, the Governmental Accounting Standards Board (GASB) requires state and local governments to disclose the funded status of their defined benefit pension plans in footnote disclosures and required supplemental information. The funded status of these plans is the difference between the actuarial value of plan assets and the actuarial accrued liability, calculated using the investment rate of return. Critics find that the rate used to value the pension liability is unrealistic and understates the actuarial accrued liability. In 2011 the Actuarial Standards Board (ASB) and GASB issued exposure drafts that propose fundamental changes in the selection of the discount rate. This paper uses the proposed discount rate guidance to recalculate the accrued liabilities of state pension plans.

INTRODUCTION

The issue of state and local defined pension plans has attracted interest in recent years. While some observers criticize these plans as overly generous to employees in the public sector, others worry that these pensions are severely underfunded and liable to cost taxpayers far more in the future than financial statement disclosures indicate. At issue is the discount rate used to value the actuarial accrued liability. Current GASB standards specify that the investment rate of return used to calculate plan asset values should also be used to compute the actuarial present value of the pension liability. This rate is typically around 8% and results in a lower liability than a lower, risk-free rate.

This paper first summarizes current GASB standards and required disclosures. It then reviews the position of critics who recommend the use of a discount rate that reflects the very low risk that governments will default on their pension obligations. The lower discount rates will increase the reported liabilities under most plans. The Actuarial Standards Board and GASB have both issued exposure drafts proposing changes in the selection of the discount rate. These changes are presented in the next sections of the paper. Finally, the proposed composite discount rates are applied to current pension data reported by 46 state pension plans to determine the effect of the exposure drafts on funded status of the plans.

PUBLIC SECTOR PENSIONS AND GOVERNMENTAL ACCOUNTING STANDARDS

Accounting Standards For Public Sector Pensions

The Governmental Accounting Standards Board (GASB) has issued three standards that establish accounting for public sector defined benefit pension plans at the state and local level. They are:

GASB No. 25 Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans (1994)

GASB No. 27 Accounting for Pensions by State and Local Governmental Employers (1997)

GASB No. 50 Pension Disclosures: An Amendment of GASB Statements No. 25 and 27 (2007)

These statements have been codified, along with other related standards and technical bulletins, into Section Pe5 and Section P20. **Section Pe5** *Pension Plans—Defined Benefit* determines financial reporting standards for defined benefit plans. It sets out the financial reporting framework to be followed by the administrators of such plans, to include two financial statements, two schedules, and additional disclosures, as follows:

- Statement of Plan Net Assets, listing plan assets, liabilities, and net assets as of the end of the plan's fiscal year. These items are measured on the accrual basis []e5.112-119).
- Statement of Changes in Plan Net Assets, showing additions and deductions from plan net assets over the fiscal year. Additions to the plan include contributions from the plan employer and members and net investment income. Deductions include benefits and refunds paid to beneficiaries and total administrative expense during the year [Pe5.120-123].
- Notes to the Financial Statements, to include a description of the plan, summary of significant accounting policies, and information on contributions, funded status, and actuarial methods and assumptions [Pe5.124].
- Required Supplementary Information, presented immediately after the notes to the financial statements:
    - Schedule of Funding Progress covering six consecutive years.
    - Schedule of Employer Contributions covering six consecutive years [Pe5.125-126].
- The Parameters, setting out guidance on the actuarial valuation of total projected benefits and designating Actuarial Standard of Practice No. 4, *Measuring Pension Obligations*, as the guide to selection of actuarial assumptions including discount rates.

Section P20 ***Pension Activities—Employer Reporting*** addresses accounting and financial reporting standards for pension expenditures/expense, pension assets and liabilities, note disclosures and required supplementary information to be disclosed by employers, as opposed to the plans themselves. There is considerable overlap between the requirements of Section Pe5 and P20. However, P20 provides specific guidance to employers in the disclosure of the annual required contribution (ARC), annual pension cost, and net pension obligation (NPO). This guidance is summarized below.

Annual Required Contribution (ARC). The ARC is the actuarially determined amount to be contributed to the plan annually. Actuaries may use one of six methods to calculate the amount that must be contributed so that future benefits can be paid out under the terms of the defined benefit pension. In the simplest of cases, the ARC comprises the *normal cost*, the amount of coverage added during the current year by future beneficiaries of the plan [Pe5.128, P20.106-107].

Normal Cost. The normal cost of the plan equals the actuarial present value of future benefits allocated to the current year. It is usually calculated as a level dollar or level percentage of covered payroll.

Amortization of Unfunded Actuarial Accrued Liability (UAAL). If the plan is underfunded, the ARC also includes an amount equal to one year's amortization of the unfunded actuarial accrued liability (UAAL). The maximum amortization period is currently 30 years (P20.107f). The UAAL is the difference between the value of plan assets and the actuarial present value of total projected benefits under the plan; it can be either positive (liability > plan assets) or negative (liability < plan assets). Typically, the unfunded liability comes from transition amounts, plan amendments that increase future benefits, and contribution deficiencies.

Annual Pension Cost. In the simplest case, the annual pension cost is equal to the ARC. Often, however, past contributions to the plan are less than the ARC, thereby creating the **Net Pension Obligation** (NPO). (P20.108) When there is a beginning balance in the NPO, the annual pension cost includes one year's interest on the NPO and an adjustment to avoid double counting. [P20.105] The adjustment is equal to the discounted present value of the beginning NPO balance for the year, using the same amortization method as applied to the ARC for that year [P20.108-110].

The Discount Rate

The calculations underlying the ARC, plan assets, present value of projected benefits liability, and annual pension cost all require actuarial parameters, including actuarial assumptions and economic assumptions. A brief quote from the Pew Charitable Trust study of public sector retirement plans illustrates the issue at hand: "Tiny variations in these assumptions cascade like numerical snowballs into dramatic differences between states." [Pew Center on the States, 2006, 22] Such variations can greatly affect the value of plan assets and the unfunded liability.

Principal among these assumptions are the investment rate of return and the discount rate. At present GASB standards do not distinguish between these two rates and in fact merely specify that the "**investment return (discount rate)"** is to be disclosed along with other significant assumptions. [Pe5.124d.2] The standards specify further that all actuarial assumptions should be selected in accordance with the current version of Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations* and that actuarial assumptions "should be based on the actual experience of the covered group . . .but should emphasize expected long-term future trends rather than give undue weight to recent past experience" [P20.107b]. The requirement that actuaries use the investment rate of return to value pension liabilities has caused considerable discussion and criticism.

CRITIQUE OF THE DISCOUNT RATE USED IN PUBLIC SECTOR PENSION ACCOUNTING

Under current governmental accounting standards the investment rate of return—the long-term estimated investment yield—is used not only for calculating the expected (budgeted) return on plan assets, but also for calculating the present value of future benefits under the pension plan. This rate is prescribed in ASOP No. 27 and throughout pension-related governmental accounting standards. The underlying belief is that future pension benefits will be paid out of pension assets and accumulated earnings, and there is thus a long-term link between plan assets and pension liabilities.

The use of the investment rate of return as a liability discount rate strikes commentators in the financial sector and academic researchers as problematic. Investment rates of return reported by state and local pension plans are typically in the 7.5-8.25% range, as reported in the Public Plans Database - Center for Retirement Research at Boston College (2011) and in the Public Fund Survey (2007). This rate strikes many observers as an unrealistic, if not unsustainable, rate that overstates the probable returns on plan assets. After the market declines of recent years, "many of the America's largest pension funds are sticking to expectations of fat returns on their investments even after a decade of paltry gains, which could leave U.S. retirement plans facing an even deeper funding hole and taxpayers on the hook for huge additional contributions," notes David Reilly, a Wall Street Journal financial analyst. Reilly argues that "return assumptions can affect the size of so-called funding gaps—the amounts by which future liabilities to retirees exceed current pension assets. That's because government plans use the return rates to calculate how much money they need to meet their future obligations to retirees. When there are funding gaps, plans have to get more contributions from either employers or employees." [Reilly, D., 2010].

When the investment rate of return is used to calculate the present value of the projected liability, critics argue that the resulting valuation clearly understates state and local commitments under public pension plans. John Bogle, the founder of Vanguard Group, appeared before the House of Representatives committee exploring retirement security in February 2009. In his remarks he noted the inadequacy of national savings being directed into retirement plans:

> The whole retirement system, in fact, in the country is in, I think, very poor shape, and it's going to be the next big financial crisis in the country, I honestly believe. . . . The private pension plans are underfunded by an estimated $400 billion, and the state and local government plans are under funded by am estimated $800 billion. That's a $1.2 trillion shortfall between the assets the plans

have and the liabilities they will have to the pensioners as they pay out their retirement checks over the rest of their lifetimes." [Bogle 2009]

The use of discount rates in the 7.5-8.25% range not only paints an overly optimistic picture of plan assets and the ability of governments to pay future retirement benefits, but, more importantly, it understates the public sector pension liability. Novy-Marx and Rauh (2010) maintain that pension plans should value the liability by using market-based discount rates that reflect the risk profile of governments' pension liabilities. They argue that the use of a lower, risk-free rate is appropriate because these liabilities are highly unlikely to result in default. Brown and Wilcox examine the extent to which states have backed their pension obligations. They find that a majority of states explicitly protect public-sector pensions through provisions in their state constitutions. On examining cases of severe financial distress, as, for example, in New York City during the 1970s and Orange County, California in the early 1990s, Brown and Wilcox find that defined benefit pension liabilities were paid as promised even as public employees were laid off and other financial commitments were called into question [Brown and Wilcox, 2009, 2-3]. Munnell (April 2010) examined actions taken by the states between 2007 and 2009 in response to the financial crisis. States employed numerous tactics to increase plan funding, control required contributions and/or reduce the unfunded liability. Among these actions were the following:

- Approve pension obligation bonds to pay down the liability[1]
- Extend amortization periods to smooth pension asset values
- Extend amortization periods to reduce the ARC
- Increase/decrease contribution rates of employers, employees, or both.
- Prohibit benefit increases in underfunded plans
- Lower salary growth assumptions and/or delay adoption of new mortality tables [Munnell, April 2010]

The fact that states have the ability to adopt one or more of theses tactics to maintain their pension funds supports the assertion of some that pension benefits are in effect guaranteed and that a low-risk or risk-free rate is therefore appropriate.

Novy-Marx and Rauh (2010) and Munnell et al. (June 2010) study various low-risk rates and reach interesting conclusions. Munnell states that the rate on 30-year Treasury bonds, then about 4%, is probably less than the riskless rate because Treasury bonds offer liquidity to the markets; she suggests that 5% would be a realistic discount rate and projects that lowering the discount rate from 8% to 5% would have increased 2009 state and local pension liabilities from $3.4 trillion to $4.9 trillion [Munnell, June 2010].[2] Novy-Marx and Rauh (2010) state that current discount rates are almost certainly understated. They find that under current accounting standards, the estimated present value of all state pension liabilities based on current salary levels (the accumulated benefit obligation (ABO) is $3.14 trillion and an unfunded liability of $1.20 trillion as of June 2009. They examine several possible discount rates, including the municipal bond rate and the zero-coupon Treasury rate. These rates result in total liabilities of $3.20 trillion and $4.43 trillion respectively. These figures would increase if larger measures of the liability—the projected benefit obligation (PBO) or entry age normal (EAN)--are employed [Novy-Marx and Rauh, 2010].

EXPOSURE DRAFTS ISSUED BY ASB AND GASB IN 2011

The Actuarial Standards Board and Governmental Accounting Standards Board have each issued exposure drafts (ED) of interest here. The ASB issued the proposed revision of ASOP No. 27 entitled "Selection of Economic Assumptions for Measuring Pension Obligations" in January 2011. In June

[1] But see Calabrese (2010) on the dangers of using of pension obligation bonds to finance contributions to defined benefit plans.

[2] Munnell (June 2010) also points out that while valuation of the liability depends on the discount rate, the payment of actual benefits does not.

2011 GASB issued an exposure draft entitled "Accounting and Financial Reporting for Pensions; An Amendment of GASB Statement No. 27."

The ASB weighs in on the discount rate controversy by reworking section 3.6 of ASOP No. 27. In the current document, section 3.6 is very clear. It states:

> 3.6 Selecting an Investment Return Assumption and a Discount Rate—The investment return assumption reflects anticipated returns on the plan's current and future assets. The discount rate is used to determine the present value of expected future plan payments. Generally, the appropriate discount rate is the same as the investment return assumption.

The exposure draft breaks the link between the investment rate of return and the discount rate, a fact celebrated by several respondents during the comment period. In the proposed standard, the new section 3.6 addresses the investment return, while section 3.7 sets out guidance for the separate selection of the discount rate:

> 3.7 Selecting a Discount Rate—The discount rate is used to measure the present value of expected future plan payments. The discount rate may be a single rate or a series of rates, such as a yield curve. The actuary should consider the purpose of the measurement as a primary factor in choosing a discount rate.

The ED lists several measurement purposes—contribution budgeting, settlement, market measurements, and pricing. The discount rate could be chosen to answer the needs of different parties such as creditors and the governmental entity responsible for funding future benefits, with the result that actuaries may need to measure the pension obligation from more than one perspective [Proposed Revision of ASOP No. 27, 3.6-7].

In June 2011, GASB issued the proposed amendment of GASB No. 27. The ED offers guidance on accounting for pension plans by state and local government employers where defined benefits are provided through qualified trusts. There are numerous profound changes contained in the ED, discount rates, discussed in sections 22-25 (single and agent employers) and sections 53-56 (cost-sharing employers), among them. The guidance is the same for both types of employers. The ED proposes the following:

- The discount rate should be a single, composite rate that combines both (1) the **rate of return on the investment** to the extent that future benefits are to be paid out of plan assets and (2) **an index rate for a 30-year, tax-exempt municipal bond rated AA/Aa or higher** to the extent that plan assets are insufficient to cover promised benefits.
- Calculation of the composite rate requires an assessment of the plan net position; that is, projections of cash flows into the plan, presumably due to contributions and earnings, and cash flows out of the plan in the form of benefit payments to current and former employees.
- The actuary will have to project these cash inflows and outflows year-by-year to determine the future annual plan net position and the total present value of projected benefit payments.
- The discount rate will be the single rate of return that when applied to all projected benefit payments equals the sum of present values already computed [GASB, ED 22-25, 53-56].

GASB has clearly tried to steer a course between the two extreme positions on the discount rate issue. On the one hand, some observers support the linkage between the investment rate of return on plan assets and the liability discount rate. On the other, some argue that the only appropriate discount rate is a lower, risk-free rate applied to the entire pension liability. The research briefly described above has already examined the use of a single low-risk rate to discount future pension benefits to the present. This study will examine the use of a composite rate, such as the one described in the ED.

SAMPLE AND METHODOLOGY

The study uses data from the Public Plans Database.[3] This database provides complete plan-level information on participants, governance, finance, and investments for 126 state and local defined benefit pension plans.[4] Specifically, this study selects one major defined benefit pension fund from each state for FY 2009 to be included the sample. Five states were not represented in the sample. The Public Plans Database had no listing of a defined benefit for Nebraska in FY 2009. Missing data elements in the records of the defined benefit plans for Connecticut, New York State & Local ERS, and Utah Noncontributory resulted in their elimination from the sample. South Dakota was eliminated because it uses an amortization period of one hundred years. The final sample is forty-five observations.

The key data elements in this study include the actuarial value of assets, actuarial value of liabilities, and unfunded actuarial accrued liability.[5] The actuarial value of assets is the asset value used for valuation purpose. Generally, it is based on the current market value of plan assets plus a portion of prior years' unrealized gains and losses. The actuarial value of accrued liabilities is defined as the present value of future benefits for accrued service. Plans may report the accrued liability using two liability concepts: the projected benefit obligation and the accumulated benefit obligation.[6] Historically; the public sector plans use the projected benefit obligation, while the private sector uses the accumulated benefit obligation [See the Public Plans Database]. The unfunded actuarial accrued liability is the arithmetic difference between the actuarial value of accrued liabilities and the actuarial value of assets. It represents the unfunded pension liability.

The purpose of this study is to examine the effect of a change in discount rates and discount period on the unfunded actuarial accrued liability. The first step in our methodology is to reverse the discounting to present value of the individual state's actuarial accrued liability by calculating the future value of the actuarial accrued liability using the individual states discount rate and period. Table 1 lists the states' discount rates and periods and projected actuarial value of assets, projected value of actuarial accrued liabilities, and projected unfunded actuarial accrued liabilities.

The second step in our methodology is to discount to present value the projected actuarial valued of assets, projected value of actuarial accrued liabilities, and projected unfunded actuarial accrued liabilities using the rates specified in the Proposed Statement of the Governmental Accounting Standards Board Accounting and Financial Reporting for Pensions an amendment of GASB Statement No. 27. As mentioned earlier in this paper, the GASB requires that the unfunded portion of the liability be discounted to present value using an index rate for a 30-year, tax-exempt municipal bond rated AA/Aa or higher (or equivalent quality on another rating scale). Tables 2, 3, and 4 show the calculated values of the unfunded actuarial accrued liability discounted at the AAA, AA, and A rated bonds over a 30-year period.[7]

RESULTS

[3] See: http://pubplans.bc.edu/pls/htmldb/f?p=198:20:2640064138182647::NO:RP::,

[4] Data currently spans fiscal years 2001 through 2009.

[5] Sample statistics for these data elements are contained in Table 1.

[6] The accumulated benefit obligation is the actuarial present value of benefits (vested or unvested) attributed by the pension benefit formula to employee services rendered before a specific date, and based on employee service and compensation prior to that date. The projected benefit obligation is the actuarial present value as of a date of all benefits attributed by the pension benefit formula to employee service rendered prior to that date. The PBO is measured using assumptions as to future compensation levels if the pension benefit formula is based on those future compensation levels. The PBO liability concept typically includes the present value of: the remaining pension benefits to be paid to current retired employees, retirement benefits earned to date by active employees based on their current salaries and years of service, and the effect of future salary increases on the value of benefits already earned by active workers.

[7] This study used the FMS Bonds, Inc., Municipal Bonds market index rate for 30-year bonds. AAA, AA, and A rated bonds had yields listed at 3.95, 4.60, and 5.65, respectively. See http://www.fmsbonds.com/Market_Yields/index.asp

The impact of the adoption of the GASB exposure draft on unfunded actuarial accrued liabilities is more severe as discount rates decline. Therefore, the 30-year AAA tax-free municipal bond index rate (3.95%) results in an average unfunded actuarial accrued liability increase of $10.5 billion while the 30-year A bond index rate (5.65%) results in a more modest average unfunded actuarial accrued liability increase of $4.1 billion. It should be noted that the distribution of unfunded actuarial accrued liabilities are skewed by five large observations. California (15.82%), Ohio (8.57%), New Jersey (7.81%), Illinois (7.89%), and Florida (7.19%) comprise 47.28% of the total unfunded actuarial accrued liability. The median unfunded actuarial liability increase for the 30-year AAA bond is $4.7 billion.

The potential implementation of the exposure draft would not result in an increase in unfunded actuarial accounting liability for all states. For example, if Washington State, North Carolina, and Minnesota used the 30-year AAA tax-free municipal index rate used in this study, their unfunded actuarial accrued liabilities would decline by $1.37 billion, $974 million, and $345 million, respectively. This results from their current use of short discount periods rather than the proposed 30-year period. Washington, North Carolina, and Minnesota use discount period of 10, 9, and 11 years, respectively.

CONCLUSION

Current GASB standards governing financial reporting for public retirement plans call for the use of the investment rate of return as the liability discount rate. Critics of these standards point out that unfunded liabilities of state and local governments are unlikely to end in default and are therefore riskfree. They find that appropriate discount rate should reflect the low-risk market rate. The recent exposure drafts of ASB and GASB break the link between the investment rate of return and the discount rate. GASB offers a new concept: a single composite rate combining the investment rate of return to the extent that plan assets are sufficient to fund future benefits and a low-risk rate to the exten that future benefits are currently unfunded.

We examine the application of the A, AA, AAA 30-year municipal bond rate to unfunded liabilities of 45 state retirement plans. Using an approximation of the composite rate, we find that the accrued liability increases in most—but not all—cases. Rather than the sharp increase in the liability reported by critics, we find a more moderated increase and, in the case of several state plans, a decrease in the accrued liability. This may be exactly the result desired by GASB: a move to a more theoretically sound discount rate, but one that does not cause major dislocations in the accounting for state and local retirement plans.

Table 1 State Defined Pension Benefit Data (2009) and Future Value Projects

State System	Actual State Defined Benefit Pension Data FY 2009					Future Value Based on Actual Amortization Rate & Period		
Defined Benefit Plan	Actuarial Value of Assets (2009) in Thousands $	Actuarial Value of Accrued Liabilities 2009 in Thousands $	UAAL in Thousands $	Amortization Period	Amortization Rate	Actuarial Value of Assets in Thousands $	Actuarial Value of Accrued Liabilities in Thousands $	UAAL in Thousands $
Alabama ERS	$ 9,828,104	$ 13,756,176	$ 3,928,072	30	8.00%	$98,896,838	$138,423,679	$39,526,841
Alaska PERS	$ 6,108,528	$ 9,702,086	$ 3,593,558	25	8.25%	$44,323,515	$70,398,393	$26,074,878
Arizona SRS	$ 27,094,000	$ 34,290,000	$ 7,196,000	30	8.00%	$272,637,626	$345,048,505	$72,410,879
Arkansas PERS	$ 5,413,000	$ 6,938,000	$ 1,525,000	30	8.00%	$54,469,162	$69,814,713	$15,345,552
California PERF	$ 244,964,000	$ 294,042,000	$ 49,078,000	28	7.75%	$1,980,551,192	$2,377,350,279	$396,799,086
Colorado State	$ 13,382,736	$ 19,977,217	$ 6,594,481	30	8.00%	$134,665,881	$201,023,880	$66,358,000
Delaware State Employees	$ 6,744,050	$ 6,827,006	$ 82,956	20	8.00%	$31,433,728	$31,820,382	$386,654
Florida RS	$ 118,764,692	$ 136,375,597	$ 17,610,905	30	7.75%	$1,114,822,465	$1,280,132,813	$165,310,348
Georgia ERS	$ 13,613,606	$ 15,878,022	$ 2,264,416	30	7.50%	$119,186,510	$139,011,371	$19,824,861
Hawaii ERS	$ 11,400,100	$ 17,636,400	$ 6,236,300	28	8.00%	$99,875,408	$154,511,157	$54,635,749
Idaho PERS	$ 8,646,000	$ 11,732,000	$ 3,086,000	25	7.75%	$55,878,817	$75,823,535	$19,944,718
Illinois SERS	$ 10,999,954	$ 25,298,346	$ 14,298,392	30	8.50%	$127,140,236	$292,404,649	$165,264,413
Indiana PERF	$ 12,569,335	$ 13,506,280	$ 936,945	30	7.25%	$102,619,839	$110,269,340	$7,649,501
Iowa PERS	$ 21,123,980	$ 26,018,594	$ 4,894,614	30	7.50%	$184,939,498	$227,791,625	$42,852,126
Kansas PERS	$ 13,461,221	$ 21,138,206	$ 7,676,985	23	8.00%	$79,037,070	$124,112,208	$45,075,138
Kentucky ERS	$ 5,297,115	$ 11,332,961	$ 6,035,847	28	7.75%	$42,827,545	$91,627,790	$48,800,245
Louisiana SERS	$ 8,499,662	$ 13,986,847	$ 5,487,185	30	8.25%	$91,672,443	$150,854,050	$59,181,607
Maine State and Teacher	$ 8,383,147	$ 12,377,262	$ 3,994,115	19	7.75%	$34,620,665	$51,115,534	$16,494,869
Maryland PERS	$ 9,230,381	$ 15,080,783	$ 5,850,402	30	7.75%	$86,643,900	$141,560,555	$54,916,655
Massachusetts SERS	$ 19,019,062	$ 24,862,421	$ 5,843,359	15	8.25%	$62,460,818	$81,651,091	$19,190,273
Michigan SERS	$ 11,106,969	$ 14,233,710	$ 3,126,740	27	8.00%	$88,723,152	$113,699,747	$24,976,595
Minnesota State Employees	$ 9,030,401	$ 10,512,760	$ 1,482,359	11	8.50%	$22,153,082	$25,789,556	$3,636,474
Mississippi PERS	$ 20,597,581	$ 30,594,546	$ 9,996,965	30	8.00%	$207,266,390	$307,862,419	$100,596,029
Missouri State Employees	$ 7,876,079	$ 9,494,807	$ 1,618,727	30	8.50%	$91,033,707	$109,743,365	$18,709,658
Montana PERS	$ 4,002,212	$ 4,792,819	$ 790,607	40	8.00%	$86,946,141	$104,121,706	$17,175,565
Nevada Regular Employees	$ 19,158,282	$ 26,087,621	$ 6,929,338	30	8.00%	$192,783,222	$262,510,775	$69,727,553
New Hampshire Retirement System	$ 4,937,320	$ 8,475,052	$ 3,537,732	28	8.50%	$48,475,679	$83,209,906	$34,734,227
New Jersey PERS	$ 28,858,234	$ 44,470,403	$ 15,612,169	30	8.25%	$311,248,235	$479,632,074	$168,383,838
New Mexico PERF	$ 12,553,986	$ 14,908,279	$ 2,354,293	30	8.00%	$126,326,453	$150,016,898	$23,690,445
North Carolina Teachers & State Employees	$ 55,818,099	$ 58,178,272	$ 2,360,173	9	7.25%	$104,797,458	$109,228,640	$4,431,182
North Dakota PERS	$ 1,617,148	$ 1,901,201	$ 284,053	20	8.00%	$7,537,457	$8,861,415	$1,323,959
Ohio PERS	$ 57,629,000	$ 76,555,000	$ 18,926,000	30	8.00%	$579,900,854	$770,346,698	$190,445,844
Oklahoma PERS	$ 6,208,245	$ 9,291,458	$ 3,083,213	18	7.50%	$22,820,294	$34,153,579	$11,333,285
Oregon PERS	$ 47,828,900	$ 56,748,100	$ 8,919,200	30	8.00%	$481,285,810	$571,036,659	$89,750,849
Pennsylvania State ERS	$ 30,204,693	$ 35,797,017	$ 5,592,324	30	8.00%	$303,939,462	$360,213,100	$56,273,638
Rhode Island ERS	$ 6,655,012	$ 11,383,207	$ 4,728,195	20	8.25%	$32,486,802	$55,567,742	$23,080,940
South Carolina RS	$ 25,183,062	$ 37,150,315	$ 11,967,253	30	8.00%	$253,408,512	$373,830,873	$120,422,361
Tennessee State and Teachers	$ 26,335,199	$ 29,054,967	$ 2,719,767	20	7.50%	$111,868,005	$123,421,172	$11,553,167
Texas ERS	$ 23,509,622	$ 26,191,650	$ 2,682,028	30	8.00%	$236,569,260	$263,557,587	$26,988,328
Vermont State Employees	$ 1,217,638	$ 1,544,144	$ 326,506	29	8.50%	$12,971,213	$16,449,405	$3,478,192
Virginia Retirement System	$ 53,185,000	$ 66,323,000	$ 13,138,000	20	7.50%	$225,921,961	$281,730,229	$55,808,268
Washington PERS 1	$ 9,775,600	$ 13,984,500	$ 4,208,900	10	8.00%	$21,104,787	$30,191,487	$9,086,699
West Virginia PERS	$ 3,248,270	$ 4,930,158	$ 1,681,888	26	7.50%	$21,294,733	$32,320,711	$11,025,979
Wisconsin Retirement System	$ 78,911,300	$ 79,104,600	$ 193,300	20	7.80%	$354,416,894	$355,285,068	$868,175
Wyoming Public Employees	$ 5,742,542	$ 6,565,676	$ 823,134	30	8.00%	$57,785,227	$66,068,142	$8,282,916
Mean	**$ 25,016,290**	**$ 31,311,766**	**$ 6,295,476**	**$ 26**	7.95%	**$ 196,039,288**	**$ 249,857,656**	**$ 53,818,368**
Median	**$ 11,400,100**	**$ 15,080,783**	**$ 3,994,115**	**$ 30**	8.00%	**$ 98,896,838**	**$ 124,112,208**	**$ 26,074,878**
Minimum	**$ 1,217,638**	**$ 1,544,144**	**$ 82,956**	**$ 9**	7.25%	**$ 7,537,457**	**$ 8,861,415**	**$ 386,654**
Maximum	**$ 244,964,000**	**$ 294,042,000**	**$ 49,078,000**	**$ 40**	8.50%	**$ 1,980,551,192**	**$ 2,377,350,279**	**$ 396,799,086**

Source Data Public Plans Database: State and Local Defined Benefit Plans, http://pubplans.bc.edu/pls/htmldb/f?p=198:20:4380850194532719::NO:RP::, September 2, 2011

Table 2 State Defined Pension Benefit Plans: Projected UAAL at 30-Year AAA Tax-Free Municipal Bond Rate

State System	Projected Unfunded Actuarial Accrude Liability AAA rated tax-free 30 Year Municipal Bond (3.95%)				
Defined Benefit Plan	Actuarial Value of Assets (2009) in Thousands $	Projected Value of Accrued Actuarial Liabilities	Projected UAAL	2009 UAAL	Projected UAAL - 2009 UAAL
Alabama ERS	$ 9,828,104	$ 22,192,056	$ 12,363,952	$ 3,928,072	$ 8,435,880
Alaska PERS	$ 6,108,528	$ 14,264,721	$ 8,156,193	$ 3,593,558	$ 4,562,635
Arizona SRS	$ 27,094,000	$ 49,744,042	$ 22,650,042	$ 7,196,000	$ 15,454,042
Arkansas PERS	$ 5,413,000	$ 10,213,071	$ 4,800,071	$ 1,525,000	$ 3,275,071
California PERF	$ 244,964,000	$ 369,082,310	$ 124,118,310	$ 49,078,000	$ 75,040,310
Colorado State	$ 13,382,736	$ 34,139,444	$ 20,756,708	$ 6,594,481	$ 14,162,227
Delaware State Employees	$ 6,744,050	$ 6,864,995	$ 120,945	$ 82,956	$ 37,989
Florida RS	$ 118,764,692	$ 170,473,584	$ 51,708,892	$ 17,610,905	$ 34,097,987
Georgia ERS	$ 13,613,606	$ 19,814,800	$ 6,201,194	$ 2,264,416	$ 3,936,778
Hawaii ERS	$ 11,400,100	$ 28,490,101	$ 17,090,001	$ 6,236,300	$ 10,853,701
Idaho PERS	$ 8,646,000	$ 14,884,685	$ 6,238,685	$ 3,086,000	$ 3,152,685
Illinois SERS	$ 10,999,954	$ 62,694,477	$ 51,694,523	$ 14,298,392	$ 37,396,131
Indiana PERF	$ 12,569,335	$ 14,962,090	$ 2,392,755	$ 936,945	$ 1,455,810
Iowa PERS	$ 21,123,980	$ 34,528,077	$ 13,404,097	$ 4,894,614	$ 8,509,483
Kansas PERS	$ 13,461,221	$ 27,560,674	$ 14,099,453	$ 7,676,985	$ 6,422,468
Kentucky ERS	$ 5,297,115	$ 20,561,777	$ 15,264,662	$ 6,035,847	$ 9,228,815
Louisiana SERS	$ 8,499,662	$ 27,011,602	$ 18,511,940	$ 5,487,185	$ 13,024,755
Maine State and Teacher	$ 8,383,147	$ 13,542,724	$ 5,159,576	$ 3,994,115	$ 1,165,461
Maryland PERS	$ 9,230,381	$ 26,408,249	$ 17,177,868	$ 5,850,402	$ 11,327,466
Massachusetts SERS	$ 19,019,062	$ 25,021,758	$ 6,002,696	$ 5,843,359	$ 159,337
Michigan SERS	$ 11,106,969	$ 18,919,620	$ 7,812,651	$ 3,126,740	$ 4,685,911
Minnesota State Employee	$ 9,030,401	$ 10,167,886	$ 1,137,485	$ 1,482,359	$ (344,874)
Mississippi PERS	$ 20,597,581	$ 52,063,906	$ 31,466,325	$ 9,996,965	$ 21,469,360
Missouri State Employees	$ 7,876,079	$ 13,728,440	$ 5,852,360	$ 1,618,727	$ 4,233,633
Montana PERS	$ 4,002,212	$ 9,374,710	$ 5,372,498	$ 790,607	$ 4,581,890
Nevada Regular Employees	$ 19,158,282	$ 40,968,983	$ 21,810,700	$ 6,929,338	$ 14,881,362
New Hampshire Retirement	$ 4,937,320	$ 15,802,147	$ 10,864,827	$ 3,537,732	$ 7,327,095
New Jersey PERS	$ 28,858,234	$ 81,528,510	$ 52,670,276	$ 15,612,169	$ 37,058,107
New Mexico PERF	$ 12,553,986	$ 19,964,331	$ 7,410,345	$ 2,354,293	$ 5,056,052
North Carolina Teachers &	$ 55,818,099	$ 57,204,168	$ 1,386,069	$ 2,360,173	$ (974,104)
North Dakota PERS	$ 1,617,148	$ 2,031,281	$ 414,133	$ 284,053	$ 130,080
Ohio PERS	$ 57,629,000	$ 117,200,247	$ 59,571,247	$ 18,926,000	$ 40,645,247
Oklahoma PERS	$ 6,208,245	$ 9,753,284	$ 3,545,039	$ 3,083,213	$ 461,826
Oregon PERS	$ 47,828,900	$ 75,902,865	$ 28,073,965	$ 8,919,200	$ 19,154,765
Pennsylvania State ERS	$ 30,204,693	$ 47,807,024	$ 17,602,331	$ 5,592,324	$ 12,010,007
Rhode Island ERS	$ 6,655,012	$ 13,874,704	$ 7,219,692	$ 4,728,195	$ 2,491,497
South Carolina RS	$ 25,183,062	$ 62,851,042	$ 37,667,980	$ 11,967,253	$ 25,700,727
Tennessee State and Teach	$ 26,335,199	$ 29,949,017	$ 3,613,818	$ 2,719,767	$ 894,050
Texas ERS	$ 23,509,622	$ 31,951,541	$ 8,441,919	$ 2,682,028	$ 5,759,891
Vermont State Employees	$ 1,217,638	$ 2,305,613	$ 1,087,975	$ 326,506	$ 761,469
Virginia Retirement System	$ 53,185,000	$ 70,641,764	$ 17,456,764	$ 13,138,000	$ 4,318,764
Washington PERS 1	$ 9,775,600	$ 12,617,909	$ 2,842,309	$ 4,208,900	$ (1,366,591)
West Virginia PERS	$ 3,248,270	$ 6,697,184	$ 3,448,914	$ 1,681,888	$ 1,767,026
Wisconsin Retirement Syst	$ 78,911,300	$ 79,182,864	$ 271,564	$ 193,300	$ 78,264
Wyoming Public Employee	$ 5,742,542	$ 8,333,428	$ 2,590,887	$ 823,134	$ 1,767,753
Mean	**$ 25,016,290**	**$ 41,850,616**	**$ 16,834,325**	**$ 6,295,476**	**$ 10,538,850**
Median	**$ 11,400,100**	**$ 25,021,758**	**$ 8,156,193**	**$ 3,994,115**	**$ 4,685,911**
Minimum	**$ 1,217,638**	**$ 2,031,281**	**$ 120,945**	**$ 82,956**	**$ (1,366,591)**
Maximum	**$ 244,964,000**	**$ 369,082,310**	**$ 124,118,310**	**$ 49,078,000**	**$ 75,040,310**

Source Data FMS Bonds, Inc., Municipal Bonds market index rate for 30-year bonds

Table 3 State Defined Pension Benefit Plans: Projected UAAL at 30-Year AA Tax-Free Municipal Bond Rate

State System	Projected Unfunded Actuarial Accrude Liability AA rated tax-free 30 Year Municipal Bond (4.60%)				
Defined Benefit Plan	Actuarial Value of Assets (2009) in Thousands $	Projected Value of Accrued Actuarial Liabilities	Projected UAAL	Actual 2009 UAAL	Projected UAAL - 2009 UAAL
Alabama ERS	$ 9,828,104	$ 20,083,243	$ 10,255,139	3,928,072	6,327,067
Alaska PERS	$ 6,108,528	$ 12,873,589	$ 6,765,061	3,593,558	3,171,503
Arizona SRS	$ 27,094,000	$ 45,880,820	$ 18,786,820	7,196,000	11,590,820
Arkansas PERS	$ 5,413,000	$ 9,394,365	$ 3,981,365	1,525,000	2,456,365
California PERF	$ 244,964,000	$ 347,912,525	$ 102,948,525	49,078,000	53,870,525
Colorado State	$ 13,382,736	$ 30,599,152	$ 17,216,416	6,594,481	10,621,935
Delaware State Employees	$ 6,744,050	$ 6,844,367	$ 100,317	82,956	17,361
Florida RS	$ 118,764,692	$ 161,654,046	$ 42,889,354	17,610,905	25,278,449
Georgia ERS	$ 13,613,606	$ 18,757,116	$ 5,143,510	2,264,416	2,879,094
Hawaii ERS	$ 11,400,100	$ 25,575,208	$ 14,175,108	6,236,300	7,938,808
Idaho PERS	$ 8,646,000	$ 13,820,607	$ 5,174,607	3,086,000	2,088,607
Illinois SERS	$ 10,999,954	$ 53,877,390	$ 42,877,436	14,298,392	28,579,044
Indiana PERF	$ 12,569,335	$ 14,553,979	$ 1,984,644	936,945	1,047,699
Iowa PERS	$ 21,123,980	$ 32,241,856	$ 11,117,876	4,894,614	6,223,262
Kansas PERS	$ 13,461,221	$ 25,155,852	$ 11,694,631	7,676,985	4,017,646
Kentucky ERS	$ 5,297,115	$ 17,958,216	$ 12,661,101	6,035,847	6,625,254
Louisiana SERS	$ 8,499,662	$ 23,854,181	$ 15,354,519	5,487,185	9,867,334
Maine State and Teacher	$ 8,383,147	$ 12,662,700	$ 4,279,552	3,994,115	285,437
Maryland PERS	$ 9,230,381	$ 23,478,369	$ 14,247,988	5,850,402	8,397,586
Massachusetts SERS	$ 19,019,062	$ 23,997,930	$ 4,978,868	5,843,359	(864,491)
Michigan SERS	$ 11,106,969	$ 17,587,084	$ 6,480,115	3,126,740	3,353,374
Minnesota State Employe	$ 9,030,401	$ 9,973,875	$ 943,474	1,482,359	(538,885)
Mississippi PERS	$ 20,597,581	$ 46,696,968	$ 26,099,387	9,996,965	16,102,422
Missouri State Employees	$ 7,876,079	$ 12,730,253	$ 4,854,174	1,618,727	3,235,446
Montana PERS	$ 4,002,212	$ 8,458,369	$ 4,456,157	790,607	3,665,550
Nevada Regular Employee	$ 19,158,282	$ 37,248,921	$ 18,090,638	6,929,338	11,161,300
New Hampshire Retiremer	$ 4,937,320	$ 13,949,027	$ 9,011,708	3,537,732	5,473,975
New Jersey PERS	$ 28,858,234	$ 72,544,997	$ 43,686,763	15,612,169	28,074,594
New Mexico PERF	$ 12,553,986	$ 18,700,412	$ 6,146,426	2,354,293	3,792,133
North Carolina Teachers	$ 55,818,099	$ 56,967,758	$ 1,149,659	2,360,173	(1,210,514)
North Dakota PERS	$ 1,617,148	$ 1,960,646	$ 343,498	284,053	59,445
Ohio PERS	$ 57,629,000	$ 107,039,695	$ 49,410,695	18,926,000	30,484,695
Oklahoma PERS	$ 6,208,245	$ 9,148,638	$ 2,940,392	3,083,213	(142,820)
Oregon PERS	$ 47,828,900	$ 71,114,532	$ 23,285,632	8,919,200	14,366,432
Pennsylvania State ERS	$ 30,204,693	$ 44,804,747	$ 14,600,054	5,592,324	9,007,730
Rhode Island ERS	$ 6,655,012	$ 12,643,304	$ 5,988,292	4,728,195	1,260,097
South Carolina RS	$ 25,183,062	$ 56,426,341	$ 31,243,279	11,967,253	19,276,026
Tennessee State and Tea	$ 26,335,199	$ 29,332,639	$ 2,997,440	2,719,767	277,673
Texas ERS	$ 23,509,622	$ 30,511,676	$ 7,002,054	2,682,028	4,320,026
Vermont State Employees	$ 1,217,638	$ 2,120,046	$ 902,408	326,506	575,902
Virginia Retirement Syste	$ 53,185,000	$ 67,664,315	$ 14,479,315	13,138,000	1,341,315
Washington PERS 1	$ 9,775,600	$ 12,133,121	$ 2,357,521	4,208,900	(1,851,379)
West Virginia PERS	$ 3,248,270	$ 6,108,932	$ 2,860,662	1,681,888	1,178,774
Wisconsin Retirement Sy	$ 78,911,300	$ 79,136,546	$ 225,246	193,300	31,946
Wyoming Public Employe	$ 5,742,542	$ 7,891,523	$ 2,148,982	823,134	1,325,848
Mean	**$ 25,016,290**	**$ 38,979,331**	**$ 13,963,040**	**$ 6,295,476**	**$ 7,667,565**
Median	**$ 11,400,100**	**$ 23,478,369**	**$ 6,765,061**	**$ 3,994,115**	**$ 3,665,550**
Minimum	**$ 1,217,638**	**$ 1,960,646**	**$ 100,317**	**$ 82,956**	**$ (1,851,379)**
Maximum	**$ 244,964,000**	**$ 347,912,525**	**$ 102,948,525**	**$ 49,078,000**	**$ 53,870,525**

Source Data FMS Bonds, Inc., Municipal Bonds market index rate for 30-year bonds

Table 4 State Defined Pension Benefit Plans: Projected UAAL at 30-Year A Tax-Free Municipal Bond Rate

State System	Projected Unfunded Actuarial Accrude Liability A rated tax-free 30 Year Municipal Bond (5.65%)				
Defined Benefit Plan	Actuarial Value of Assets (2009) in Thousands $	Projected Value of Accrued Actuarial Liabilities	Projected UAAL	Actual 2009 UAAL	Projected UAAL - 2009 UAAL
Alabama ERS	$ 9,828,104	$ 17,427,990	$ 7,599,886	$ 3,928,072	3,671,814
Alaska PERS	$ 6,108,528	$ 11,121,984	$ 5,013,456	$ 3,593,558	1,419,898
Arizona SRS	$ 27,094,000	$ 41,016,550	$ 13,922,550	$ 7,196,000	6,726,550
Arkansas PERS	$ 5,413,000	$ 8,363,513	$ 2,950,513	$ 1,525,000	1,425,513
California PERF	$ 244,964,000	$ 321,257,163	$ 76,293,163	$ 49,078,000	27,215,163
Colorado State	$ 13,382,736	$ 26,141,489	$ 12,758,753	$ 6,594,481	6,164,272
Delaware State Employ	$ 6,744,050	$ 6,818,393	$ 74,343	$ 82,956	(8,613)
Florida RS	$ 118,764,692	$ 150,549,164	$ 31,784,472	$ 17,610,905	14,173,567
Georgia ERS	$ 13,613,606	$ 17,425,362	$ 3,811,756	$ 2,264,416	1,547,340
Hawaii ERS	$ 11,400,100	$ 21,904,999	$ 10,504,899	$ 6,236,300	4,268,599
Idaho PERS	$ 8,646,000	$ 12,480,801	$ 3,834,801	$ 3,086,000	748,801
Illinois SERS	$ 10,999,954	$ 42,775,594	$ 31,775,640	$ 14,298,392	17,477,248
Indiana PERF	$ 12,569,335	$ 14,040,116	$ 1,470,781	$ 936,945	533,836
Iowa PERS	$ 21,123,980	$ 29,363,223	$ 8,239,243	$ 4,894,614	3,344,629
Kansas PERS	$ 13,461,221	$ 22,127,886	$ 8,666,665	$ 7,676,985	989,680
Kentucky ERS	$ 5,297,115	$ 14,680,012	$ 9,382,897	$ 6,035,847	3,347,051
Louisiana SERS	$ 8,499,662	$ 19,878,599	$ 11,378,937	$ 5,487,185	5,891,752
Maine State and Teacl	$ 8,383,147	$ 11,554,641	$ 3,171,493	$ 3,994,115	(822,622)
Maryland PERS	$ 9,230,381	$ 19,789,290	$ 10,558,909	$ 5,850,402	4,708,507
Massachusetts SERS	$ 19,019,062	$ 22,708,805	$ 3,689,743	$ 5,843,359	(2,153,616)
Michigan SERS	$ 11,106,969	$ 15,909,257	$ 4,802,288	$ 3,126,740	1,675,547
Minnesota State Empl	$ 9,030,401	$ 9,729,591	$ 699,190	$ 1,482,359	(783,169)
Mississippi PERS	$ 20,597,581	$ 39,939,332	$ 19,341,751	$ 9,996,965	9,344,786
Missouri State Employ	$ 7,876,079	$ 11,473,414	$ 3,597,334	$ 1,618,727	1,978,607
Montana PERS	$ 4,002,212	$ 7,304,584	$ 3,302,372	$ 790,607	2,511,765
Nevada Regular Emplo	$ 19,158,282	$ 32,564,905	$ 13,406,623	$ 6,929,338	6,477,284
New Hampshire Retire	$ 4,937,320	$ 11,615,722	$ 6,678,403	$ 3,537,732	3,140,670
New Jersey PERS	$ 28,858,234	$ 61,233,650	$ 32,375,416	$ 15,612,169	16,763,247
New Mexico PERF	$ 12,553,986	$ 17,108,984	$ 4,554,998	$ 2,354,293	2,200,705
North Carolina Teache	$ 55,818,099	$ 56,670,089	$ 851,990	$ 2,360,173	(1,508,183)
North Dakota PERS	$ 1,617,148	$ 1,871,707	$ 254,560	$ 284,053	(29,493)
Ohio PERS	$ 57,629,000	$ 94,246,312	$ 36,617,312	$ 18,926,000	17,691,312
Oklahoma PERS	$ 6,208,245	$ 8,387,313	$ 2,179,068	$ 3,083,213	(904,145)
Oregon PERS	$ 47,828,900	$ 65,085,432	$ 17,256,532	$ 8,919,200	8,337,332
Pennsylvania State ER	$ 30,204,693	$ 41,024,511	$ 10,819,818	$ 5,592,324	5,227,494
Rhode Island ERS	$ 6,655,012	$ 11,092,820	$ 4,437,807	$ 4,728,195	(290,388)
South Carolina RS	$ 25,183,062	$ 48,336,852	$ 23,153,790	$ 11,967,253	11,186,537
Tennessee State and T	$ 26,335,199	$ 28,556,544	$ 2,221,345	$ 2,719,767	(498,422)
Texas ERS	$ 23,509,622	$ 28,698,709	$ 5,189,087	$ 2,682,028	2,507,059
Vermont State Employ	$ 1,217,638	$ 1,886,395	$ 668,757	$ 326,506	342,251
Virginia Retirement Sy	$ 53,185,000	$ 63,915,340	$ 10,730,340	$ 13,138,000	(2,407,660)
Washington PERS 1	$ 9,775,600	$ 11,522,714	$ 1,747,114	$ 4,208,900	(2,461,786)
West Virginia PERS	$ 3,248,270	$ 5,368,252	$ 2,119,982	$ 1,681,888	438,094
Wisconsin Retirement	$ 78,911,300	$ 79,078,225	$ 166,925	$ 193,300	(26,375)
Wyoming Public Empl	$ 5,742,542	$ 7,335,110	$ 1,592,569	$ 823,134	769,435
Mean	**$ 25,016,290**	**$ 35,364,030**	**$ 10,347,739**	**$ 6,295,476**	**$ 4,052,264**
Median	**$ 11,400,100**	**$ 19,789,290**	**$ 5,013,456**	**$ 3,994,115**	**$ 1,978,607**
Minimum	**$ 1,217,638**	**$ 1,871,707**	**$ 74,343**	**$ 82,956**	**$ (2,461,786)**
Maximum	**$ 244,964,000**	**$ 321,257,163**	**$ 76,293,163**	**$ 49,078,000**	**$ 27,215,163**

Source Data FMS Bonds, Inc., Municipal Bonds market index rate for 30-year bonds.

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WHO MANAGES CASH FLOW?

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ABSTRACT

Who is responsible for cash management in your company? If you surveyed a group of managers, there is a good chance that many, if not most of the answers would be finance or accounting, depending on how a company is organized. In this paper, we explore why that perspective is much too limited, and why marketing and operations managers should be in the middle of cash flow discussions and decisions.

INTRODUCTION

Who is responsible for cash management in your company? If you surveyed a group of managers, there is a good chance that many, if not most of the answers would be finance or accounting, depending on how a company is organized. In this paper, we explore why that perspective is much too limited, and why marketing and operations managers should be in the middle of cash flow discussions and decisions.

First, we need to expand our subject from cash management to cash flow management. Flow implies inflow and outflow, and this is true for cash flow. Cash is generated through the operations of a business (the inflow); accounting and finance take care of the disposition or application of cash (the outflow). Table 1 is a slightly modified form of a cash flow statement and illustrates the separation of cash generation from cash application.

CASH FLOW STATEMENT

First, let's look at the history of cash flow statements. Today, there are three primary financial statements – income statement, balance sheet and cash flow statement. This has not always been the case.

For a long time – centuries, in fact – most businesses operated on a cash basis, so financial statements were essentially cash basis financial statements (Wikipedia 2011). Once accrual accounting came into popular use, the preferred financial statements were the balance sheet and the income statement. However, there were occasional glimpses into the need for cash flow reporting. Thompson and Buttross (1988) provide the following sequence of progression:

- 1863. The Northern Central Railroad issued a summary of financial transactions that reconciled the beginning cash balance and receipts to the disbursements and ending cash balance.
- 1893. The Missouri Pacific Railway Company issued a statement showing the resources and their application during the year.
- 1902. The United States Steel Corporation included a report that used current assets minus accounts payable as the definition of "funds."
- 1963. The AICPA, in Opinion No. 3, supported the preparation of a funds statement showing the source and application of funds.
- 1971. APB No. 19 modified APB No. 3 but the definition of funds was ambiguous and the suggested title, "Statement of Changes in Financial Position," uninformative.
- 1978. SFAC (Statement of Financial Accounting Concepts) No.1 provided renewed emphasis on cash flows and was further supported in SFAC No. 5, although not required.
- 1988. SFAS (Statement of Financial Accounting Standards) No. 95 requires a statement of cash flows when a "complete set of financial statements is issued."

Wampler, Smolinski and Vines (2009) argue that further modifications are needed in SFAC No. 95, particularly in the direct method of presenting cash flows.

After a long and heavily debated journey, cash flow statements are now an integral component of financial reporting, at least in public companies.

There is still considerable debate among scholars and public accountants between direct and indirect methods of presentation. However, most companies use the indirect method of presentation, which nicely connects the income statement with the balance sheet. For a more detailed explanation of these connections, see Crandall (2002).

Most cash flow statements have the following major categories:

- Operating activities – net income before depreciation and other non-cash items, plus working capital changes
- Investing activities – sale and purchase of investments, acquisitions and capital expenditures
- Financing activities – incurrence and payment of debts, stock issuance or purchase, dividends

Table 1 follows this format with some exceptions:

- Capital expenditures are included as part of operating activities
- Income taxes paid (deferred) are shown in investing activities (not an operating cost)

The central theme of this presentation is that marketing and operations functions have the responsibility of generating cash from their activities while the accounting and finance functions have the responsibility of using that cash for the benefit of the company and shareholders.

Table 1. Comparison of Cash Flows in Four Major Companies (dollars in millions)

	Cisco				Intel				Apple				Proctor & Gamble			
Cash	2008	2009	2010	Total	2007	2008	2009	Total	2008	2009	2010	Total	2008	2009	2010	Total
Net Income after Adjustments	7,949	6,214	7,544	21,707	6,798	6,989	4,539	18,326	4,856	8,261	14,037	27,154	11,791	11,059	10,066	32,916
Depreciation	1,744	1,768	2,030	5,542	4,546	4,360	4,744	13,650	473	734	1,027	2,234	3,166	3,082	3,108	9,356
Other Non-Cash Items	736	1,326	1,350	3,412	1,650	1,872	1,556	5,078	516	710	879	2,105	428	546	649	1,623
Cash from Direct Operations	10,429	9,308	10,924	30,661	12,994	13,221	10,839	37,054	5,845	9,705	15,943	31,493	15,385	14,687	13,823	43,895
Changes in Accounts Receivable	-317	388	-1,915	-1,844	316	260	-535	41	-785	-353	-4,860	-5,998	432	415	-14	833
Changes in Inventory	104	187	-158	133	700	-395	796	1,101	-163	54	-596	-705	-1,050	721	86	-243
Changes in Prepaid Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Changes in Other Current Assets	0	0	0	0	-1,429	193	299	-937	-1,958	163	-1,514	-3,309	0	0	0	0
Changes in Payables	62	-208	139	-7	102	29	-506	-375	596	92	6,307	6,995	297	-742	2,446	2,001
Changes in Other Current Liabilities	351	1,515	2,151	4,017	-248	-569	247	-570	5,642	0	0	5,642	0	0	0	0
Changes in Other Working Capital	2,232	-719	-491	1,022	633	-1,023	-241	-631	787	-542	1,875	2,120	-1,270	-758	-305	-2,333
Total Changes in Working Capital	2,432	1,163	-274	3,321	74	-1,505	60	-1,371	4,119	-586	1,212	4,745	-1,591	-364	2,213	258
Cash from Continuing Opeations	12,861	10,471	10,650	33,982	13,068	11,716	10,899	35,683	9,964	9,119	17,155	36,238	13,794	14,323	16,036	44,153
Investment in Capital Expenditures	-1,268	-1,005	-1,008	-3,281	-5,000	-5,197	-4,515	-14,712	-1,199	-1,213	-2,121	-4,533	-3,046	-3,238	-3,067	-9,351
Sale of Cpaital Assets														1,087	3,068	4,155
Total Cash from Operations	11,593	9,466	9,642	30,701	8,068	6,519	6,384	20,971	8,765	7,906	15,034	31,705	10,748	12,172	16,037	38,957
Available for Investing and Financing	11,593	9,466	9,642	30,701	8,068	6,519	6,384	20,971	8,765	7,906	15,034	31,705	10,748	12,172	16,037	38,957
Income taxes paid (deferred)	-772	-574	-477	-1,823	-443	-790	271	-962	-368	1,040	1,440	2,112	1,214	596	36	1,846
Sale (purchase) investments	-2,409	-8,489	-5,772	-16,670	-5,176	139	-700	-5,737	-6,760	-35,937	-36,023	-78,720	-50	0	0	-50
Acquisitions	-398	-426	-5,279	-6,103	-44	69	-853	-828	-220	0	-638	-858	-381	-368	-425	-1,174
Other investment activities	-118	-39	128	-29	294	-876	-1,897	-2,479	-10	19,716	24,928	44,634	928	166	-173	921
Debt increase (decrease)	-7,324	3,491	4,985	1,152	0	-40	1,893	1,853	0	0	0	0	-2,009	-81	-6,514	-8,604
Stock issue (purchase)	0	-2,748	-4,586	-7,334	264	-6,090	-1,362	-7,188	359	475	912	1,746	-8,180	-5,689	-5,283	-19,152
Dividend payments	0	0	0	0	-2,618	-3,100	-3,108	-8,826	0	0	0	0	-4,655	-5,044	-5,458	-15,157
Other financing activities	891	-154	222	959	364	212	9	585	757	188	345	1,290	344	-284	-122	-62
Net Investment and Financing	-10,130	-8,939	-10,779	-29,848	-7,359	-10,476	-5,747	-23,582	-6,242	-14,518	-9,036	-29,796	-12,789	-10,704	-17,939	-41,432
Net Increase (Decrease) in Cash	1,463	527	-1,137	853	709	-3,957	637	-2,611	2,523	-6,612	5,998	1,909	-2,041	1,468	-1,902	-2,475
Cash Balance	5,191	5,718	4,581		7,307	3,350	3,987		11,875	5,263	11,261		3,313	4,781	2,879	
Increase (Decrease) Cash as % of Cash from Operations				3%				-12%				6%				-6%
Dividends as % of Net Income				0%				-48%				0%				-46%
Depreciation as % of Capital Expenditures				169%				93%				49%				100%

Source: Market Watch (2011)

CASH GENERATION

The four companies shown in Table 1 are all well known and of approximately the same size. The cash generated by operations are in the $ 8-16 billion range annually. Generating this amount of cash requires marketing and operations to work together to generate the revenues and operations to manage the expenses to produce an acceptable income. It also requires the operations functions to manage the working capital to avoid accumulating assets that consume cash in the short term and may not be salable if held too long. Inventory and capital equipment are stored expenses; eventually those costs will be included as expenses in the income statement. Table 2 shows brief statements of the actions needed by marketing and operations managers to assure acceptable cash generation.

Table 2. Actions Required of Marketing and Operations Managers to Generate Cash

Cash Flow Element	Action by Operations
Revenues	Fast, on time, high quality complete shipments increase revenues. Good sales and operations planning is the key to achieving this.
Direct product costs and Operating expenses	Careful management keeps costs low. Programs such as lean manufacturing and Six Sigma are two current programs to do this.
Accounts receivable	Correct, complete, on time, and defect free shipments. Many suppliers want the complete order before they authorize payment.
Inventory	Have the needed quantities of the correct item, but no more. This is the never ending balancing challenge for operations managers
Accounts payable	Good supplier relationships can gain discounts and extended terms. Delaying payments does not always work over the long term.
Capital Investment	Careful management of capacity and currency of facilities. Maintaining currency is an essential core competency.
Sale of capital assets	It does not pay to be too far behind the curve. Careful maintenance and operations increases disposal value.

If the company has good products and strategies for exploiting those products, good operations managers can usually generate sufficient cash to keep the company competitive.

In looking at the four companies, they had different results in managing their working capital (receivables, inventory and payables).

- Cisco. Although their accounts receivable increased, their current liabilities increased even more, providing a net cash increase for the three-year period.
- Intel. Intel reduced their inventory over the three-year period by $1.1 billion, and reduced their liabilities, for a net decrease effect of $1.37 billion.
- Apple. Apple was in a rapid growth during this period. Their accounts receivable increased by $6.0 billion. At the same time, their liabilities increased by almost $14.0 billion, resulting in a cash increase of $4.75 billion.
- Proctor & Gamble. Their working capital accounts were relatively even insofar as cash was concerned. While their payables increases, other changes in working capital offset the increase in payables, resulting in a net gain in cash of $0.26 billion.

In general, the effect of working capital changes on cash were relatively small, compared to the total amount of cash generated from operations.

CASH APPLICATIONS

Once the cash has been generated, it is the responsibility of the finance and accounting functions to manage that resource well. Table 1 shows each company had somewhat different uses for that cash.

Cisco. Over a three-year period, Cisco generated $30.7 billion cash, after capital expenditures. They used $16.7 billion to purchase short-term, or near-cash investments, $6.1 billion for acquisitions, and $7.3 billion to repurchase stock. The net increase in cash over this three-year period was about 3% of the total generated. They did not pay a stock dividend. Their depreciation expense was 169% of their capital

investments, which may suggest they were delaying capital expenditures or increasing their outsourcing commitments as a means of reducing capital investment.

Intel. Over a three-year period, Intel generated $21.0 billion cash. They used $8.2 billion to purchase investments, $7.2 to repurchase stock, and $8.8 billion for dividend payments, about 48% of net income. Their cash balance decreased about 12% of the cash from operations. Their depreciation expense was 93 percent of the capital expenditures, which indicates they continued to invest in in-house resources.

Apple. Over a three-year period, Apple produced $31.7 billion. It is also interesting to note the amount generated in 2010 was about equal to the total from the two previous years. They used a net of $32.0 billion to purchase investments, and increased cash by $1.7 billion from stock issuance. Their cash balance increased by about 6% of the cash from operations. However, their cash balance of $11.3 billion was more than the other three companies combined, a result of their rapid growth during these years. Their depreciation expense was about 49% of their capital expenditures, which suggests they are investing at a faster rate, probably to keep up with their rapid introduction of new products and their subsequent success.

Proctor & Gamble. Over a three-year period, P&G generated $39.0 billion, more than any of the other three companies. They did little in the investing area, with $1.2 billion expended for acquisitions. They paid down debt by $8.6 billion, repurchased stock of $19.2 billion and paid dividends of $15.2 billion. Their cash balance decreased by about 6% of the cash generated from operations. They paid 46% of their net income to dividends, and their depreciation to capital expenditures ration was 100%, indicating a continuing commitment in this area.

This brief review of the cash application areas shows that companies have different strategies for using the cash generated by their marketing and operations functions.

CONCLUSIONS

Historically, marketing and operating managers have been primarily concerned with the income statement because of their focus on sales and product costs, the heart of most income statements. On the other hand, finance and accounting managers have been primarily concerned with the balance sheet, because their primary concern is with the assets and liabilities of the organization. It appears a logical meeting place for these functions is with the cash flow statement, which provides the links between the income statement and the balance sheet.

Accounting and other finance managers play an essential role in cash flow management. They must do the forecasting, participate in resource allocation decisions, and monitor and report the results. However, marketing and operations managers also play an important role and the companies that recognize the need to integrate them with finance in an active and effective way will realize the benefits in increased and more effective cash flows.

Cash flow management should not be confined to business organizations. Governments, at the local and national level, are rediscovering the need for better cash management. Being "asset rich" sounds attractive, but if being "cash poor" accompanies it, most businesses would be better off not going that route.

The period shown in Table 1 covers the heart of the economic downturn. It will be interesting to see how companies deploy their available cash as they invest in the future. A survey by CFO Magazine reports that finance executives are increasingly optimistic and welcome 2011 as a year to "loosen their purse strings." (O'Sullivan 2011). CFOs in Asia are the most optimistic, CFOs in Europe the least optimistic, and CFOs in the United States in the middle. The larger companies plan to hire more workers, both in offshore locations and domestic. In addition, they plan to spend nearly 9% more on capital expenditures, nearly 5% more on technology, and 4% more on R&D. Smaller companies will continue to struggle because of credit constraints. Banks are still reluctant to lend to smaller companies, so operations managers will have to continue to be diligent in their use of company resources.

The stage is set. If companies are going to invest in expansion activities, marketing and operations managers will have another opportunity to demonstrate their critical role in cash flow management. They will be under continuing pressures to manage working capital, especially inventory, and capital equipment utilization. Of course, that has always been the case, hasn't it? If companies are to achieve the best results from their cash flow management, they should use a combination of marketing and operations with finance and accounting members in their cash management team.

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DISTORTIONS FOR CONSTRUCTION CONTRACTORS: IMPLICATIONS OF REVISED REVENUE RECOGNITION STANDARDS

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ABSTRACT

As every seasoned accountant knows, there are acceptable variations in revenue recognition practices between industries. In fact, the accrual method has not been generally accepted under U.S. generally accepted accounting principles for construction contractors, where in most cases, the percentage-of-completion method should be applied. This paper addresses the historical antecedents for revenue recognition by construction contractors, efforts by the FASB and IASB to arrive at a satisfactory convergence project on the issue of revenue recognition, and the problems associated with implementation of a new revenue recognition standard for construction contractors in the United States.

INTRODUCTION

The convergence approach by the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) has some limited success with the financial instruments project, but in some other areas such as leases and revenue recognition, responses have been far from uniform, and cloture for uniform standard revision appears far down the horizon. Revising revenue recognition considerations is part of a series of joint projects undertaken by the FASB and the IASB, consistent with the direction of convergence agreed upon by both Boards. Under convergence, any major proposed standard is mutually exposed, inciting comments from a global audience. Construction contractors, an industry filled with firms of various sizes, and in entrepreneurial nations, consisting of a large number of players, the formal accounting focus on revenue recognition, using percentage-of-completion accounting, carries an income statement emphasis. The proposed standard would impact all entities with contracts with outside customers, whether the entity is public, private or a non-profit organization (Lindberg, 2010). The proposed standard would have an entity recognize revenue based on satisfying a contract obligation based on changes in the balance sheet, where revenue is deferred until obligations are satisfied.

PROPOSED STANDARD BY THE BOARDS

With respect to the FASB Codification, the proposed standard would supersede most of the guidance currently provided in the Accounting Standards Codification, Topic 605. The standard affects any entity entering into contracts to provide goods or services which are central to the entity's ordinary activities. Goods or services include the construction or development of an asset on behalf of a customer. The standard would alter the traditional procedures of percentage-of-completion accounting by calling for a series of steps in recognizing revenue. First, the contract or contracts with each customer must be clearly identified. Second, performance

obligations in each contract must be separately identified. Third, the transaction price must be determined on a basis with consideration given to both cash and non-cash effects. Fourth, once the transaction price is determined, that price must be allocated to the separate performance obligations. Finally, revenue is recognized when the entity satisfies each performance obligation.

COST AND MANAGERIAL ISSUES

When do costs attach? Immediate expensing is required under the proposed standard for the costs of obtaining contracts. Capitalization is required if costs incurred in contract fulfillment are related to directly to the contract, generate or enhance resources of the entity which would be used in satisfying future performance obligations, and are fully anticipated to be recovered. The gross profit recognition is dependent upon select revenue and costs timing. Purists point to revenue recognition under U.S. GAAP as the culmination of an earnings process as described in Concepts Statement No. 5 of the FASB. And some authorities envision problems because the notion of an earnings process is "insufficiently precise" (Schipper, 2000). With specialized industries such as those involving long-term contracts, the percentage-of-completion method satisfied the need of many for appropriate and timely cost attachment, and hence, revenue recognition.

WORKING PRACTICE FOR CONSTRUCTION CONTRACTORS

The proposed standard if implemented would represent a major departure from the vanguard SOP 81-1, Accounting for Performance of Construction-Type and Certain Production Type Contracts. (AICPA, 1981). As currently written, the proposed standard misses the mark of delivering any enhancements in financial accounting and reporting. Furthermore, the costs associated with the revenue recognition procedures being proposed greatly exceed any benefits for preparers, users, external accountants, and other parties. These concerns fall into three major categories: theory of good, appropriate accounting, the practice of good, appropriate accounting, and the dangers associated with universal adoption ignoring preparer and user needs. Accordingly, experience with traditional revenue recognition from both the theoretical and practical side point to a highly successful mechanism for financial accounting and reporting, and efforts to make "one size fit all" will not be expedient.

IMPROVEMENTS IN THEORY?

Accrual accounting is not always generally accepted (GAAP). Construction contractors in the U.S. have been operating well for over half a century under the authoritative guidance found in the Accounting Research Bulletin on preference for percentage-of-completion accounting, and the more detailed procedures and guidance found in the Statement of Position and related Accounting and Audit Guide for contractors. Under those standards, management provides information in the financial statements which addresses all the key issues of financial reporting, including the concepts of timing of revenue realization, as well as cost or expense matching. It is not clear that changes described in the exposure draft would in any way improve the conceptual

underpinnings, or lead to information any more useful for the informed decision-makers in the industry group.

IMPROVEMENTS IN PRACTICE?

Not only could distortions result from internal management reporting, but a severe effect would be felt on decisions made by external financial statement users. Banks and sureties rely on information generated from the percentage-of-completion financial statements. Job schedules are frequently keys to making informed decisions by bonding agents who subscribe to benefits derived from percentage-of-completion accounting. Those schedules are based on competitive overhead and include the best estimates of costs and tracking methods that are reasonably feasible. The spread between accrual and percentage-of-completion accounting is reconciled through the asset, underbillings, and the liability, overbillings. Over and under billed amounts would be distorted if components of jobs were arbitrarily decomposed. Financial institutions demand clear-cut information for compliance on working capital metrics. By shifting the income statement emphasis realized under percentage-of-completion to the balance sheet emphasis of performance obligations and liabilities, historical benchmarks of working capital become skewed. Covenants and other agreements based upon the prior sound accounting infrastructure would carry less meaning.

WHAT SHOULD BE THE FOCUS?

Allocation and timing issues continue to be areas hotly contested. Researchers comparing US GAAP with IFRS find that the most significant differences in revenue recognition concerns the issues of those contracts which are long-term and upon which payments are deferred until future periods (Bohusova, 2009).

The Boards' deliberations on issues outside of revenue recognition are not always consistent, which may well be appropriate in what is needed for smaller entities is a flexible focus. While some recently issued standards have addressed general needs and have been packaged in such a way as to not impede economic progress and yet improve financial reporting (for example, the "Subsequent Events" standard), one size, or one methodology, does not fit all prepares and users. Small and mid-size construction contractors in the United States of America operate in an environment far different from both large contractors in this country, as well as firms of various sizes internationally. While the FASB in partnering with other standard setters and advisory groups, and in forming the Blue Ribbon Panel to evaluate critical issues for private company reporting should be applauded, the current efforts on global standard setting and complete convergence with international standards works at cross purposes.

Guidance currently found under percentage-of-completion accounting works well in the overall management of the process—from bidding on jobs through completion and reporting. This has been a time-tested method that delivers results of truly satisfying the needs of fulfillment on "performance obligations." Any perceived broken pieces to a revenue recognition puzzle should be properly assessed and evaluated, prior to setting a global standard which fails to deliver meaningful results.

IMPACT ON THE SMALL BUSINESS OWNER

Arbitrarily splitting or segmenting jobs on construction contracts is far from desirable. Performance obligation levels provide complexities and produce the additional risk of having a measurement system which unnecessarily generates less consistency and transparency. Subjectivity breeds manipulation. Any given construction project may have highly interrelated risks which cannot be easily decomposed. When such risks are inseparable an entity does not have the basis assumed in the proposed standard to designate what components of a contract it could sell separately. In reality, for many of the jobs bid by the smaller contractors there is only a single performance obligation.

Comment Letters submitted to the FASB reveal that surety companies are very reluctant to embrace the changes that would be imposed. There is a sense of general satisfaction with the current process, using strong cost estimates, by professionals, to produce traditional revenue recognition amounts per contract. Overhead allocations will become even further complex. Statement of Position 81-1 has worked well for years, is widely accepted by both the surety and the banking industry, and leads to accurate, objective and useful revenue recognition for construction contractors. The small construction contractor incurs significant costs in obtaining skills for bidding estimates. The Boards appear to not appreciate that additional costs would be incurred, and such would be not easily absorbed by these smaller entities.

COSTS RELATED TO OTHER PARTIES

The realities of commerce and the association of various parties in the delivery of relevant information should be considered. The work of external CPAs and their accounting and auditing practices rendering assurance services on the financial statements would likely be accompanied by fee increases. Compliance with statutory requirements, such as Internal Revenue Service, will bring forth additional costs in reconciling book to tax temporary differences. Benchmarking as a whole and materiality measurements will be skewed as new, complicated accounting methodology is applied. Performance obligations are not the measurements sought or needed by any of these parties.

RECOMMENDATIONS

Should revenue recognition accounting be changed for construction contractors? The AICPA's Financial Reporting Executive Committee concluded in December, 2010 that the standard "May be neither practical nor operational for preparers and auditors to apply without undue cost." (Lamoreaux, 2011). The impracticality was also identified by the American Accounting Association's Financial Accounting Standards Committee (AAA FASC), using a recognition prior to title transfer (Colson, 2010). With both the AICPA and AAA expressing concern about the suitability of the proposed standard for construction contractors, it is not surprising that the standard is not expected to be quickly finalized.

Should financial accounting rules be changed that in no great way do anything to enhance the managerial accounting and specific needs of the construction contractor and other parties? The Boards need not rush to cloture on setting binding financial accounting rules in those areas that does not need fixing. The current financial reporting model for construction contractors may not be perfect, but the Boards have not provided a proposed standard that improves satisfying user needs, but only one that increases costs to the various parties. With an astounding 972 formal letters of comment submitted, the Boards have their hands full. While the comments appear to run generally in favor of the status quo, the Boards' dissection and analysis of the various views are likely to take time. The initial target of July, 2012 for a new sweeping pronouncement appears to be more unlikely with the passage of time. Adoption of a revised revenue recognition standard to apply to the small U.S. construction contractor is still safe—but for how long?

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PATHWAYS COMMISSION SEEKS IMPROVEMENTS IN ACCOUNTING EDUCATION TO MEET GROWING DEMANDS OF ACCOUNTING PROFESSION

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PURPOSE AND SPONSORSHIP OF PATHWAYS COMMISSION

The Commission on Accounting Higher Education: Pathways to a Profession, commonly referred to as the Pathways Commission, was recently jointly formed by the American Accounting Association (AAA) and the American Institute of Certified Public Accountants (AICPA) for the purpose of studying potential future higher educational paths of students preparing for entry into the accounting profession. As noted in a recent news release of the AICPA (PR Newswire, August 3, 2010) the need for the Pathways Commission is mandated from forces affecting accounting education, including the shortage of qualified instructors with accounting doctorates, the need to regularly revise the accounting curricula to keep up with fast-paced business changes, and the need for specialized training to meet the demands of the accounting profession.

The Pathways Commission describes itself on its homepage available at the AAA Commons site (Pathways Commission, 2011) as "Charting a National Strategy for the Next Generation of Accountants," and states that the "Commission will identify, explore and establish a national higher education strategy for the accounting profession broadly defined. The Commission's activities also will be guided by the social purpose of accounting to consider the information right of capital providers, particularly individuals who are the core source of property at risk in the marketplace, as well the economic purpose of accounting, to provide timely information to those who are the decision makers employing and directing the use of such resources."

TIMELINE OF COMMISSION'S ACTIVITIES

As noted in *Accounting Education News* (American Accounting Association, 2010), the official kick-off for the Pathways Commission was a panel session on August 3, 2010 at the AAA Annual Meeting in San Francisco. The Commission convened its first formal meeting on October 15 - 17, 2010 in Washington, D.C. An all day public meeting in Atlanta on February 26, 2011 convened to hear and evaluate thoughts and ideas submitted by interested individuals and organizations. Both co-authors of this paper attended this meeting. The Commission organized a Webinar in March 25, 2011, met on June 10, 2011, planned Webinars on June 27, 28 and 29, and meetings on September 16-18, 2011 in Knoxville, Tennessee and on November 4-6, 2011 in Atlanta Georgia. The Commission's goal is to create a final report in 2011.

U S. TREASURY ADVISORY COMMITTEE ON THE AUDITING PROFESSION PROVIDED IMPETUS FOR FORMATION AND GOALS OF PATHWAYS COMMISSION

According to the Pathway Commission Homepage, as well as reports by the American Accounting Association (2010) and AICPA (2010), the U.S. Department of the Treasury Advisory Committee on the Auditing Profession (ACAP) identified in its October 2008 report

contemporary forces affecting human capital requirements for the broader accounting profession. Among the Treasury Advisory Committee's recommendations was that the AAA and AICPA form a commission to study the future structure and content of accounting education. A major purpose of the Pathways Commission is to fulfill the goals of those recommendations, and consider the Treasury Advisory Committee's human capital recommendations.

NEED FOR COMMISSION'S GOALS TO IMPROVE ACCOUNTING EDUCATION AND THE ACCOUNTING PROFESSION FOR ALL STAKEHOLDERS

Comments of Barry Melancon, CPA, AICPA president and CEO

In the AICPA news release (PR Newswire, August 3, 2010) Barry Melancon, CPA, AICPA president and CEO, who served on the Human Capital Subcommittee of the U.S. Treasury Advisory Committee on the Auditing Profession, noted "Interest in accounting as a career is the highest it's ever been and underscores the need to make sure the educational infrastructure remains solid and able to meet the profession's evolving requirements." As noted in the release, "The importance of public, private, governmental, and not-for-profit accounting information to the functioning of the economy cannot be underestimated, according to the AAA and AICPA." The accounting profession produces, analyzes, interprets and prepares reports about financial and operation information, and stakeholders rely on accounting information to make crucial decisions.

Joint Efforts of AICPA and AAA in Pathways Commission –Comments of Gary Previts

Gary Previts, Ph.D., CPA, Professor of Accountancy at Case Western University and chair of the Treasury Committee's Human Capital Subcommittee, emphasized the joint involvement of the AAA and AICPA in the Pathways Commission, as well as the necessity for preparation of a wide range of members of the accounting profession. He notes in the AICPA news release (PR Newswire, August 3, 2010) "As an educator and member of both organizations, I'm encouraged that the AICPA and AAA are working together to ensure that the accounting profession remains a robust and essential profession. We need to ensure that everyone engaged in the practice of accounting, filling a wide range of positions in the public, private, not-for-profit and government sectors of our economy, is prepared to meet the information needs of the public, organizations, lenders and the capital markets, thereby protecting the public interest."

COMMENTS OF PATHWAYS COMMISSIONS CHAIR BRUCE BEHN

Commission's Supply Chain Approach

In a recent interview reported in the *Journal of Accountancy* (October, 2010), Commission Chair Bruce Behn, Ph.D., CPA, Ergen Professor of Business at the University of Tennessee, who has served in leadership positions in the AICPA, AAA and Federation of Schools of Accountancy, discussed his thoughts and impressions about the Commission, as well as some of the issues and opportunities on the Commission's agenda. Behn noted that although there are a number of organizations and individuals that impact the accounting education pathway, rarely do they collaborate to address the tough issues affecting all parties in the supply and demand sides of accounting. The Commission's supply chain approach is a way to facilitate

the needed interaction by engaging in a broad group of stakeholders in the accounting supply chain to tackle together the issues cutting across functional boundaries, and identify issues that need work. The Commission is seeking broad input, for example through invitations to its first public meeting on February 26, 2010 (which the co-authors of this paper are planning to attend) and by seeking broad input from comments and discussion encouraged on the Pathways Commission Homepage.

In the interview Behn noted that to have a good academic community, members are needed from different backgrounds, noted that he himself worked for a number of years before going into academics. He praised the Accounting Doctoral Scholars Program (ADS) administered by the AICPA Foundation and funded by more than 70 firms and 40 state CPA societies, and the Bridge Program administered by the Association to Advance collegiate Schools of Business (AACSB). However he noted that everyone has a different perspective, and that even when we are doing good things, it is not broad enough. Again in comparing the accounting to the medical profession, Behn indicated that whereas it is imperative that researchers in the medical profession work together to solve medical issues, in the accounting discipline the research and practice sides can sometimes seem disconnected.

In the Journal of Accountancy (2010), interview Behn noted that the Commission is actually getting over a hurdle if it gets a broadly representative group of people talking at the same table about the same issues and opportunities. He states "The best-case scenario is we have a structure in place so that this momentum can continue, because our profession and its needs are going to change." He went on to say that "After the first stage, there are plans for a second stage that would operationalize the recommendations from stage one. But I think just having all the different stakeholders represented in the supply chains is really going to be a big contribution to this entire process."

In another interview, Behn has made similar comments. For example as noted in the AICPA news release (PR Newswire, August 3, 2010) he said will be innovative in several ways. He states "First, we plan to seek input from the full spectrum of the accounting community in our deliberations. We will use a 'supply chain' approach. Members of the supply chains will include individuals and representatives from organizations that impact the various current accounting education pathways. Our goal is to facilitate an open, transparent discussion to be supported by both technology and public discussions. Second, the Commission recognizes the difficulty of sustaining the momentum for change in the dynamic environment of accounting practice and education. The Commission's efforts are structured to continue into the future."

In the AICPA *Accounting Education News and Publication* report on the Pathways Commission (2010) published on its website, Behn was quoted as saying "For the first time in history we have assembled all the key players in accounting education; high schools, community colleges, universities, corporations, regulators and CPA firms. Everybody is at the table. What we are looking for is input on how we prepare students to become accounting professionals in a modern marketplace. We are interested in strategic questions: How do we attract diverse talent and retain people through their career paths? What should the educational pathways be for accounting? What are those pathways now and what should they look like in the future?"

No Real Current Structure of Accounting Education

In the *Journal of Accountancy* interview (October, 2010), when asked about the current structure of accounting education, Behn replied that there really is not one structure because states have their own regulators, colleges and universities have different missions and different graduation requirements, and students from these schools enter may different accounting roles, resulting in variability in how students define themselves as accounting professionals. When asked if a good first step would uniformity, Behn replied "Not uniformity, but a better understanding, development and communication of different potential pathways to the accounting profession. By analogy, in the medical profession, there have to be different pathways for an individual to become a neurosurgeon, as opposed to a primary care physician. In the same way, there could be different pathways to becoming a public company auditor versus a controller, versus somebody who works in government."

Need for Diverse Accounting Profession

In the same interview Behn also emphasized that if the accounting profession is going to be successful, we as an accounting profession cannot look the same in 20 years, but must have a diverse profession, because the companies and organizations we work with are diverse. Behn believes that anything that can be done regarding this issue will be addressed by the Commission. He noted that for example the Commission's supply chains included representatives for the Association of Latino Professionals in Finance and Accounting (ALPFA) and the National Association of Black Accountants (NABA).

Importance of Starting Early to Attract High Potential Accounting Professionals

In the interview Behn noted that our profession offers a great many careers and spoke of the importance of enhancing our profession by articulating this to high schoolers and college undergraduates. According to Behn, "If together we have a more clear and compelling story about the pathways to the accounting profession and start telling people this, especially at the high school and maybe grade school level, we will have more opportunities to attract high-potential candidates into our profession."

"Gathering Storm" Report's Chair Emphasized Importance of Commission's Work

Behn also mentioned in this interview that he had an opportunity to talk with Norm Augustine, the former CEO of Lockheed Martin who chaired the committee which produced the Gathering Storm report, "Rising Above the Gathering Storm: Energizing and Employing American for a Brighter Economic Future," The report, which has an Executive Summary on the Pathways website, examined how quality of life in the United States could be threatened by lack of innovation and this job creation resulting from falling behind the world in math and sciences. Behn said that it was nice to hear Norm Augustine say "You actually have a better argument than we did for doing this type of work, because accounting is critical to the quality of life in the United States. Without your accounting information, none of these systems would work."

MEMBERS OF PATHWAYS COMMISSION

As noted in the AICPA news release (PR Newswire, August 3, 2010), and mentioned above, the Pathways Commission Chair is Bruce Behn, Ergen Professor of Business at the University of Tennessee. The other members are William Ezzell, National Managing Partner-

Legislative and Regulatory Relations, Deloiite LLP; Leslie Murphy, President and CEO, Murphy consulting, Inc.; Judy Rayburn, Chair, Department of Accounting Carlson School of Management, University of Minnesota; Jerry Strawser, Dean and KPMG Chair in Accounting, Mays Business School, Texas A&M University; and Melvin Smith, Dean, Whitman School of Management, Syracuse University.

PATHWAYS COMMISSION RECEIVING INTERNATIONAL ATTENTION

The Pathways Commission has received international attention. According to an report in the *Accountant* (Anonymous, 2010) published in London, the Pathways Commission is considering ways to make education paths leading to accounting qualification in the U.S. more flexible and effective. The British report noted that the Commission's recommendations may address a shortage of qualified account PhDs, the need to regularly revise curricula to keep up with the fast pace of business changes, and problems with university budget constraints that threaten to increase education costs to prohibitive levels.

INVITATION TO THE PUBLIC TO PARTICIPATE IN PROVIDING INPUT ON HOW BEST TO PREPARE STUDENTS FOR ACCOUNTING IN MODERN MARKETPLACE

The Pathways Commission is seeking public comment and recommendations on future paths of higher education for the accounting profession for its public meeting in Atlanta, GA, on February 26, 2011 at the Marriott Gateway Atlanta Airport Hotel. The meeting is open to the public. Both co-authors of this paper are planning to attend the full-day meeting and share firsthand knowledge of the meeting proceedings with participants of the Southeast Regional American Accounting Association meeting. The Commission has noted (Pathways Commission, 2011) that involvement is critical and that their goal is to generate engagement with the broad community in the accounting education process, with priority on involving perspectives from across the "supply chain" of the path through education to practice. The Commission stated that they are "looking for input on how best to prepare students to practice, think about, and understand critical issues in accounting in the modern marketplace," and listed some of the questions and issues that will be discussed as follows:

What is the value proposition for a broadly defined accounting profession?
Who/What are our current/future markets for accounting information and professionals?
What are the skills that future accounting professionals will require?
How do we attract adequate numbers of high potential, diverse students/talent into the accounting profession and retain these students throughout their educational and professional pathways?
What should be the accounting educational pathways?
How do we eliminate structural impediments or better align existing systems to enhance effective accounting education?"

FUTURE DIRECTIONS OF CURRENT PAPER

As previously mentioned, both co-authors of this paper attended the Pathways Commission's full-day public meeting in Atlanta on February 26, 2011. At the 2011 SEINFORMS Conference, the co-authors will have the opportunity to share the Commission's activities and outcomes, as

well as provide an overview of some of the feedback received from various constituents and posted on the Pathways Commission website related to this and other Commission activities and meetings.

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CHALLENGES OF TEACHING ACCOUNTING INFORMATION SYSTEMS

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ABSTRACT

With SOX, HIPPA and similar laws being enacted by the government it is becoming increasingly important for accounting students to understand data processing systems. They need to learn data, processes and how data flows between departments, systems etc to generate compliance reports. This expertise is provided by accounting information course (AIS) by the universities. This is a hybrid course which takes contexts from many disciplines, notably information systems and accounting. However teaching AIS course is a challenge. Based on our experience we provide some insights hat maybe useful for professors planning to teach AIS course.

INTRODUCTION

As corporate scrutiny intensifies it is becoming mandatory for accounting students to have in-depth knowledge of accounting "processes" within an organization. In addition, many large accounting firms are becoming service companies providing "full" services including risk mitigation, forensics and compliance. According to Ernst & Young, "Enterprise governance, risk and compliance (GRC) represents the actions that an organization takes to achieve its performance objectives and manage risk." In addition, they stress that an organization cannot survive without information and support systems. According to Deloitte Inc., another service oriented accounting firm, "Emerging technologies impact how clients are served, how employees communicate and how companies market. They also shape security and privacy risks and solutions" implying knowledge of emerging technology is becoming essential for accountants. AICPA report emphasizes the role of IT, ".. because technology plays such a vital role in business success, the CPA increasingly is called upon to assess and explain its impact on the management of financial information. It is clear that future accounting student must learn information systems. Universities are meeting these demands by including accounting information system (AIS) as part of their accounting curriculum. AIS course should help students learn and identify "processes" as data and documents move through the accounting systems. It is important to teach critical thinking, IT leveraging and life long learning to accounting students. Bolt-Lee and Foster (2003), however, reported that entry level accountants are not well prepared, especially in the areas of changing technology. The question becomes what should an AIS course include and how it should be taught? This paper presents pedagogy used to teach accounting students and resulting challenges. We provide insights for instructors who are or maybe interested in teaching this course. The next section describes the AIS course and the following section compares the delivery modes and the experiment.

ACCOUNTING INFORMATION SYSTEMS (AIS)

AIS is defined as a course that, " ..combines the study and practice of accounting with the design, implementation, and monitoring of information systems. Such systems use modern information technology resources together with traditional accounting controls and methods to provide users the financial information necessary to manage their organizations" (Henson, 2006). AIS course, for an accountant it is an accounting course with IT application and for an MIS educator it is an IT course with accounting applications (Romney; Cherrington & Denna, 1976). It is important to

find common ground between the two. Many accounting texts have identified AIS related topics that should be covered in an AIS course. Given MIS, Accounting requirements and AICPA requirements, the AIS course at a mid western university, developed following learning objectives:

- Identify the primary methods of collecting and processing data about an organization
- Illustrate the use of a database management system
- Identify and illustrate system development and documentation techniques
- Explain computer based information systems control
- Understand and illustrate the use of accounting forensics in a fraud situations
- Identify system development and system analysis techniques
- Understand the XBRL importance

As evidenced by the course objective, AIS includes information systems with accounting applications. This course is a *a*typical accounting course since there is no number crunching and in many cases outcomes maybe approximates (or many) rather than absolutes. In addition to knowledge of accounting and information technology (IT), the AIS course requires competency in several software. At a minimum it would require following software competencies:

- Database
- Accounting software
- Graphic software

Since many students do not have IT background they need to develop three competencies related to each of these software:

- Develop problem solving skills
- Learn software
- Apply it to accounting applications

Next section describes the AIS course experiment at the university and discusses desirable competencies that will prepare students for a successful AIS course.

The AIS Course Experiment

The AIS course is taught both in class and online. The current course covers following major topical areas in the context of AICPA core competencies:

- Decision Modeling:
- Risk Analysis
- Leveraging technology
- Measurement
- Reporting

Teaching Pedagogies:

In addition to traditional methods, we are using following pedagogies in this course.

- role playing
- cases
- videos

Many authors (Cronin_Jones, 2000; Gangel, 2009,Blanter, 2009, Blanter et. al, 1997) have recommended role-playing as a viable teaching pedagogy . While stressing the importance of role

playing, Blanter et al (1997), summarized, ".. it (role playing) can help them (students) become more interested and involved, not only learning about the material, but learning also to integrate the knowledge in action, by addressing problems, exploring alternatives, and seeking novel and creative solutions". Accounting forensic is taught using role playing.

ANALYSIS AND RESULTS

We found that accounting students have a different mindset and are looking for "exact" numbers and answers. However information systems is not an exact science. There can be many correct feasible answers for the same problem. This creates problems and many students lose interest. To avoid this we recommend using use cases, videos and role playing. In fact some concepts are better taught by role playing and some by using case studies. We propose following pedagogy for the following major topical areas. These areas are based on the AICPA core competencies:

- Decision Modeling: use case analysis
- Risk Analysis: use role playing
- Leveraging technology: use cases
- Measurement: Videos and demonstration
- Reporting: hands on experience

The above pedagogy is based on our experience. We found a mix of cases, video, role playing, lab sessions keep students interested in the course and at the same time makes learning feasible. Every professor, of course, will have to customize the above approach for their environment. We are continually improving the AIS course. Next we plan to incorporate XBRL in the course and use lab for this purpose. We did find that complexity of database normalization can be quite challenging for students and we recommend to avoid those concepts.

CONCLUSION

Advances in information technology are automating accounting systems, reports and management support systems. In addition, more and more computer-based frauds are committed. It is important for accounting students to understand digital accounting processes, data management, automated reporting, digital fraud and accounting forensics. Many functional areas have come under scrutiny for fraud, embezzlement of funds, information gaps, etc., and many are committed to using information technologies to solve them. AIS course should help student understand how data and documents move and how controls can be placed in the process to mitigate risks. This paper is an attempt in that direction.

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APPLICATION OF CAMTASIA STUDIO FOR THE ENHANCEMENT OF LEARNING IN ACCOUNTING INFORMATION SYSTEMS COURSE

ABSTRACT

This paper describes the author's experience with the application of Camtasia Studio software for the development of video based instructional materials for the enhancement of students' learning in Accounting Information Systems course. Per exam results, the students' performance in the areas for which Camtasia based videos were developed had improved over the semester.

INTRODUCTION

There are a number of ways for the delivery of the course contents for students' learning. Instruction through video is another way of learning. Video learning follows the principle that "Picture is worth a thousand words". Video learning allows learner to learn at their own pace (Kearney and Schuck, 2011).

The Camtasia Studio software is published by TechSmith. The software captures the action from computer screen along with the instructor's audio explanation from a microphone and saves it to a video file. This screen-recorded video file could then be used by students at their own pace on a 24 hour-seven-day per week basis.

THE PURPOSE OF THE PAPER

Using the Camtasia software, the author created five videos for the Accounting Information Systems course – one video for the application of Peachtree for designing a relatively simple general ledger accounting system, one video for the application of QuickBooks for designing a relatively simple general ledger accounting system, and three videos for the application of Access for designing a relatively simple accounting database. The purpose of the videos was to enhance the students' learning by providing them with an additional opportunity to review the instructor's in-class presentation on the topics. This paper intends to discuss the experience of the author from the start of the project to the end results.

IMPORTANCE OF THE STUDY

There are times that some students don't get the entire class presentation or miss the class. For these incidents, the Camtasia based videos prepared by the instructor for selected challenging topics of the course could help the students in their learning. Students could use the videos at their own pace on 24 hour-seven-day per week basis. Camtasia based videos could also be used for the development of hybrid and online courses.

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HAS THE S CORPORATION OUTLIVED ITS USEFULNESS?

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ABSTRACT

Although the S corporation is the most popular form of business organization aside from a sole proprietorship, it is an extremely complex organizational type. Many S corporation owners do not adhere to IRS regulations resulting in erroneous returns, non-filing, and a tax gap of an estimated $22 billon per year. The emergence of LLC's over the past few decades presents a simpler form of organization with many of the benefits of an S corporation. It may be time to reconsider the place of the S corporation in our tax code.

INTRODUCTION

Since the inception of the S corporation in 1958, it has become the dominant form of corporation for income tax purposes, outpacing C corporations by a two-to-one margin in recent years. [8] However, sole proprietorships are still the most common form of business organization, followed by partnerships. [6] A recent addition to the menu of entity choices is the Limited Liability Company, or LLC. In 2007, the number of new domestic LLC's formed exceeded the number of corporate formations by almost two-to-one. [2]

These numbers can be somewhat misleading for tax purposes, however. S corporations are not a separate form of business organization, but an election made for tax purposes. Similarly, an LLC may file as a sole proprietorship, partnership, S corporation, or C corporation depending on the choices made by its members. For our purposes, the actual number of the types of organizations is not important. The relevant factor the number of tax returns filed under the various entity banners. In 2010, according to IRS statistics, the number of returns filed by the various entities is as follows: [6]

C Corporations	2,355,803
S Corporations	4,808,078
Partnerships	3,508,856
Proprietorships	>23,000,000

Of course, these numbers do not reveal the actual legal form of the above businesses. Since the LLC is a disregarded entity for tax purposes, their numbers do not appear in the IRS statistics. Chrisman indicates, however, that since 2004, the LLC has been the number one choice for new business owners. [2] This statement must be tempered by the fact that sole proprietorships do not register, so their numbers cannot be accurately determined. There is no dispute, however, that both the S corporation and the LLC are popular tax choices for business entities.

The popularity of the S corporation belies the complexity of that form of organization. In a study released by the Government Accountability Office, it was found that 68 percent of S corporation returns filed in 2003 and 2004 incorrectly reported at least one item affecting net income. The GAO estimates this misreporting resulted in lost tax revenues of $8.5 billion for these two years. Additionally, there are an unknown number of S corporations that do not even file bringing the estimated S corporation tax gap to $22 billion per year. [14]

Given the complexity of tax reporting for S corporations, and a viable alternative in the form of limited liability companies, perhaps it is time to take a closer look at the S corporation and see if it has outlived its usefulness.

HISTORY OF THE S CORPORATION

The S corporation is strictly a creature of the tax code. When a corporation receives its charter from the state, it is simply chartered as a corporation. The choice to become recognized as an S corporation is made when the owners file Form 2553 with the IRS. This election requires unanimous consent of the shareholders.

Prior to the creation of the S corporation, business owners had two choices beyond the sole proprietorship. A corporation provided limited liability protection, but confronted the owners with double taxation on earnings. A partnership avoided the double taxation, but did not provide liability protection. In 1946, the Department of Treasury suggested the concept known today as the S corporation. [8]

It was not until 1958, when President Eisenhower recommended creation of the small business corporation to Congress that the S corporation came into being. Led by Senate Finance Chairman Harry Byrd, Congress acted on this recommendation and subchapter S of the U. S. Tax Code became law. Four major limitations on S corporations were made a part of this legislation:

- They were required to be domestic corporations.
- They were limited in the number of shareholders.
- They were restricted in who could be a shareholder.
- They could have only one class of stock. [8]

This was a highly significant step in the history of taxation in the United States and provided considerable tax relief. At the time, corporate rates topped out at 52 percent and the top individual bracket was 91 percent. Upon passage, a substantial number of businesses immediately incorporated and elected S corporation status. Creation of the S corporation is credited with encouraging small business creation in the United States. Their popularity has increased over the years and is now the most widely-used corporate form of organization in the United States. [8]

However, the S corporation faced some early challenges. At the time, the tax code included two maximum levels of taxation. Earned income was taxed at a rate not to exceed 50%. Unearned income, such as dividends, interest, rent, royalties, and capital gains were subject to a maximum 70% rate. [3] The IRS issued Rev. Rul. 59-221 which ruled that income passing from the corporation to its shareholders is not earnings from self-employment, and therefore not subject to self-employment tax. [1]

This ruling had the immediate effect of subjecting S-corporation earnings to the higher unearned income rate so many newly formed corporations reverted back to their former status. [3] Due to the higher income tax rate, the other implication of this ruling was apparently relegated to insignificant status. When the IRS ruled that S corporation income was not subject to self-employment taxes, it opened the door for owners of S corporations to avoid paying these taxes. However, this was not a big issue at the time, as the difference in the income tax rates exceeded the self-employment tax rate.

In 1981, President Reagan proposed a maximum rate of 50% on all income and Congress approved the legislation. Upon passage, a substantial number of new S corporations were formed. With the new tax rates, and a surge in the number of S corporations, Congress soon realized that the law of unintended consequences was now coming into play as there were numerous loopholes allowing for abuse of the tax code. Since distributions from S corporations were not subject to self-employment taxes, employee-owners of these organizations simply did not pay themselves a salary. This enabled them to avoid all payroll taxes on their earnings. This goes beyond the self-employment tax issue and includes state and federal unemployment compensation taxes as well as local payroll taxes. [3]

A second issue was that there were no restrictions on the choice of a fiscal year for S corporations. Consequently, an S corporation could elect a year-end of January 31. This would make the tax on the shareholders' 1040's due April 15 of the following year, resulting in a deferment to file and pay the tax. [3]

It did not take Congress long to act on these issues and the 1982 Sub Chapter "S" Revenue Act was passed to eliminate these abuses. S corporations generally were required to utilize a calendar year for tax purposes. Additionally, the act enabled the IRS to allocate "reasonable compensation" to employee-owners of S corporations. The law specified that, in rendering services to the corporation, the shareholder was entitled to compensation and the corporation would be required to compensate the owner for these services. [3]

In recent years, the popularity of S corporations has increased due to a relaxation of some of the S corporation rules. Currently, there are three shareholder-related requirements:

- The corporation can have no more than 100 shareholders.
- Shareholders must be individuals, estates, certain tax-exempt organizations, or certain kinds of trusts.
- A shareholder cannot be a nonresident alien.

In addition, there are three corporation-related requirements:

- It must be a domestic corporation or an unincorporated entity that elects to be treated as a corporation for tax purposes.
- It must not be an ineligible corporation.
- It can only have one class of stock. [7]

S CORPORATION COMPLEXITY

At first blush, the S corporation would appear to be a simple form of organization. After all, it does not pay income taxes, and just passes the profits or losses to the shareholders. Many S corporations appear to be started by someone who wants to avoid paying self-employment taxes and forms the corporation for that purpose only. Unfortunately, there is often a lack of knowledge about the requirements to maintain the corporate form of organization. The Government Accountability Office has identified three reasons for the $22 billion tax gap related to S corporations – misreporting, basis issues, and owner-employee compensation. [14] While some of this may relate to a fraudulent attempt to avoid taxation, much of it is likely due to a lack of knowledge or no desire to maintain corporate formalities.

Although not directly related to the tax gap issues, a significant factor contributing to the complexity of the S corporation deal with an understanding of the basic nature of a corporation. It is an entity, separate and distinct from the owner(s). Failure to recognize this distinction can result in a failure to keep personal and corporate transactions and assets separate. In addition to the risk that the courts could pierce the corporate veil and strip the owner of the limited liability protection, the tax issue is that personal expenditures could be recorded on the corporate books. [9]

The GAO found that of the non-compliant corporations, 80 percent understated income while over 91 percent overstated deductions. Additionally, a sample of S corporations found that 41 percent of deducted personal expenses while 31 percent could not document the expenses. [14]

One area of deductions not noted in the GAO study is the home office issue. As a sole proprietorship, the owner is accustomed to deducting expenses for a home office on Schedule C. Since there is no longer a Schedule C, and the corporation and the owners are separate entities, this can create another level of complexity. There are three approaches available to the S corporation owner.

First, the owner-employee of an S corporation can take an employee business expense home office deduction on Schedule A. Although the simplest approach, this is the least attractive as the tax deduction is reduced due to the two percent limitation on miscellaneous itemized deductions and the requirement to itemize to obtain any tax benefit. A second approach is for the shareholder to rent the home office to the S corporation. This creates a deduction for the corporation and can result in zero income reported on the shareholder's Schedule E. One caution here is that the rental may be subject to sales taxes in some states. A third approach is to have the corporation pay the shareholder for any out-of-pocket expenses of a home office under an accountable plan. This can include a portion of mortgage interest, property taxes, insurance, and other expenses. The last two options do require rigorous record-keeping. Failure to keep adequate records will result in a loss of the deduction, along with penalties and interest on the amount due. [12]

A related issue that arises here is the failure to keep minutes of board and stockholder meetings. Certain actions must be approved by the board or shareholders for them to be valid for the corporation. A commonly encountered item is shareholder loans due to or due from the shareholder. These are frequently used as balancing items on the balance sheet. However, these loans must be approved by the board and not netted. There should be a promissory note with interest (when above $20,000) and repayment terms. Failure to document these "loans" may result in them being treated as distributions or as additional capital investments. Both of these are changes in the percentage of ownership. [9]

The failure to maintain a distinction between the owners and the corporation frequently manifests itself in disproportionate distributions to shareholders. By law, distributions of profits to shareholders are required to be in proportion to ownership. Undocumented loans to shareholders, distribution of non-cash property, and sale of corporate property at less than fair market value can be disproportionate distributions. The main tax issue with these distributions is that they run afoul of the "one class of stock" rule for S corporations. The IRS views disproportionate distributions as evidence of a second class of stock. Having a second class of stock can invalidate the S corporation election. [11]

Maintaining the stockholder's basis can be complex. This is especially true with regard to maintaining both inside and outside basis. Since inside basis is (supposedly) maintained by the corporation it is usually the easiest to determine and maintain. When a shareholder deducts S-corporation losses, outside basis is important. Since outside basis is not maintained at the corporate level, determining the shareholder's proper outside basis can be an elusive goal. [10]

In many cases basis is misreported simply because the owner does not know what constitutes basis, much less the dollar level of that basis. A shareholder may not take deductible losses in excess of basis. If shareholder basis is not maintained, the owners do not know when a loss cannot be deducted. If an IRS audit occurs, the shareholder may be hit with a large tax deficiency due lack of basis or to an inability to show basis. [10]

GAO RECOMMENDATIONS

Complexity and compliance seem to be related factors in dealing with S corporations. The GAO makes four recommendations to help address the compliance challenges:

The first is to identify and evaluate options for improving the performance of paid preparers through licensure and assessing "appropriate penalties." [14] While this may have some positive effect, it seems to place the responsibility on the preparers to assure that returns are properly prepared. The bulk of the problem is not preparer inadequacy, it is tax code complexity and lack of taxpayer awareness. The preparer can only work with the information available from the taxpayer and is not an auditor for the IRS.

Second, the GAO recommends sending additional guidance on S corporation rules and recordkeeping requirements to new corporations for distributions to shareholders. This assumes that the shareholders would read the material and understand those rules and recordkeeping requirements. Regardless of how much information is provided to the shareholders, if they don't understand the rules, they are not likely to be followed given the current lack of recordkeeping.

The third recommendation is to require IRS examiners to document their analysis by using comparable salary data when determining a reasonable salary level. It seems that this is what should have been done all along. Related to this recommendation is the fourth, which calls for more specific guidance to shareholders and taxpayers in the process of determining how to arrive at a reasonable salary. Done properly, this could be of great benefit. However, all the guidance in the world is not likely to change the actions of shareholders who do not pay themselves any salary.

A LOOK AT LLC HISTORY

Limited liability companies (LLC) are a relative newcomer to the scene of business organization structures in the United States. The first U. S. LLC legislation was enacted by Wyoming in 1977. Five years later, in 1982 Florida followed suit. Today, all states have enacted such legislation. [13] However, LLC's have a long history internationally. In 1892, Germany law authorized the *Gesellschaft mit beschrnkter Haftung*, an organization type similar to today's LLC. This law became the focal point for other countries that subsequently enacted similar legislation. The concept was quickly adopted in a number of countries worldwide. [5]

The initial growth of the LLC in the United States was hampered by the IRS, which placed strict rules on LLC's and how they could be taxed. Initially, the IRS proposed regulations taxing them as corporations based upon the limited liability feature. This came about despite a

private letter ruling issued in 1980 confirming that the Wyoming LLC would be taxed as a partnership. The IRS was widely criticized for this perceived hostility toward LLC's and withdrew the proposed regulations three years later. Meanwhile, LLC's were not even a blip on the radar screen of business organization structures. For a decade after the initial legislation, Wyoming had less than 100 LLC's. Florida was the only other state with similar legislation. [4]

Eleven years after the first LLC legislation was passed in the United States, the IRS issued Rev Rul 88-76, stating that LLC's would be taxed as partnerships despite having the limited liability feature. This opened the door for other states to enact enabling legislation for LLCs. But states reacted slowly and with great caution. It was not until 1990, when Colorado and Kansas passed LLC statutes that additional states stepped forward. By 1996 all fifty states had jumped on the bandwagon and LLC's became available nationwide. Corresponding to this rise in the number of states recognizing LLC's was the number of businesses taking advantage of this new form of organization. [4]

A second IRS ruling, coming in 1997, gave LLC's the tax flexibility they now enjoy. This ruling created the well-known "check the box" rules that allow an unincorporated business to elect tax treatment as a corporation, partnership, or sole proprietorship (in the case of a single member LLC). While maintaining its IRS status as a disregarded entity, an LLC was now allowed to choose to be taxed as a corporation (including an S corporation). This ruling also made LLC's attractive to sole proprietorships, as single member LLCs were previously treated as corporations by the IRS [4]

THE NEXT STEP

The current tax situation in regard to S corporations cannot continue. This form of organization is not yet broken, but it does have some severe problems. These problems are manifesting themselves though the complexity required to maintain the organizational structure and through filing of erroneous returns. It should be emphasized that often the erroneous returns are not done intentionally, but due to a lack of proper recordkeeping. A third factor is simply a failure to file. As a result the annual $22 billion tax gap continues.

There is a definite place for the S corporation. It is the best choice for some businesses. However, in looking at the overall picture, one must ask if the place for the S corporation remains large enough for it to remain as a choice for tax purposes. LLC's have achieved great popularity in recent years. During this time, S corporations have maintained their popularity as more S corporation returns are being filed.

There are five factors that would recommend an LLC over an S corporation. First, formation of an LLC is not as complex as formation of an S corporation. In most states, one merely files short Organization Statement with the state and pays a fee. Related to this is the second factor, that an LLC lacks the complexity and formalities of the S corporation. Minutes, directors, and annual meetings are not a required component of most LLC statutes.

A third factor is that the home office deduction can be more straightforward. The home office expenses for a single member LLC are simply deducted on the1040 using Form 8829. For a multi-member LLC reporting as a partnership, the deduction can be shown as an additional item on the member's Schedule E section for reporting K-1's. This avoids the rent or reimbursement issue previously discussed.

Fourth, basis issues will not go away, but they become more manageable under the LLC form of organization as requirements for tracking basis are not as rigorous as with an S corporation.

The final advantage of an LLC is in the area of profit and loss distribution. LLC members can decide how to distribute profits and losses among themselves. They are not required to follow the proportional distribution rules mandated for corporations. Therefore, the issue of disproportionate distributions to the owners is not an issue that confronts members of an LLC.

Based on these advantages, it would be easy to make a case for the abandonment of the S corporation as a form of organization in our tax code. One issue, however, is likely to provide the largest hurdle to eliminating the S corporation. That issue is the ability of an S corporation owner to avoid self-employment taxes on S corporation earnings. However, that ability may be quickly eroding. H. R. 4213 was presented in Congress in 2010 and would have subjected owners of certain small businesses (S corporations) to self-employment taxes on the earnings of the company. The targeted businesses were designated "professional service businesses" – doctors, lawyers, accountants, and so on. [15]

This was positioned as a loophole closer but it is a tax increase to the tune of $11 billion over the next ten years. One reason such legislation has even been proposed is that the privilege has been abused by S corporation owners who pay themselves little or no salary and minimal self-employment taxes.

It is unfair to subject all S corporation earnings to self-employment taxes. The earnings of an S corporation are due in part to the efforts of the owners and they should be compensated for those efforts through the receipt of a reasonable salary. However, there is the profit aspect of an S corporation. The owners have invested money in these businesses and deserve compensation for their investment – compensation for the risk taken in starting the business. These profits from investment activities should not be subject to self-employment taxation.

This ability to shield S corporation earnings from self-employment taxes is not available to owners of LLC's. One suggestion is that Congress should enact legislation covering both S corporations and LLC's, allowing them to exclude a certain portion of earnings from self-employment taxes. This could be an amount based on a percentage return on the owner's basis in the organization. Unfortunately, this again raises issues relating to basis. A second approach would exclude a set dollar amount from self-employment taxes. This fails to take into account the value of services being rendered by the owner of the business and the amount of investment in the business.

A third approach would allow a set percentage of earnings to be excluded from self-employment taxes. Allowing a business owner to exclude 25% of earnings from self-employment taxes would assure that some self-employment taxes would be paid, while recognizing that the owner should be compensated for risk. This is a simple approach that does not require maintaining of (or allow for manipulation of) basis.

CONCLUSION

While the S corporation as a form of business organization remains highly popular, it is a complex form of organization that is often misunderstood by corporate owners. As a result, S corporation owners may frequently find themselves having difficulty with the IRS as they have

failed to meet some of the rigorous S corporation requirements. Additionally, the S corporation tax gap is cited by the IRS as $22 billion per year. However that number balloons when the incidence of non-filers is taken into consideration.

The LLC is a viable alternative to S corporations and it is a much simpler form of organization. Its main drawback is that the earnings of an LLC are subject to self-employment taxes. That drawback may diminish over time as Congress withdraws the exemption S corporation owners now enjoy.

It is time to consider abolishing the S corporation as a form of organization. It can be phased out or given a definite sunset date. The most reasonable approach for tax purposes would be to merge S corporations into the LLC form of organization, along with some changes in the tax code to minimize the impact of the change. The approach will help solve the complexity issue, will be less stressful for business owners, and will help reduce the tax gap currently attributed to the S corporation.

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Government Brain Drain and Telework: Does Social Networking help?

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Abstract

As the globalized economy presents organizations with increasingly difficult challenges, creative approaches for efficient and effective management of work processes becomes very important (Chafkin, 2010). Our human resources are our most valuable assets and without them it becomes difficult for organizations to achieve goals especially in the current economic state. Public and private organizations are faced with many challenging times such as: tight budgets, high material costs, and labor shortages.

One challenging area addressed in this study is brain drain, or the loss of valuable knowledge which is difficult to replace. This is particularly evident in public/government organizations as opposed to private organizations. There are many reasons for this brain drain. One possible approach which may help is the use of teleworkers and social networks. The use of social networks in a telework environment may help bridge the gap between newly hired and more senior, long-term workers. The more senior workers may leave without sharing their knowledge. The option of telework may encourage them to stay longer as well as share their information through the social networks.

Teleworkers are a steadily growing group of workers in the United States. Telework is growing in popularity. As telework continues to grow, there are many issues that have not been explored. One issue, addressed is how to secure, keep and share the valuable knowledge that will be lost if government workers leave. This research explores telework and social networks in relation to government environments experiencing brain drain. I seek to explore the use of social networks in a telework environment as a possible approach to help with brain drain issues. Workers that are (long-term employees) as well as newly hired can be connected to share knowledge/ideas or for training and retraining. I also seek to explore professional isolation as it relates to employees and their length of employment in relation to the degree of telework (full or part time)

I will ask questions relating to knowledge sharing, gathering and retention, best practices, professional and social isolation, advantages and disadvantages associated with using a Telework staffing strategy in conjunction with a social network in a government environment. I seek to shed light on factors that are important considerations when adopting or developing social networking for Teleworkers. This study will use a survey and interview approach to gather data on government teleworkers. This research can also help in the development and planning of social networks

Keywords

Brain Drain, Social Networks, Virtual organizations, telework, telecommunication, social identity theory

Introduction

As the globalized economy presents organizations with increasingly difficult challenges, creative approaches for efficient and effective management of work processes becomes very important (Chafkin, 2010). Our human resources are our most valuable assets and without them it becomes difficult for organizations to achieve goals especially in the current economic state. Public and private organizations are faced with many challenging times such as: tight budgets, high material costs, and labor shortages.

One challenging area addressed in this study is brain drain, or the loss of valuable knowledge which is difficult to replace. This is particularly evident in public/government organizations as opposed to private organizations. There are many reasons for this brain drain such as retiring baby boomers, loss of immigrant knowledge workers and loss of long-time workers with specific skills and many years of experience and expertise in government positions. Government employers as well as private industry employers are looking for creative ways of replacing this knowledge drain. One possible method for replacing loss knowledge is the use of telework and virtual organizations as a staffing strategy (Chafkin, 2010). Teleworkers is a steadily growing group of workers in the United States. One report from Gartner Dataquest reported an increase from 11 million in 1999 to 34 million Americans who are currently working from home. As virtual organizations and telework continue in popularity, there is a need to address telework issues that may impact the telework experience. This research seeks to understand telework and social networks in relation to government environments experiencing brain drain. This research will explore the use of social networks in a telework environment as a possible approach to alleviate brain drain. Social networking may provide a way to help train, share, retain and gather knowledge. I also seek to explore professional isolation as it relates to employees and their length of employment in relation to the degree of telework (full or part time)

This research may help organizations in terms of training, recruitment and retention of teleworkers in general but in environments facing situations where they are losing large numbers of valuable, skilled workers. Disabled or retired workers as well as other workers associated with brain drain may be more inclined to continue working for a firm if the telework environment is satisfying and rewarding. The paper is outlined in the following manner. First a literature review is presented. Second, the theories used to support the research are presented. Third a discussion of telework and social isolation is presented. Fourth, the methodology section is discussed, followed by the conclusion.

Literature review

Brain Drain:

The loss of brain power may have a significant effect on the ability to compete (Webber, 2004). I suggest that social networks may help to retain this knowledge through interaction and knowledge training and sharing through the social network. Brain drain involves the loss of valuable knowledge that is not being replaced in this country. This is particularly evident in public/government organizations as opposed to private organizations. There are several contributing factors to the brain drain problem. The retiring baby boomers are contributing to this phenomenon, but it is not the only contributing factor. For one, outsourcing knowledge to foreign countries which discourages domestic workers to go into fields where the work is sent to other countries for lower wages. Another is the poor educational systems that are not training workers with needed skills. Another factor is the loss of talent, skills and knowledge from foreign workers living in the U.S. but deciding to go back to their countries (Webber, 2004). Many foreign workers are leaving and choosing to go home as the rules for H-1b visas are becoming more restrictive. Another factor involves the level of experience over time for larger percentages of workers. Statistics show that government employees tend to stay at their jobs much longer than private workers. One report from the Employee Benefit Research Institute (EBRI) indicates that over the past twenty five years, the "median tenure" (worker's length of employment in a current job) has remained steady for private sector workers at 3.9 years. In contrast, public workers median tenure increased from 6 years in 1983 to 7.0 years in 2008. According to EBRI, federal workers stay in their jobs for an average of 14.7 years and 20% of the federal workers stay at their jobs for 25 years. The workers tend to stay much longer and when they leave it has a much stronger impact on the government organization. I suggest that social networks can help by allowing for sharing of knowledge and training by older workers who may be more willing to work in a flexible environment such as telecommuting, thereby retaining knowledge within the organization as well as spreading knowledge through training, sharing and collaborating through the social network.

Social Identity theory

As organizations embrace virtual organizations and telework, more employees may experience feelings of isolation and not being connected to the rest of the organization. Social identity theory (Tajfel and Turner, 1979) helps in understanding how people feel when they think they are discriminated against within a group because of lack of social identity with the group. When individuals feel they are not part of the group socially, they feel their development can be hindered. In the case of teleworkers working in a virtual organization, their feelings of social and professional isolation may lead them to feel they are missing out on job promotions and career opportunities.

Furthermore, since virtual organizations and teleworkers involve remote work, away from a traditional office the issues associated with social identity may be a consideration in managing and working in a telework environment. Virtual organizations are organizations where all employees perform work-related jobs outside the office and there is not a brick and mortar office building for employees to physically access. Virtual organizations involve use of telework, telecommunications and computer systems in interacting with others inside and outside of the organization.

As organizations become more distant and globally dispersed (Reich, 2001), the challenges and issues associated with telework and virtual organizations will become more important. Employees and their online interactions and telework relationships will become important considerations. Will the employees be less happy and less productive in the telework environment? Will employees feel less connected and more isolated and therefore dissatisfied with the telework environment?

As such, employees may or may not be receptive to working in a partial or full telework situation depending on their perceptions of this environment in terms of their ability to stay connected and to communicate with other employees, customers or vendors. In addition they may miss the face-to-face interaction. They may feel the technology-enabled interactions may be insufficient and leave them feeling that they are isolated from others in the company such as their managers and co-workers and therefore are missing important information or passed over for promotions or other job-enhancing opportunities.

Previous research findings indicate that teleworkers are concerned about professional isolation in public and private organizations (Cooper & Kurland, 2002). Our research questions focus on the telework environment and teleworkers and the relationship between social networks, and professional isolation. Is professional isolation a concern of teleworkers? Does social networking help reduce the perceptions of professional isolation?

Telework/telecommuting

Teleworkers are described as one of the fastest growing groups in the commercial sector (WorldatWork, 2007). One report indicates that more than 28 million people in the U.S. work at least one day a week outside the office. Telecommuting has been defined in many ways. The term Telework/telecommuting was first introduced in 1975 by Nilles (1975) and became very popular in the 1980's with the rise of oil prices and other economic problems. Telecommuting has been described as any work done outside of the workplace where telecommunication and/or computer-based technologies are used (Bailey and Kurland, 2002). Another definition by the Office of Personnel Management (2008) defines telework as the process by which employees conduct formally designated tasks at their place of residence or at a nearby worksite.

Telework has been around for awhile but with the need to be agile, efficient and competitive, telework is enjoying renewed interest. One reason for the renewed interest is the continuous improvements and advancements in information and communication technologies. Some organizations are adopting a combination of telework and in-office work where they are allowing some employees to work at home while other firms are going totally virtual, where all employees work outside the office and there is no brick-and-mortar office building.

Government has shown support for telework by passing Telework-related Acts such as the Telework Improvements Act of 2008 and the Telework Enhancement Act.

Telework may help employees by reducing interruptions and allowing them to focus on one task. It can reduce commuting time and save gas and reduce traffic and traffic accidents, employers save on office space and equipment, flexibility with work and family schedules (Bailey and Kurland, 2002).

Telework environments may help reduce brain drain by giving flexible work options to employees who are planning to leave. This could also help employees with specific skills that live in different states or regions.

Social/Professional Isolation

However, even though telework has many benefits, there can be some possible challenges such as social and professional isolation. I suggest that social networks may help to alleviate feelings of social/professional isolation. Many employees may feel disconnected from the organization due to lack of human contact. Findings from previous studies indicate many teleworkers

experience feelings of social and professional isolation, (Tomaskovic-Devey & Risman, 1993: Bailey and Kurland, 2002). Social isolation is when workers feel disconnected from the informal, day-to-day contact and information from co-workers. Professional isolation, which is associated with employee development (Bailey and Kurland, 2002) is when workers feel they are out of sight and forgotten by managers and others and feel their chances for career growth and development such as promotions and job opportunities suffer.

Drawing on previous work from (Bailey and Kurland, 2002) I focus on three areas of professional isolation which can impact formal and informal (day-to-day) development. Three areas of development include: interpersonal networking, informal learning and mentoring.

Interpersonal networking - informal interactions such as office and work-related gossip, impromptu discussions which help establish relationships and office politics. Informal learning – impromptu skill building or informal knowledge sharing that can occur in the office

Mentoring – experienced workers work with less experienced workers to help in career and skill development.

Social Networking

Therefore, professional isolation may leave employees unhappy with their telework environment. The use of social networking may help as a way to encourage a richer level of interaction and connection with co-workers and other work-related individuals.

As social networking continues to grow in popularity, more varied uses of social networks are being explored by businesses as well as individuals (Hempel, 2009). For example social networks are being used more to communicate with employees to encourage organizational interaction and information sharing such sharing human resource information; training and development virtual teams, and group collaboration.

Social networking may help reduce feelings of isolation which lead people to feel they will be left out and may miss out on important knowledge as well as opportunities for promotion because they are no longer in the in-group because they are working outside of the traditional office environment.

Methodology

In this study I plan to evaluate the telework environment regarding professional isolation and social networks by first interviewing teleworkers to help in understanding teleworker concerns.

After the interviewing process, a survey instrument will be used to gather data. This study will use both a survey and interview approach to gather data on government teleworkers. This research can help in the development and planning of social networks

Summary

In conclusion, as telework continues in popularity, telework maybe an efficient and cost-effective way to retain valuable knowledge, train new and existing workers. It may also help in addressing feelings of isolation that may arise as a result of telecommuting. This research seeks to explore telework in the government environment. The use of social networks in a telework environment may help bridge the gap between newly hired and more senior, long-term workers. The more senior workers may leave without sharing their knowledge. The option of telework may encourage them to stay longer as well as share their information through the social networks. I will use comparative analysis and regression analysis to look at associations between teleworkers and social and professional isolation. This research can be valuable to organizations seeking to increase or improve telework environments. It can also be useful for people working in virtual teams or in the development of organizational social networks that will be used for outside workers.

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Toss the Text – An Experiment in Replacing the Traditional Textbook with a WIKI.

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Abstract

Web 2.0 technologies can be likened to the two edged sword - it can cut both ways. We live in a time when rapid advances in technology provide extraordinary opportunities to enhance the entire educational process. Yet if we fail in embracing and understanding these technologies, we may well be cut asunder. This paper explores an attempt to allow students to write the textbook using wiki pages. This was the author's first attempt at tossing the textbook. The successes, failures and lessons learned are discussed.

Introduction

The current model of education with the professor at the lectern as the sole source of knowledge, as the expert imparting his great wisdom and learning to the class is coming to an end. This approach, which has been used for centuries, is becoming outdated. Many foresee a future where technology will enable the process of sharing the wisdom of humankind without the stifling structure of our current educational model.

A child, full of creativity and hope, exhibits the boundless energy of youth, excitement for life, curiosity, thirst for knowledge and natural inquisitive nature. Simple things foster learning, discovery, and exploration at an individual pace. Here, the fascination with a kitten, puppy, worm or bug, the interest in trucks, dinosaurs, or Barbie dolls can be used to lead investigation into language, mathematics, the physical and life sciences and beyond.

In a recent study, college freshmen ranked high school more difficult their first year of college. They spent hours on Facebook, twitter and with other social media while they completed fewer than twenty pages of writing per college class.

The challenge today is translating social media obsession into classroom engagement. Web 2.0 technologies may be the answer in this process.

The term wiki comes from a Hawaiian word for fast. Ward Cunningham is attributed with developing the first wiki in 1994, and he called it the WikiWikiWeb (Wikipedia- wiki). A wiki is website that allows the creation and editing of webpages from a web browser. It uses a

simplified WYSIWYG, (What You See Is What You Get) text editor, within the browser to create, modify or delete page contents. A single page in a wiki is referred to as they "wiki page" and a collection of wiki pages is called the wiki.

In the future, we will find ways to use technology to allow each individual to learn and explore the wonders of Earth and the universe and exciting and enabling ways. The need to train workers for the Industrial Revolution, with its required conformity for work at the factory, is rapidly coming to a close. In the information age and beyond, our educational processes need to dramatically change. Today the need is for lifelong learning, creativity and exploring how to adapt to an every changing technology environment.

This research attempts to examine how current technologies can be used to reform the current model of education. While this is not a dramatic or bold step forward, it is an attempt to move in the direction of technology supported collaborative learning. I must attribute the inspiration for this experiment to Dr. Ali Nazemi of Roanoke College. During the 2010 SEINFORMS annual conference, he presented a paper discussing his attempts of replacing the textbook in a Principles of Information Systems course with a wiki. This paper discusses the attempt to replace a textbook in a senior level Strategic Management Information Systems course.

A wiki is a great tool for collaborative work. It allows multiple users to collaboratively create and modify one or more documents. It provides a centralized repository for document storage. In one sense, a wiki could be considered one of the first applications of cloud computing. A wiki editor eliminates the need for an individual user to learn HTML coding. A wiki may contain links to other websites, and generally has most of the capabilities found in Web 1.0 websites.

For a brief video tutorial on how wikis work and some of their capabilities, visit YouTube and search for common craft's "Wiki's in Plain English" For more information, and a list of free wikis, see the "Teaching, Learning and Collaboration" wiki site, http://weible.wetpaint.com/page/Wiki+sites.

Literature Review

There is a growing body of literature exploring the use of wikis in higher education. Much of this interest has been generated as a result of the work of Michael Wesch, associate professor of cultural anthropology at Kansas State University. Dr. Wesch was named the Carnegie/CASE national professor for the year 2008 for Doctoral and Research Universities. His YouTube videos have receive millions of views.

One of Dr. Wesch innovations was the creation of a study guide wiki.

Chaka of Walter Sisulu University in South Africa contends that Web 2.0 and the Semantic Web provide an "ideal platform" for collaborative learning. He predicts a groundswell in power as collective intelligence and knowledge is harnessed in e-learning 2.0.

Cobb (2008), Franklin and Van Harmelen (2007) have identified many of the ways Wikis have been used in education:

- Facilitate collective knowledge from diverse experts and contributors
- Enable collaborative management of educational resources
- Serve as knowledge management platforms
- Electronic portfolios
- Foster teamwork, group research projects and course content publication sites
- Enable co-authoring of content
- Serve as virtual forums of content creation
- Promote virtual communities

Mathieu (2008) in a primer to University of Delaware faculty listed other way wikis have been use:

- Wikipedia
- Open Textbooks
- E-Portfolios
- Living Course Website
- Theatre productions

Ruth and Houghton (2009) suggest wikis "foster collaborative, egalitarian learning that is designed to foster group interaction instead of just individual performance." And they postulate this requires an unfamiliar teaching approach.

Research methodology

A research questionnaire was developed and administered to 15 students taking the course. A full discussion of the questionnaire will be presented in a completed paper.

Research Questions

With all the information available on the internet, is it possible to use publicly available sources to replace the textbook?

Does a wiki work as an appropriate replacement for the textbook?

Can students write their own textbook?

Student Comments and suggestions

Create a very detailed outline of each topic.

Make group or individual assignments for each item.

Grade every topic.

Make assign for discussion leader of any posted resources.

Communication is key to success.

Limit the number of posts per topic.

Do not request reflection on learning.

Student Requirements

Self motivation.

Results Analysis

A complete discussion of the results will be discussed in the completed article.

Discussion and conclusions

Yet to be written.

Resources

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USING REAL-TIME TRANSLATION RATES FOR TRANSACTIONS IN PRINCIPLES OF ACCOUNTING

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A B S T R A C T

This paper presents a detailed problem assignment along with a handout example that has been successfully used to measure the ability of students to handle international accounting currency translations. Even though the assignment in this paper is focused primarily on an accounting course where the recording of transactions is part of the curriculum, this assignment could also be used in other non-accounting courses where the translations could be made and gains and losses noted without official journal entries being made. The main advantage of the approach used in the assignment in this paper is that the answer is not textbook oriented, but is determined in "real time."

EMPLOYER EVALUATION OF INTERN PERFORMANCE FOR STUDENT LEARNING OUTCOME ASSESSMENT

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ABSTRACT

Despite an increasing use of business internships, literature on their use for outcome assessment of programs is noticeably sparse. This paper outlines the use of internships for outcome assessment by a business college at a small private university in the Midwest. The process for determining assessment variables, designing assessment surveys, and gathering assessment data from employers and students is described. Preliminary results of this assessment are shared. Also, described is the design of the internship and data on the number of students participating in internships.

INTRODUCTION

About 75% of American college students are reported to participate in internships [3]. Over 90% of business schools are reported to offer opportunity for internship experience which is not surprising in light of the literature espousing the benefits of internships for students, employers and universities [8]. Despite such prevalence of internships, there is hardly any literature documenting their inclusion in the assessment of programs [1]. This paper seeks to address this gap by documenting the journey of one program that has recently incorporated internships assessment into its overall program assessment.

BACKGROUND OF UNIVERSITY'S INTERNSHIP PROGRAM

The business program consists of Bachelor of Science and Bachelor of Art degree in Business Administration (BSBA, BABA). With the BSBA degree, students are required to specialize in a major and major. The enrollment in the undergraduate program has ranged from 350-500 students over the last two decades. The program is accredited by the ACBSP.

Before the mid 1990's, internships were listed in the catalogue as a business course but were not specially related with any discipline with the exception of Hospitality Management. Work experience requirement for zero credit was an integral part of the Hospitality Management curricula since its inception. Only a few business students completed internships mostly during the summer session. There were no written requirements for the experience. Through an internship experience a student could earn 1-9 credit hours depending on the number of hours worked. The credit generally counted towards the number of total hours required for graduation. It was, however, possible for a student to negotiate for the credit to count in his/her discipline of study.

After much discussion among the college faculty, in early 2000's, internships were included as an elective course in most business majors. This increased the number of students completing internships. As a result, the need for the formalization of internship requirements was felt. After some secondary research, a formal process for internships was implemented in 2002. It included the design of a learning contract (see Appendix 1) and an assessment form for the student and employer and list of requirements for the

internship portfolio. Even a career preparation course was designed and delivered on an experimental basis.

Over the next several years, the demand for internships by the students increased steadily reaching to over 40 students. (See table 1 for data on enrollment in the recent years). Despite wide popularity of internships, only about 6% of programs require students to participate in an internship program [8]. Under influence from the College's advisory council, internship or work experience became a requirement of graduation for students pursuing a BSBA at our school in 2007. The requirement became effective for students entering the program in 2008 or after. Starting with academic year 2011-2012, almost all BSBA students are subject to the requirement. The last three years have been used to prepare for the influx of the students into this program. In 2010-2011 (including 2010 summer), over one hundred students registered for the course.

TABLE 1
Number of Undergraduate Business and Economics Students
Completing a formal Internship or Work Experience

	Summer	**Fall**	**Spring**	**Total**
2007-2008	7	28	10	45
2008-2009	4	24	16	44
2009-2010	8	27	15	50
2010-2011	25	48	30	103

THE DESIGN OF THE INTERNSHIP PROGRAM

Internship is listed as a three credit hour course with the same number in the business core requirements as well as an elective in almost all majors and minors in the College. When a student completes an internship related to a specific discipline, the student gets elective credit in that discipline and also fulfills the BSBA degree requirement. Each discipline has its own section identified by the unique letter added to the universal internship course number. For example, BUS 339A is for students doing accounting internships while BUS339I is for students completing marketing internships. A student can repeat BUS 339 course as long as the second internship is in a different discipline. A student may choose to do a third internship, and in that case they must use BUS 439 number, which is a Satisfactory/Unsatisfactory grade option only. BUS 339 is graded on a letter grade scale. Three is the maximum number of internships a student is allowed to complete within BSBA degree. There are restrictions and eligibility requirements for such multiple internships, which will be discussed during our conference presentation. Multiple internships are used by some accounting students to complete 150 hours needed for CPA exam eligibility during their four year bachelor's degree. Also, the option of zero credit hour work experience exists for those students who either don't meet the eligibility requirement of 2.5 GPA (only 2.25 GPA is needed to graduate) or do not have room in their four year degree plans to fit in three credit hours of internships. A brief summary of distinction between work experience (BUS 239) and internship (BUS 339/439) is presented in table 2.While students have the option of doing internship during any semester, majority of the students work for internship during the summer. They are, however, allowed to register for the internship course in the subsequent semester. Doing so gives them additional time to prepare the

internship portfolio for academic credit. Also, this provides students the flexibility of accommodating the cost of internship within the university's annual comprehensive tuition fee.

The program is administered by the Internship Coordinator (a faculty member with past academic leadership experience at the College level) with assistance from the four academic departments. Each department chair has specified learning outcomes for internships in their disciplines, which are publically available to all students on the internship webpage (see Appendix 2). Also available on the internship web page is Learning Contract. Students secure internships with assistance from the career services center, student organizations (e.g., IMA, Eagle Marketing, SIFE, MSHM, SHRM), internship coordinator, faculty, and through self-initiative. After they receive a list of projects or job responsibilities from the employer, they meet with the Internship Coordinator to complete the Learning Contract. During this meeting, the Coordinator works with the student (and employer if necessary) to determine the discipline in which the student can earn credit, 3-4 discipline specific learning outcomes and strategies the student will pursues to achieve those outcomes. In addition, the requirements of internship portfolio through which student demonstrates his/her learning are reviewed.

INTERNSHIPS AS A PART OF THE COLLEGE'S ASSESSMENT PLAN

The College implemented a new assessment process beginning with the 2009-2010 academic year. This new process began with the adoption of a set of seven College-level content areas: (1) Communications, (2) Critical Thinking, (3) Business Knowledge and Technical Skills, (4) Leadership/Teamwork Skills, (5) Ethics, (6) Analytical/Quantitative Skills, and (7) International and Global Perspective. These content areas were selected by the College primarily because they were identified by the Accreditation Council for Business Schools and Programs (ACBSP) as being relevant to business schools, and because they included content areas previously adopted by the College. The seven content areas are central to the ACBSP Global Benchmarking Assessment initiative, jointly developed with the LiveText organization. The selection of these seven areas was validated with the members of the College's Business Advisory Council. All business program assessments are now mapped to the seven new content areas, which in turn will be mapped to the seven institutional student learning outcomes.

In order to programmatically assess student performance on the identified key content areas, the courses required for all business majors (business core courses) were tapped. The College assessment content areas were matched with the business core courses in line with their subject matter. Internships were included in this plan to measure student performance in five of the content areas, because having an external assessment of student performance in real work situations was tremendously appealing. The Associate Dean responsible for College Assessment and the Internship Coordinator worked together to design an employer survey for the interns' supervisors. See Appendix 3 for the Employer Survey.

TABLE 2
Work Experience and Internship: Side by Side Comparison

Work Experience	Business Internship
Fulfills the BSBA graduation requirement	Fulfills the BSBA graduation requirement
This option is primarily for non-traditional students or students who are close to graduation but have not completed an internship (e.g. rising seniors or seniors).	All students who meet the following requirements can use this option.

There is no GPA requirement but participants must be a full time business student at Ashland University and have a declared business major.	To participate in this option, students must have 2.5 overall GPA, sophomore status and be a full time Ashland University student for two consecutive semesters with a declared business major or minor.
This option earns zero credit hours. It costs no tuition but registration in BUS 239 or HSM 238 is required.	This option earns 3 credit hours. A student must register in either BUS 339 or HSM 338 or BUS 439. It is just like any other course for cost purposes. A student can do the experience in summer and register for it in the fall.
A student can officially do only one work experience.	A student can do up-to three internships – one in major, one in minor and one general business.
Students must complete the necessary paper work including Learning Contract, the Release Form and get Internship Advisor's approval prior to the start of the work-experience.	Students must complete the necessary paper work including the Learning Contract, the Release Form and get Internship Advisor's approval prior to the start of their internships.
Students must submit the required materials at the conclusion of the experience as per the Work-Experience Material Submission Guidelines.	Students must submit an Internship portfolio as per the Internship Portfolio Guidelines.
Work experience is graded S/U (satisfactory/unsatisfactory).	Internships in students' majors or business core are graded on letter grade scale. BUS 439 (used for second or third internship) are graded S/U (satisfactory/unsatisfactory).

Beginning in summer 2010 semester, an employer evaluation survey for assessing student work performance was administered via an online survey (Zoomerang™). Employers with direct responsibility for student interns evaluated student performance on five of the seven COBE student learning outcomes, including communication skills, leadership and teamwork, business knowledge, ethics, and analytical and quantitative skills. See Appendix 4 for the survey results.

Currently, students demonstrate their achievement of discipline specific learning outcomes through the internship portfolio. The Coordinator in generality assesses achievement of student's discipline specific outcomes when assigning a grade for the internship portfolio. Effective summer 2011, the plan is to assess student's discipline specific learning outcomes using a rubric specifically based on the agreed upon outcomes.

CONCLUSION

The results are primarily positive. These results will become part of a larger data set where we plan to look for trends over time. While we are sharing the results, the true purpose of the paper is to share the process for using internships as part of the overall assessment of a business program. There is literature that suggests that benefits of internship extend to undergraduate students [4][7], MBA students [2], as well as colleges and employers [5]. Of course, not all internships are created equal. Narayanan, and Olk (2010) offer an exploratory model identifying the determinants of internship effectiveness. However, documentation of internships being used as a tool for outcome assessment is hard to find. Articles such as

the one by Beard (2007) are an exception. Beard's article is limited to demonstrating the use of accounting internships for measuring their students' accounting core competencies. This paper has a much wider scope. It demonstrates how internships, along with other assessments, can be used for measuring competencies at the college level. It offers a view of internships as a tool to assess students' growth into business professionals using the real world standards. Such a perspective may lead to creative use of internships as an additional assessment tool by conference participants in their own programs.

APPENDIX A

Business Internship/Work-Experience Student Learning Contract

Contact Information:

Student Name: _____ Student ID# _____

Cell Phone: _____ Student E-mail Address _____

During Internship/work-experience:

Student Address: _____

Student Phone: _____ Student E-mail _____

Academic Information:

Faculty Academic Advisor:_____ Phone & E-mail _____

Faculty Internship/work –Experience Advisor: _____ Phone & E-mail _____

Major/Minor: _____ Class Level: (circle one) Soph. Jr. Sr.

Current GPA: Cumulative_____ Major GPA_____

Department and Course No: _____ Credit in: _____

Previously earned internship/work-experience credit hours: Yes _____ No _____

If yes, when (semester/year): _____ Total internship credit hours earned: _____

Internship/Work-Experience Information:

Internship/Work-Experience Site:_____

Address: _____

URL/Web Address:_____

Site Supervisor (Name/Title): _____

Phone: _____ Fax: _____ E-mail: _____

Start Date: ____/ ____/ ____ End Date: ____/ ____/ ____ Hours/Week: _____

Paid _____ Unpaid _____ If paid, salary/wage: _____

Registration Semester: _____ Portfolio Deadline _____

Business Internship/Work-Experience Student Learning Contract - Continued

Learning Objectives:

(List 3-5 specific objectives using the lists provided by different majors)

Strategies:

(List projects/tasks to be completed during internship that will allow you to meet learning objectives listed above.)

Evaluation Method(s):

(See Portfolio Guidelines handout and meet with the Internship Coordinator before completing this section).

AS PARTIES TO THIS LEARNING CONTRACT, WE AGREE TO THE OBJECTIVES AS STATED ON THIS FORM.

Student: _____
The information I have provided is accurate to the best of my knowledge. I also agree to complete the learning objectives stated above. Also, I will conduct myself in a professional manner and in-line with the University policies outlined in publications such as Student Handbook and Catalogue.

Faculty Internship Coordinator: _____

I agree to evaluate all learning objectives stated above, have met with the student regarding the learning objectives, and will maintain contact with the student during this internship experience.

Site Supervisor: _____

I agree to supervise this student in work experiences related to the student's field of study that provides an opportunity for the student to complete all learning objectives stated above.

International Student Services: _____

(For international students only)
The student has the legal status to work in the USA.

APPENDIX B

Learning Outcomes by Discipline as Provided by the Department Chairs

Accounting (BUS 339 A)

- Prepare bank reconciliations
- Incorporate worksheets and graphs into reports
- Prepare or pull financial reports and reporting supporting analysis
- Prepare or pull aging schedules of account payable or accounts receivables
- Apply appropriate collection techniques
- Research date for annual reports
- Assist with audits
- Prepare tax returns
- Compile payroll tax forms

Business 239 (Work Experience for Business Core)

Through Work-Experience portfolio, a student will demonstrate his/her ability to:

- Work as a business professional
- Earn at last two satisfactory supervisory evaluations
- Communicate his/her accomplishments

Business 339/439 (Internship for Business Core)

Through General Business Internship, the student will learn to:

- Communicate effectively in writing and orally using appropriate vocabulary, grammar and technology
- Use general business knowledge to solve applied problems
- Work in a collaborative fashion with colleagues, staff and supervisors
- Demonstrate adaptability, flexibility and motivation in a professional business setting
- Demonstrate leadership behaviors such as initiative, focus, and high performance standards
- Demonstrate responsibility, accountability and dependability
- Model integrity, honesty and fairness in dealing with others and propriety information
- Demonstrate understanding of ethical behaviors and issues of relevance to business community
- Use quantitative and analytical tools including software, technology and technical know-how to solve applied business problems

Hospitality Management (BUS 339 E/HSM 338)

The student will describe the experience and represent in the internship portfolio:

- The application of basic food and beverage principles
- Budgeting and/or forecasting based on current hospitality practices
- The development/implementation of a facility management plan
- The development/implementation of event planning protocol
- The preparation of a hospitality market plan

MIS (BUS 339 H)

- Increase Programming Skills
- Assist with Project Estimates
- Develop proficiency in use of Database (design and SQL)
- Develop first-hand skills with networks (installation and maintenance)
- Gain experience with gathering user requirements and documentation

Finance (BUS 339 D)

Corporate Track	**Asset Management Track**
• Capital budgeting • Forecasting • Financial statement analysis • Problem identification • Problem solving • Decision making • Data gathering and filtering • Time management	• Customer relations • Portfolio design • Fundamental analysis • *T*ime management • Financial statement analysis • Problem identification • Problem solving • Decision making • Data gathering and filtering

Management (BUS 339 G)

Skill Development

- Identify and analyze business problems to formulate recommendations for a course of action.
- Communicate effectively and professionally in business situations through physical or virtual presence, writing, speaking, listening, and technology.
- Utilizing team building skills and facilitating collaborative behaviors in the accomplishment of group goals and objectives.

Broader Knowledge

- Describe the concept of competitive advantage and how it may be achieved through strategic and tactical methods.

Career Awareness

- Recognize specialized business knowledge opportunities in understanding adaptive management strategies in relation to business decision-making, business success, and consider implementation issues including; financial, legal, operational and administrative procedures involved starting new business ventures.
- Gain an understanding of career opportunities and the progression of transitional skills required for upward mobility within an organization.

Personal Development

- Identify the benefits of experiential learning by modeling strong good work habits, time management and self discipline.

Marketing (BUS 339 I)

The student will describe the experience and represent in the internship portfolio

- the research process
- the development/ implementation of a product segmentation plan
- the evaluation of product review and development
- the development /implementation of distribution of product and /or channel selection
- the development/implementation of pricing protocol
- the development/implementation of promotion material
- the development/implementation of integrated market plans or significant portions of said plan.

Supply Chain Management (BUS 339 J)

- The student will describe the experience and represent in the internship portfolio:
- The development/implementation/practice of a procurement program
- The development/implementation/practice of a distribution system
- The development/implementation/practice of delivery system
- The development/implementation/practice of material warehousing
- The development/implementation/practice of supply chain communications network
- The development/implementation/practice of supply chain assessment process
- The development/implementation/practice of integration of operations requirement

APPENDIX C

EMPLOYER EVALUATION FORM FOR ASSESSING STUDENT WORK PERFORMANCE

Your (supervisor's) Name _____
Date_____
Your Title _____ E-mail & Phone_____
Work/Internship Site _____Student Name_____
Internship Credit in (Specify the Discipline)_____Midpoint OR Final Evaluation (Circle One)

Thank you for assessing the performance of our students in the key areas identified by the College of Business and Economics as critical to the educational experience of our students using a 4 point scale where 4 is the highest score. Please submit this evaluation by_____. You may contact me if there are any questions or concerns.

BUSINESS KNOWLEDGE *Related to the discipline in which student is getting credit (filled at the top of the form)*	Accomplished (4)	Proficient (3)	Partially Proficient (2)	Unacceptable (1)	Not Applicable
Uses discipline-specific knowledge to find solutions and address business needs					
Uses basic/general business knowledge to solve applied problems					
Comments:					
ETHICS	Accomplished (4)	Proficient (3)	Partially Proficient (2)	Unacceptable (1)	Not Applicable
Models integrity, honesty and fairness in dealings with others and propriety information					
Exhibits responsibility, accountability and adhere to the organization's rules and norms					

Demonstrates understanding of ethical behaviors and issues relevant to the business community					
Comments:					
ANALYTICAL AND QUANTITATIVE SKILLS	Accomplished (4)	Proficient (3)	Partially Proficient (2)	Unacceptable (1)	Not Applicable
Uses appropriate quantitative methods and software to analyze data and solve problems					
Exhibits analytical and quantitative skills appropriate to the business community					
Demonstrates the ability to process, summarize and display business information using appropriate analytical skills and technology					
Comments:					
Overall Performance of the intern	Very Good (4)	Good (3)	Average (2)	Below Average (1)	
Overall how will you rate the performance of this intern?					
Overall Comments:					

Supervisor Signature_____

APPENDIX D

Employer Survey Responses

7. Uses correct grammar and vocabulary in dealing with target audience.		
Unacceptable	0	0%
Partially Proficient	0	0%
Proficient	14	29%
Accomplished	35	71%
Not Applicable	0	0%
Total	49	100%
8. Business writing is well organized, purposeful, accurate and well articulated.		
Unacceptable	0	0%
Partially Proficient	1	2%
Proficient	16	33%
Accomplished	25	51%
Not Applicable	7	14%
Total	49	100%
9. Uses current technology for composition, visual displays and oral presentation of work.		
Unacceptable	0	0%
Partially Proficient	2	4%
Proficient	11	22%
Accomplished	30	60%
Not Applicable	7	14%
Total	50	100%
10. Comments:		
25 Responses		
LEADERSHIP AND TEAMWORK		
11. Able to confer and collaborate well with colleagues, staff and supervisor(s).		
Unacceptable	0	0%
Partially Proficient	3	6%
Proficient	12	24%
Accomplished	35	70%
Not Applicable	0	0%
Total	50	100%
12. Exhibits motivation, stamina, adaptability and enthusiasm for work.		
Unacceptable	1	2%
Partially Proficient	2	4%
Proficient	11	22%
Accomplished	37	73%
Not Applicable	0	0%
Total	51	100%

13. Demonstrates leadership behaviors (focus, initiative, high standards, dependability).		
Unacceptable	1	2%
Partially Proficient	2	4%
Proficient	12	24%
Accomplished	36	71%
Not Applicable	0	0%
Total	51	100%
14. Comments:		
27 Responses		
BUSINESS KNOWLEDGE		
15. Uses discipline-specific knowledge to find solutions and address business needs.		
Unacceptable	0	0%
Partially Proficient	1	2%
Proficient	22	43%
Accomplished	26	51%
Not Applicable	2	4%
Total	51	100%
16. Uses basic/general business knowledge to solve applied problems.		
Unacceptable	0	0%
Partially Proficient	1	2%
Proficient	22	43%
Accomplished	27	53%
Not Applicable	1	2%
Total	51	100%
17. Comments:		
20 Responses		
ETHICS		
18. Models integrity, honesty and fairness in dealings with others and propriety information.		
Unacceptable	0	0%
Partially Proficient	0	0%
Proficient	10	20%
Accomplished	41	80%
Not Applicable	0	0%
Total	51	100%
19. Exhibits responsibility, accountability and adhere to the organization's rules and norms.		
Unacceptable	0	0%
Partially Proficient	2	4%
Proficient	8	16%
Accomplished	41	80%
Not Applicable	0	0%
Total	51	100%

20. Demonstrates understanding of ethical behaviors and issues relevant to the business community.		
Unacceptable	0	0%
Partially Proficient	0	0%
Proficient	12	24%
Accomplished	38	75%
Not Applicable	1	2%
Total	51	100%
21. Comments:		
18 Responses		
ANALYTICAL AND QUANTITATIVE SKILLS		
22. Uses appropriate quantitative methods and software to analyze data and solve problems.		
Unacceptable	0	0%
Partially Proficient	1	2%
Proficient	15	29%
Accomplished	23	45%
Not Applicable	12	24%
Total	51	100%
23. Exhibits analytical and quantitative skills appropriate to the business community.		
Unacceptable	0	0%
Partially Proficient	0	0%
Proficient	16	31%
Accomplished	30	59%
Not Applicable	5	10%
Total	51	100%
24. Demonstrates the ability to process, summarize and display business information using appropriate analytical skills and technology.		
Unacceptable	0	0%
Partially Proficient	1	2%
Proficient	18	35%
Accomplished	27	53%
Not Applicable	5	10%
Total	51	100%
25. Comments:		
24 Responses		

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Assessment Strategies: Coordinating Assessment for Multiple Accrediting Bodies

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ABSTRACT

This paper explains the tasks associated with creating an assessment process that can be used to assess data for multiple accrediting bodies. The paper provides information on the role of an assessment committee and how that committee can steer a department into an organized assessment team. Planning, data collection, report generation, continuous improvement, and faculty buy-in are discussed. Example documents for performing assessment tasks are included.

INTRODUCTION

Assessment is not just the latest fad in education. Assessment is the key to accreditation, whether the accreditation sought is program-specific or university-wide. Some of the challenges for assessment are (1) understanding what to assess, (2) determining how to assess, and (3) calculating how frequently to assess. This paper explains a process used by a computer science and information systems department in a small liberal arts college in the southeast. The department is responsible for not only reporting assessment data for the Southern Association for Colleges and Schools (SACS) [7], but also for the Accreditation Board for Engineering and Technology (ABET) [2]. In order to meet the assessment requirements, several different methods and reports were being produced from an unmanageable amount of collected data. For several years, the department has been learning to streamline the assessment process and is one of the leading departments in the university in terms of organized assessment strategies. While assessment certainly remains an on-going, evolving process, the department has matured to a point where assessment is no longer feared. Assessment has become part of the department culture. The tools and techniques used to streamline this process are provided in this paper for other departments that need to report assessment data in a multi-faceted fashion.

This paper is organized in the following manner: An explanation of the types of accreditation responsibilities of the department is provided. This is followed by an account of the tasks required by an assessment-focused committee in the department. The next few sections provide details on how to plan an assessment strategy, collect data, and report the data. Finally, a discussion on continuous improvement and faculty buy-in is presented. Future work and outstanding tasks complete the paper.

ACCREDITING BODIES AND RESPONSIBILITIES

The department of computer science and information systems is a department in a university that is regionally accredited by SACS, the accrediting body for higher educational institutes in the southeastern United States [7]. University-wide, each department must maintain yearly accreditation statistics which are then used to evaluate the university as a whole. The Bachelor of Science in Computer Science is

accredited by ABET. The Bachelor of Science in Information Systems is a new degree in the department and will be evaluated for accreditation by ABET once a certain level of accreditation data has been gathered.

In previous years, the department would gather assessment related data such as student course grades, exit examinations, and exit surveys. When the yearly university-wide reports were due, the challenge of writing the report clearly showed that changes in the process were necessary. The reports were cumbersome to write because while data existed, the data collected was not mapped to specific goals ahead of time, making assessment reporting somewhat like a large jigsaw puzzle. In addition, student grades were not translated into more useful information.

This method of assessment tracking and reporting changed when the department started preparing for the renewal of the ABET accreditation for the Bachelor of Science in Computer Science. ABET was moving to a new set of standards and it was important the department was able to keep up with the new standards. During the 2008 academic year, preparation and training to redesign the accreditation methods of the department began. The department formed a small assessment committee that would steer the department into a new way of thinking about assessment. During that year, the chair of the assessment committee attended a rigorous training with ABET as well as best-practices workshops in the months following. In addition, the assessment chair reviewed and shared a series of webinars provided by ABET. The training provided the department with an individual who could be a "go-to" contact person for assessment-related questions. This individual then relayed the most important information back to the assessment committee members, and eventually the faculty.

During the 2009 academic year, the assessment committee worked to design an assessment plan that would fit both the ABET and SACS requirements. The following sections provide the steps taken to achieve that task.

THE ROLE OF THE ASSESSMENT COMMITTEE

The assessment committee first began as appointed junior faculty members. Later, four new faculty members joined the department. Two had experience in ABET accreditation and volunteered to join the assessment committee. A year later, another new faculty member was hired in the department who was also interested in assessment.

The assessment committee would not be successful without a certain amount of power to make changes. The assessment committee meets as needed and has the authority to implement changes to departmental processes. It also has the final say in assessment-related decisions. Most importantly, it has the support of the department chair. In addition, the assessment committee regularly incorporates assessment-related agenda items for inclusion in regular departmental meetings. This allows the rest of the faculty to be updated in assessment matters.

While a seemingly simple task, there was also a need to understand and map the different naming conventions used in assessment. For example, what the university calls "student learning goals" are called "course objectives" by ABET. Since all university departments are required to use the same nomenclature for SACS-related reporting, all assessment terms used in the department eventually followed the university-wide terms.

Once naming conventions were clear, the assessment committee took on the task of creating customized ABET-related student learning outcomes, which are currently referred to as ABET Program Curricula Outcomes (PCOs) within the department. These are based on the required criteria for the different

programs either accredited by or being targeted for accreditation by ABET [1]. This was an extremely difficult task as the committee customized each of the ABET student learning outcomes for both the computer science and information systems degrees. In order to fulfill a university-wide requirement for SACS accreditation, the assessment committee needed to update the department mission statement along with the goals of the department.

The assessment committee then needed to map each of the ABET-related PCOs with the SACS-related goals. Once the PCOs were mapped to the goals, the assessment committee needed to work on what ABET considers performance criteria [4], which are now referred to course objectives (COs) within the department. These are individual, measurable tasks that are assessed within the program. For each PCO, the assessment committee, in conjunction with the faculty, created COs for each PCO. For each class, no more than four COs were applied. Faculty could choose from the official list or modify the COs for their class as long as the COs were mapped to the PCOs. The official COs were also evaluated in the Senior Exit Exam, which is explained in detailed in a future section of this paper.

In order to assist faculty in understanding the relationships between the PCOs and COs, a master document was created for each class. It contained a matrix of how each CO mapped to each PCO. Initially, an attempt was made to limit a one-to-one mapping, but that was abandoned due to some overlapping concepts. At the beginning of the semester, each faculty would review their matrix to determine what PCOs should be covered. An example can be found in Appendix A.

ASSESSMENT PLANNING

The assessment committee created a six-year plan of assessment to determine which PCOs would be assessed during the assessment plan. The assessment plan is modeled after ABET recommendations where a PCO is assessed twice during an assessment plan. The steps for assessing a PCO include (1) data collection, (2) evaluation of collected data, and (3) action or modifications. By assessing a PCO twice during a six-year plan, any necessary action can be taken mid-way through the assessment period, if necessary. Appendix B shows the rotating schedule of PCOs during a six-year plan.

The assessment committee, as part of the assessment plan each year, selected a rotating schedule of which PCOs were to be assessed by which classes. The PCO matrices were used to determine which classes could be candidates and eventually used in assessment. An attempt was made to avoid the same class or professor being targeted more than once in the same semester.

Since the goal of assessment is to determine what graduating students are expected to learn, no first-year courses were included in the assessment. The exception to this is the ethics course. This course was originally a junior-level course, but it was changed to be open for all computer science and information system majors from year one so that students could be introduced to ethical topics early in their academic career. In addition to the courses, the Senior Exit Exam is used to assess data every major semester. Appendix C shows the source of data for each PCO being assessed.

DATA COLLECTION

At the end of each semester, all courses must be evaluated using a Simple Faculty Course Assessment Report (Simple FCAR), a popular standardized format for assessing course-related data. The FCAR was adopted from [5] and includes not only grade reporting, but a reflection of how well the course covered required topics. A Simple FCAR also includes sections for changes made from previous experience as well as future suggestions. Faculty had been used to completing the simple FCARs for several years.

A new, more detailed FCAR was introduced to specifically address the PCOs being measured in targeted classes. All professors are made aware of which classes are being assessed approximately one semester in advance. The Detailed FCAR includes a section that is used to specifically evaluate the targeted PCO. Information in the Detailed FCAR includes all sections from the Simple FCAR in addition to a course objective assessment section. In this section, the faculty member indicates how the Course Objectives mapped to a particular PCO are measured. This evaluation could be, for example, a particular question from an exam or an entire assignment. The choice is always left up to the instructor.

The instructor then determines a measurement of satisfaction for the item being evaluated. The goal of this is to move away from using course grades as an assessment measurement. This measurement of satisfaction can change depending on the type of assessment. In terms of an exam question, a score of satisfaction can be as simple as getting the answer correct. When using more complicated measurements, a score of satisfaction might be a particular grade on an assignment. For whatever score the faculty member determines is satisfactory, those students meeting the criteria are used to create a satisfaction ratio. This is a ratio of the number of students who successfully met the CO versus the total number of students in the class. That ratio, along with an explanation of how that ratio was determined is included in the Detailed FCAR.

In addition to FCARs, other methods of assessment are included. These include national standardized testing, alumni surveys, and the senior exit exam. While these and additional methods can be incorporated into any assessment plan, the most important of these for this particular department is the senior exit exam. The senior exit exam provides both a direct and indirect assessment of each and every PCO. There are several parts of the senior exit exam. One part is a survey that asks the student to measure the strength of coverage of each of the COs from the official list of COs mentioned earlier. Following the coverage-based assessment of each CO, survey questions assessing the students' ability to perform each CO are presented. Finally, knowledge-based questions that were mapped to each PCO are included. These questions ranged from determining program output to answering factual questions based on various computer science or information systems topics.

The Detailed FCARs, the survey-based senior exit exam questions, and the knowledge-based senior exit exam questions provide the department with the ability to triangulate assessment. Triangulation involves assessing based on three different categories of assessment. The Detailed FCARs as well as the knowledge-based senior exit exam questions are two forms of direct assessment. The senior exit exam survey questions represent indirect methods of assessment. The goal of the assessment committee is to always have at least two direct and one indirect method of assessment. As previously stated, other assessment methods can and are included from time-to-time, but at a minimum, the each PCO is assessed on the detailed FCAR, survey-based senior exit exam questions, and the knowledge-based senior exit exam questions.

REPORTING ASSESSMENT

For each targeted PCO, an assessment score is determined. This assessment score is derived by compiling all of the ratios of students who successfully satisfied a particular CO from all data sources. The ratio is then converted to a four-point scale. This allows reports to be written with a simple, mathematical representation of the assessment data collected. For areas that score lower, attention is needed.

Because of the careful planning of the assessment committee, report generation is much less painful than in the past. Instead of attempting to keep track of two different reporting systems, the assessed data can

be used in both ABET-related and SACS-related reports using the assessment scores and supporting data gathered throughout the six-year plan.

CONTINUOUS IMPROVEMENT

The goal of assessment is to continuously make improvements to the program. Once Detailed FCARs are submitted, senior exit exams are taken, and reports are written, the assessment process does not end. The department gathers at the end of the spring semester to review the FCARs for the year and to discuss assessment results.

Since assessment improvements should not be delayed for discussion a single time during the year, the assessment committee continuously reviews the assessment data as it becomes available. While the assessment committee takes the lead on reviewing the PCO-related data, there are other tasks that are simply too much for a small committee to handle alone. One of the most important areas that needs to be managed is the coverage of PCOs via the mapped COs for each course. If an instructor does not provide assessment data for the PCOs for their course, the committee is limited to other sources for assessment. While the overlapping of assessment using triangulation from different sources helps avoid related problems, checks are still required.

In a department where different instructors often teach different courses each semester, it is essential to maintain clear guidelines on what PCOs are to be covered by each course. This is done by a course coordinator, a concept introduced by [6]. A course coordinator is responsible for updating PCO coverage and communicating any changes of coverage to the assessment committee. The course coordinator is also responsible for meeting with all other instructors who are teaching a course they coordinate to ensure that new instructors target the required PCOs. In addition, the course coordinator ensures that textbooks used are appropriate for the class. By having a course coordinator responsible for each course in the curriculum, there is a "go-to" person for each course. The course coordinator has the ability to determine if the PCOs listed in each course matrix actually apply the course.

FACULTY BUY-IN

In order for assessment to be successful, there must be faculty buy-in. Assessment does not work if only a select few perform the necessary tasks. The culture of a department must change to, if not an assessment-friendly culture, an assessment-accepting culture. The key is to ensure the continued communication of the importance of assessment to all faculty members. The assessment committee is tasked with trying to promote change, especially to those who are most resistant. The process of creating an assessment-friendly culture is something that takes time and cannot be forced.

Course coordinators are, when possible, chosen based on interest so that there will be a sense of "ownership" on the part of the course coordinator. This is to help keep course coordinators motivated to continuously focus on improvements to the curriculum. In addition to the selection of course coordinators, the rotating schedule of courses helps keep the same faculty from constantly being burdened with providing a Detailed FCAR every semester. This is done, in part, to keep faculty from experiencing "assessment burn-out" by sharing the assessment load among the faculty.

Online support tools are also extremely useful for assessment strategies. In order avoid constantly meeting with faculty, many initiatives can be achieved via email or Web portal. Instead of inundating faculty with printouts and booklets, FCARs, reports, schedules, and other assessment-related information

can simply be made available via electronic tools. In addition, a bulletin board with a listing of helpful information such as target dates, and course coordinators is located in a visible location.

FUTURE ASSESSMENT PLANS

While the department has become efficient in performing assessment, there are still goals to be met. In addition to course coordinators, the department also implemented outcome champions. Outcome champions were also based on [6] to ensure that each PCO was being measured properly. The idea of the outcome champion never fully materialized and the tasks of ensuring assessment data coverage fell back onto the assessment committee. Ownership of a particular PCO by a faculty member is still a goal, but implementing this goal is on hold until the end of the first assessment cycle is complete. At that point, it will be important for outcome champions to help determine if curriculum changes are needed.

In addition to the Web-based repository and email communication currently being used in the department, more technology-based programs must be implemented. Currently, syllabi, matrices, and FCARs are still disseminated as word processing documents. While these documents are uploaded for online access, many assessment-related systems should be replaced with database driven electronic tools. Because of a lack of staffing, progress is slow, but improving. Assessment committee members are taking on this task by programming the most essential online tools between semesters.

APPENDIX A

This appendix provides an example of the mappings for each course objective against the ABET Program Curricula Outcomes for a particular course.

CSCI 480

Introduction to Artificial Intelligence. (3) (Prereq: CSCI 220) Covers the fundamentals of Artificial Intelligence (AI); topics and techniques for analyzing and developing intelligent systems; programming in an AI language. Coverage may include applications in areas such as expert systems, neural networks, fuzzy logic, robotics, etc. F, even years.

Each matrix will map the course objectives to the following Program Curricular Outcomes:

a) An ability to apply fundamental principles of computing and mathematics
b) An ability to analyze a problem, and identify and define the requirements appropriate to its solution
c) An ability to design, implement, and evaluate a solution to meet specific requirements subject to a set of constraints
d) An ability to function effectively on multi-disciplinary teams to accomplish a common goal
e) An understanding of professional and ethical responsibilities
f) An ability to communicate effectively, both verbally and in writing
g) An ability to analyze the local and global impact of computing on individuals, organizations, and society
h) Recognition of the need for and an ability to engage in life-long learning
i) An ability to use current techniques, skills, and tools necessary for computing practice Computer Science
j) [CS ONLY] An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems through the critical analysis of the tradeoffs involved in design choices
k) [CS ONLY] An ability to apply design and development principles in the construction of complex software systems
l) [IS ONLY] An understanding of processes that support the development, deployment, and management of information systems within a business-centric application environment

Course Objectives
The student will be able to:

1) Describe the fundamentals of artificial intelligence including knowledge representation, reasoning, problem solving and machine learning
2) Analyze problems that can be solved using AI
3) Apply artificial intelligence programming techniques in a modern programming language

Course Objectives Mapped to ABET Program Curricula Outcomes

	PCO												
CO		a	b	c	d	e	f	g	h	i	j	k	l
	1		X										
	2		X								X		
	3			X						X			

APPENDIX B

PCO	Description	Year 1 09-10	Year 2 10-11	Year 3 11-12	Year 4 12-13	Year 5 13-14	Year 6 14-15
A	An ability to apply fundamental principles of computing and mathematics	X		X		X	
B	An ability to analyze a problem, and identify and define the requirements appropriate to its solution		X		X		X
C	An ability to design, implement, and evaluate a solution to meet specific requirements subject to a set of constraints	X		X		X	
D	An ability to function effectively on multi-disciplinary teams to accomplish a common goal	X		X		X	
E	An understanding of professional and ethical responsibilities		X		X		X
F	An ability to communicate effectively, both verbally and in writing		X		X		X
G	An ability to analyze the local and global impact of computing on individuals, organizations, and society	X		X		X	
H	Recognition of the need for and an ability to engage in life-long learning		X		X		X
I	An ability to use current techniques, skills, and tools necessary for computing practice Computer Science		X		X		X
J	[CS ONLY] An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems through the critical analysis of the tradeoffs involved in design choices	X		X		X	
K	[CS ONLY] An ability to apply design and development principles in the construction of complex software systems		X		X		X
L	[IS ONLY] An understanding of processes that support the development, deployment, and management of information systems within a business-centric application environment	X		X		X	

APPENDIX C

PCO	Description	Year 2 10-11	Year 3 11-12
A	An ability to apply fundamental principles of computing and mathematics		CSCI 445 (F) CSCI 415 (S) Exit Exam (F & S)
B	An ability to analyze a problem, and identify and define the requirements appropriate to its solution	CSCI 370 (F) CSCI 220 (S) Exit Exam (F & S)	
C	An ability to design, implement, and evaluate a solution to meet specific requirements subject to a set of constraints		CSCI 350 (F) CSCI 450 (S) Exit Exam (F & S)
D	An ability to function effectively on multi-disciplinary teams to accomplish a common goal		CSCI 330 (F) CSCI 335 (S) Exit Exam (F & S)
E	An understanding of professional and ethical responsibilities	CSCI 170 (F) CSCI 385 (S) Exit Exam (F & S)	
F	An ability to communicate effectively, both verbally and in writing	CSCI 330 (F) CSCI 410 (F) Exit Exam (F & S)	
G	An ability to analyze the local and global impact of computing on individuals, organizations, and society		CSCI 370 (F) CSCI 495 (S) Exit Exam (F & S)
H	Recognition of the need for and an ability to engage in life-long learning	CSCI 409 (F) CSCI 430 (S) Exit Exam (F & S)	
I	An ability to use current techniques, skills, and tools necessary for computing practice Computer Science	CSCI 310 (F) CSCI 425 (S) Exit Exam (F & S)	
J	[CS ONLY] An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems through the critical analysis of the tradeoffs involved in design choices		CSCI 356 (F) CSCI 480 (S) Exit Exam (F & S)
K	[CS ONLY] An ability to apply design and development principles in the construction of complex software systems	CSCI 450 (F) CSCI 490 (S) Exit Exam (F & S)	
L	[IS ONLY] An understanding of processes that support the development, deployment, and management of information systems within a business-centric application environment		CSCI 409 (F) CSCI 495 (S) Exit Exam (F & S)

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Assessment: The Final Frontier

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Assessment the Final Frontier

Assessment in Higher Education is the current and newest buzzword for many institutions. The reason is that many institutions are seeking industry accreditation for many of their degree programs. This has made it necessary for them to undergo many changes, including some radical changes to their programs. These changes, though required, will hopefully help improve the quality of their degree programs.

The final frontier is so designated, because assessment seems to be a word that can strike fear into any school faculty member, chair, dean, and/or administrator. Higher Education has enjoyed a long and prosperous legacy of establishing standards on how to assess students. Traditional methods include quizzes, tests, papers, and participation.

Now that Higher Education Accrediting Bodies are changing their assessment criteria, however, institutions must also change as well. No longer is a simple student final grade enough to satisfy accrediting criteria; now we must prove that our students know what we say they should know in our programs. Therefore, we need to discuss why assessment is the final frontier for changing the way we teach, learn, measure, and report what our students know as they work through our programs.

What is Assessment?

Assessment is the valuation of something (dictionary.com, 2011), usually property for tax purposes, but the key part is that it is a valuation. This valuation in academia then becomes the basis for determining what students gain from the programs through which they matriculate. In other words, what value do students receive from these programs?

The final frontier then, for faculty, becomes one of learning how to actually assess the value of our programs. The criteria for assessment may be dictated or suggested, but however it

is delivered, it must be understood clearly enough so that all interested persons can have a chance to succeed in assessing the value.

Traditional Assessment

Traditionally student assessment has depended on coursework grades, and the final grade received in a particular program course (Anderson, 1998). This was, and in many cases still is, the indicator used to measure success. If a certain number of students graduated, then our programs were a deemed successful and we could continue as is or make informal modifications at the course level if deemed necessary.

This method, while traditional, is no longer how assessment is designed to work (Wolf, et al., 1991). Assessing agencies throughout the world are changing their criteria for assessment. These criteria changes come about for many reasons, such as government mandates or laws, social initiatives, and/or industry standards.

The change is not as important as the result, which is that higher education entities now have to prove that their students are learning what the entities profess they are learning from any particular program.

Assessment Case Example

As a case example for the changes that new assessment criteria bring to an institution, I will use the School of Engineering and Computational Sciences at Liberty University as my example.

In 2008, we began to look into accreditation through the Accreditation Board for Engineering and Technology (ABET, 2011). This organization is the premiere accrediting agency for engineering and technology programs.

ABET is a non-dictating agency, therefore they recommend criteria, but they do not force any program to adopt their criteria. Most programs, however, do utilize their criteria in whole, or modified in part, to meet the needs of a particular program. The particular ABET criteria used for this example is for computing programs and is outlined below:

The Student will be able: (Student Outcomes – ABET, 2011)

a) to apply knowledge of computing and mathematics appropriate to the discipline.
b) to analyze a problem, and identify and define the computing requirements appropriate to its solution.
c) to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
d) to function effectively on teams to accomplish a common goal.
e) to have an understanding of professional, ethical, legal, security and social issues and responsibilities.
f) to communicate effectively with a range of audiences.
g) to analyze the local and global impact of computing on individuals, organizations, and society.
h) to recognize the need for and an ability to engage in continuing professional development.
i) to use current techniques, skills, and tools necessary for computing practice.

The above list was selected for our Information Systems 4-Year Degree Program assessment criteria. Using these has brought about some radical changes in our programs.

Program Changes

The first change that was needed was to totally reevaluate our program from the ground up. We had to determine what we were currently doing, and then determine what we wanted to do in the future. Using this ABET criteria for computing programs, we were able to accomplish this feat over a three year period.

Some changes in the program included~~,~~ adding courses, dropping courses, reworking courses, and planning new courses. The effort involved in looking at the program as a whole was tremendous. Along the way, we confronted many barriers including, faculty, chair, dean, and administration buy-in. We faced costs associated with accreditation and feelings of fatigue and remorse about the whole process. Overcoming these barriers required time and patience from all involved.

The second change that was needed was to re-invent our individual courses to meet the ABET criteria we chose to use. This also was met with many difficulties, but eventually after several attempts, we began to see positive changes in our courses. The difficulty was replaced with reluctant acceptance, and finally, over time, full acceptance of the changes needed.

The third change that was needed was to convince the students that the changes they were in the midst of; were for their own good. This is an ongoing process, and students have tentatively embraced ABET in our/their program. Student education about the benefits of accreditation is very important, and can help motivate faculty to improve as well.

Continuous Improvement

Continuous improvement is the mantra of ABET, and is actually a very good way to look at our program. As we develop our program to meet the requirements of ABET, we can also be mindful to think of how we can continually improve our program for better assessment and

value. The ABET criteria give us the starting point for improvement, but it is up to us to continue improving as long as our Information Systems program is a viable degree program.

Conclusion

In any endeavor, problems are bound to arise; it is no different where assessment is concerned. Assessment, however, is crucial to proving that Higher Education Programs are fulfilling their goals of graduating successful students. No longer is it appropriate to simply rely on final grades to determine value, now we are faced with going beyond the final grade for proof.

ABET is an example of an accreditation agency that has adopted the value proof-method of assessment. They require programs to prove that students are gaining value in participating in the program. This is followed with the continuous improvement mantra to ensure that any ABET accredited program continues to meet high academic standards in providing value to the student.

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Entrepreneurship Education and the Role of the Regional University

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Entrepreneurship Education and the Role of the Regional University

Abstract

Regional colleges and universities are integral to providing economic and workforce development resources that support local and regional economies. Similarly, nascent entrepreneurs create economic opportunities and build enterprises through deliberate planning and risk taking. By developing and supporting entrepreneurs, colleges and universities provide an important catalyst for new businesses and a flexible, creative, and well-educated workforce. Small businesses create nearly three fourths of the net new jobs added to the economy every year. Areas in the United States with the highest entrepreneurial activity in the last decade also had high employment growth, high wage growth, and high productivity. Entrepreneurs that remain within their local community and are supported by universities represent significant leverage in potential economic revitalization, particularly in rural communities that suffers high poverty and unemployment. This paper contributes to a growing body of academic literature on the role that universities play in the development of the economy. However, it adds a new dimension by articulating the role that entrepreneurially engaged regional universities may have in regards to improving their regional communities.

The Regional Need for University Entrepreneurship Engagement

Colleges and universities have long been important components to regional economic and workforce growth and development. Academic program offerings, faculty engagement and consultation, and professional development and support for small business have characterized much of this support. Lately, there has been a growing body of academic research on the role of universities in regional development. Much of which has been primarily concerned with two issues: economic analyses of the direct employment effects associated with staff and student spending in the local economy and technology transfer, particularly through the creation of spin off companies and the establishment of "industrial" and "science parks" (Goddard, J.B., Charles, D.R., Pike, A., Potts, G. and Bradley, D. 1994). However, recent research has shown that universities have not as been successful in creating sustainable environments that enhance technology transfer and the commercialization of intellectual property from the university (Bok, 2003; Slaughter and Leslie, 2001; Wright, M., Birley, S., and Mosey, S., 2004). In contrast, research universities have been able to capitalize on generating revenue from their research projects resulting in patents and other methods of technology transfer (Slaughter and Leslie, 2001). Furthermore, as a result of bias that exists in academia, regional universities may be viewed as institutions that repress the growth of human and social capital and they have not been able to capitalize on the large funding models (Wright, 2004).

More recently, the role of universities in regional development has been seen as transcending this narrow technical and economic approach to embrace the role of universities in enhancing human capital within a region. Examples include certificate and degree programs in entrepreneurship, workshops and seminars, technical and administrative assistance, and resource referral, but also including recruiting students

from outside the region and placing them with local companies through internships, co-ops, and part-time employment; programs of continuing and professional development to enhance the skills and knowledge base of local managers; embedding international businesses by targeted training programs and research links; providing a gateway to the broader and international knowledge base for small and medium enterprises (SMEs); and providing strategic analysis and leadership within local civic society. The fact that expectations of and opportunities for colleges and universities is rising can be traced to fundamental shifts in the organization of production and the related regulation of the economy reflected in the processes of globalization and localization. Effective engagement in regional economic and workforce development processes requires that institutions of higher education have an understanding of these dynamics.

Rethinking Regional Development

Profound transformation of regional U.S. economies since the mid-1970s, have had major implications for economic and workforce development strategies. The stability of production systems, product markets and national corporate relations have been undermined by the rate of technological change, most notably through the widespread effects of generic or carrier technologies such as ICTs (information and communication technologies). Technological innovation and access to resources for innovation (skills, knowledge, and information) have become necessary and central to the competitive strategy of business and industry (Kanter, R.M., 1995). Many states have recognized the need to embrace, support, and sustain technology if they are to maintain employment and growth. As a result, there is a corresponding need to develop and implement policies and practices in the support and promote R&D, innovation and technology transfer. Notwithstanding this orientation, the diversification and internationalization of finance and of the organization of production allied to innovations in ICTs that permit

the flexible reshaping and reconfiguring of investment and resources, has weakened the bargaining power of smaller, rural, businesses. Global bodies have encouraged greater freedom in the flow of goods and information such that now it is the nature of the production locality as much as national market characteristics that determines investment decisions.

Not only has regional and local intervention and support from universities become more important to economic and workforce success, there has also been a qualitative shift in the form of local policy towards nascent entrepreneurship and innovation, and to providing a more sophisticated environment for mobile capital so as to maximize local value added (R&D and other high status jobs). The importance of this perspective for managing firms and localities has been promoted by Kanter in her recent book World Class: Thriving locally in the global economy. According to Kanter, future success will come to those companies, large and small, that can meet global standards and tap into global networks. And it will come to those cities and regions that do the best job of linking the businesses that operate within them to the global economy. Kanter argues that forces of globalization are so powerful that communities must connect the global and the local and create a culture conducive to attracting and retaining investment. The challenge is to find ways in which the global economy can work locally by unlocking those resources which distinguish one place from another. The basic argument presented here is that colleges and universities are uniquely positioned to provide technical, skills, and knowledge capital assets within the global economy – elements central to the success of regional entrepreneurial endeavors. Kanter posits that higher education faculty provide human capital elements that she has titled the "3 Cs" - Concepts, Competence and Connections. Kanter suggests that university faculty "can help grow these assets by offering innovative capabilities, production capabilities, quality skill, learning, networking

and collaboration." (Kanter, R.M., 1995). The location of universities in regions is a powerful facilitator of these processes - concepts links to research; competence links to teaching and connections links to the transfer to and from a region of people and networks grown out of universities. In order to realize such policy shifts, local policy has needed to be innovative and entrepreneurial itself, drawing on a wider network of resources, negotiating and building alliances between local and state government, universities, private sector interests and non-profit organizations.

Regional economic and workforce success has been characterized by a variety of explanatory models, but with a common agreement as to the factors underpinning success: agglomeration economies, economies of scale and network effects, economies of scope, trust, networks of small firms and supportive institutions. Central to successful innovation are the structures and modes of interaction between knowledge producers, disseminators and users. Since technologies embody both people and ideas as well as tangible products, transactions involving extensive interaction and iterative communication are widely believed to be necessary as a means of facilitating exploitation. This 'organized' method of exchange can encompass both physical technology and/or employees - including producers, disseminators and users - moving between institutions while maintaining close linkages for instance, between universities and linked 'spin-off' companies.

Defining the Entrepreneurial Learning Region

In the context of the role of universities in economic development, the most helpful approach to operationalize these ideas can be found in the concept of the learning economy which emerges from studies of innovation (Lundvall, B-Å., Johnson, B., 1994). Lundvall stresses the importance of interactive learning as a basis for

innovation and change in local and regional developed economies. The learning economy is defined as an economy where the success of individuals, firms and regions, reflects the capability to learn; where change and transformation is rapid and old skills quickly become antiquated and new skills are in demand; where learning includes skills and the building of competencies, not just increased access to information; where identifiable and measurable learning is occurring in all aspects of the economy, not just high-tech sectors; and where net job creation is in knowledge intensive sectors (high R & D, high proportion with a university degree, and job situation worsens for the unskilled).

Within the learning economy different modes of knowledge can be identified. First, ***know what***, that is facts and information. Second, ***know why***, - principles and laws necessary to reduce trial and error; third, ***know how*** - the skills and capability to do something, skills that are traditionally acquired within the workplace; and finally ***know who*** - information about who knows how to do what and the social capability to establish relationships to special groups in order to draw on their expertise. Each of these different forms of learning employs different channels for information exchange. In the case of know what and why, formal learning in school and universities is the normal channel. Know how depends on practical experience through tacit learning (for example, through apprenticeships) but also increasingly through network relationships with industrial and commercial partners. Finally, know who is learned from social interaction via professional associations, day to day dealings with customers, sub-contractors and a wide range of other actors and agencies.

Focusing on network knowledge, this is a hybrid form of knowledge that is neither completely public nor completely private. It depends on trust and is characterized by reliability, honesty, and co-operation. Network knowledge refers not only to the skills of individuals but the transfer of knowledge from one group to another to form learning

systems - the institutional infrastructure of public and private partnerships. Because network knowledge is highly dependant on interpersonal relations, it can most readily be developed within a particular region. Florida (1995) argues, 'To be effective in this increasingly borderless global economy, regions must be defined by the same criteria and elements which comprise a knowledge-intensive firm: continuous improvement, new ideas, knowledge creation and organizational learning.

Regions must adopt the principles of knowledge creation and continuous learning; they must in effect become "knowledge-creating or learning regions.' Key to such a learning region is the human infrastructure and the institutional mechanisms that foster interactive learning, and a central part of this infrastructure, in terms of the reproduction and adaptation of human resources, are universities. In the case of human capital, universities have traditionally produced new graduates for a labor market dominated by large employers, with little concern for SMEs or graduate retention in local labor markets. This traditional model often fails to respond to changing patterns of employer demands such as the decentralization of large corporations into clusters of smaller business units and the greater role of smaller businesses as sub-contractors, suppliers, franchisees etc. with subsequent implications for the skills required of graduates and the location of the recruitment decision. At the same time regional agencies are promoting graduate retention initiatives as a way of upgrading higher level local skills. This demand side changes the expansion of service provided by higher education with rising numbers experiencing the need to change career later on in life is leading to a growing supply of local students for undergraduate and graduate programs.

Notwithstanding these developments, little is known about the flow of students through higher education into local labor markets and how this relates to the overall economic performance of regions. Yet a key characteristic of the learning region is the

way in which knowledge is transferred from one group to another to create learning systems. In terms universities this includes knowledge of the appropriate skills and competencies required of the workforce. What constitutes "appropriate skills" will depend on the overall regional development strategy, be it indigenous development based on local enterprise, exogenous development based on attracting inward investment, or a combination of the two, for example by upgrading local suppliers to support and "embed" inward investment. In this context, the analogy between regions and organizations is one where the shift from personnel management based around handling individual employment contracts and personal development shifts to human resource management which harnesses people development to the strategic objective of the organization.

The key question here becomes: "Does the region include human resource development as part of its overall strategy?" The question raises specific challenges concerning the type of training programs, the qualification of institutions best placed to provide the program, and where within the region should this provision occur. An obvious requirement of a regional human resource strategy is information about future labor market needs. Given the long time lag between the identification of needs and the development of the necessary skills, one of the fundamental requirements of a learning region is the sharing of intelligence between higher education and training and human capital development programs and employers. Because of the inherent difficulties of forecasting future demands, the inevitable priority will be to ensure that education and training systems produce people with the flexibility to respond to stronger changing circumstances alongside specific skills and competencies required by particular industries and/or occupations.

Although research has focused on the direct contribution of universities to the economic success of the regions in which they are located, a further question concerns the indirect contribution of universities to the social and cultural basis of effective democratic governance and, ultimately, economic success. For example, Putnam (1993) has shown the strong relationship between a civic culture and institutions (understood as "norms of reciprocity and networks of civic engagement") and wider socio-economic performance. Regions are rich in such networks 'encourage social trust and co-operation because they reduce incentives to defect, reduce uncertainty, and provide models for future co-operation'. In so far as universities are by tradition classically "civic" institutions, they can play a key role in the development of the cultural and political determinants of socio-economic success. A key challenge is to enhance the role which universities, including their faculty and students, play in the development of such networks of civic and entrepreneurial engagement, and in the wider political and cultural leadership of their regions.

Implications for Colleges and Universities

The implications of many of the processes outlined here have yet to be successfully resolved by universities. Kanter refers to four aspects of globalization - simultaneity, multiple choice, pluralism and resource mobility. Simultaneity refers to the fact that we can no longer rely on spatial and temporal lags associated with the diffusion of new education products and services - universities can no longer hide behind the barriers of time and space. Multiple choice or by pass refers to the way in which local or regional monopolies are broken down, such that universities can no longer rely on local monopoly in education as new providers using distance learning techniques enter their realm. Pluralism is the process by which old centers of power are continually challenged such that many universities can no longer guarantee their dominant position as students

and firms exert consumer choice. Finally, mobility, particularly of the elite or so called "cosmopolitans", are shifting their place of residence and business more frequently, and this applies no less in academia than in the private sector. In the face of these threats, universities have no option but to attempt to tie down the global within the local; in so doing they will find willing partners in the public and corporate sector where similar pressures are being exerted. Universities must reconsider their administrative structures and management processes and practices in the light of this challenge.

The scale of the challenge should not be underestimated. Developing and evolving the curriculum to rapidly changing needs of employers and labor markets provides a good example. In terms of Lundvall's description of the learning economy, universities have been good at the know what and know why aspects of education, and are improving on the know how aspects through integration of the tacit learning acquired via work placements into teaching programs, the know who dimension is altogether more problematic. Progress on this front implies a deep relationship between research and teaching based on the sharing of the network knowledge of the research endeavor with students at all levels. Additionally, there is a need for a paradigm shift in the academy that will allow for human and social capital to be cultivated within the walls of the academy and encourage economic development within the region (Binks M., Starkey, K., and Mahon, C. L., 2006).

Further research has shown that by modifying their curriculum to meet the needs of the labor market, universities are able to cultivate human and social capital with greater skill-sets and they create value-added networks for current students and alumni as well as faculty members (Sager B., Fernandez, M. G., and Thursby, M., 2006; Westhead P. and Matlay, H., 2006; and Mosey S., Lockett, A., and Westhead, P., 2006). Universities should move away from their traditional approach and utilize a more constructivist

approach which would build their core curriculum around entrepreneurship education (Binks, M., Starkey, K. and Mahon, C. L., 2006). Graduates of an entrepreneurship based education would have the relevant skill sets (human and social capital) that would allow them to support and leverage economic development in their local communities and build a sustainable competitive advantage for their region. Schumpeter offered the insight that economic development is a result of entrepreneurship (Schumpeter, J. A., 1934); hence, in order to promote economic development universities must provide a service to their region by promoting and sustaining entrepreneurial education.

When considering their relationship with industry in a regional context universities should consider themselves as being located at the head of a supply chain, devoted to the creation, provision, and application of knowledge. The distribution channels for this knowledge are through students (projects and placements), graduates and post-graduates, as well as through published and contract research and consultancy that leads to new and improved technologies and management processes. But unlike a business enterprise situated in a similar supply chain position, universities devote relatively little resources to marketing their products in the form of graduates or to responding to signals about what the market wants. They simply have a sales department, in the form of the career placement offices, which have limited ability or mechanisms to match output (quality, quantity or specification) to customer needs.

The market place is, of course, extremely complex because it is composed of the totality of organizations that currently, or might in the future, employ graduates. At one end of the spectrum are tightly regulated vocational markets like medicine, architecture, law and engineering. (Arguably universities have been overly responsive to this segment of the market to the extent of having been 'captured' by some professional bodies). At the other end of the spectrum are the largely unarticulated demands of SMEs. If

universities are to play a more active role in economic development, it is vital that they understand the market segment and inform their teaching activities by its needs. This means not simply responding to currently expressed wants but actively researching the dynamics underlying changing employer needs and treating students as clients and employers as the end customer.

In some countries the fact that this approach is far from universal can be partly attributed to the student funding regime which currently rewards "production" but not "sale". In consequence the marketing function is often poorly developed. If universities were in part rewarded for the delivery of graduates into employment, including local employment, they would clearly have an incentive to put more effort into marketing and economic development. But becoming a market led organization requires a major change in university culture. It implies a strong sense of institutional purpose whereas universities remain dominated by academics whose principle professional loyalty is to their national or international invisible college rather than their parent institution. The new production of knowledge involving partnerships with the users and beneficiaries of research also transcends institutional boundaries and is difficult to integrate with formal institutional planning and resource allocations. New patterns of strategic alliances between academic groups based on complimentary competencies may occur but not between institutions within a region. In short, improved integration of universities with regional development will not be readily achieved by top down planning mechanisms at either the institutional or regional level but by ensuring the various stakeholders in the regional development process - education and training providers, employers and employers organizations, trade unions, economic development, labor market agencies and individual learners - have an understanding of each others role and the factors encouraging or inhibiting greater regional engagement. For example understanding that

universities and labor market agencies work in the context of national higher education policy and labor market training targets, employers of global competitive pressures to downsize, outsource etc. and students of personal financial constraints on investment in learning.

While local and state governments may seek to increase the engagement of universities with economic development, the means of achieving this goal is far from clear, particularly in the context of the value universities attach to individual autonomy. Such autonomy is associated with a diversity of institutions, often on a regional as well as a national scale that has evolved historically. For those universities with a strong research base, regional issues may be of minor concern. Such institutions see themselves as serving the region by attracting students from outside with those who remain adding to the local stock of human capital. They also contribute to attracting inward investment and possibly embedding that investment through training and research links. Such institutions thus contribute to exogenous regional development. Nevertheless, even within research based universities, certain departments, degree programs and research activities have strong regional linkages.

Alongside such institutions in most regions are those where serving the local and regional communities remains a central component of their mission. Regional universities also have national and international links that can provide gateways for local firms and students to the wider world. Finally, between these extremes there may be universities which are trying to develop their research base in selected fields and in the process devoting considerable resources to "going global". Determining which particular mix of institutions and more importantly mix of teaching and research programs would best underpin the economic development of a region is a key challenge. With the right form of incentives in terms of university assessment procedures and leadership development

programs, it might be possible to ensure that the appropriate signals reach and are embedded into the programs of individual universities.

With regards to assessment, in addition to the inclusion of regional criteria into national teaching and research assessment exercises, a strong case can be made for establishing a regional assessment process undertaken by universities themselves. Such assessments could be done with the aid of consultants with expertise in economic development and higher education management. These assessments would cover institutional organization, teaching, research and other services actually or potentially relevant to regional needs. The outcome of the assessment could be linked to a development fund for pump priming initiatives and which aims to enhance the university's contribution to economic development. Institutions would be free to participate in such a scheme and/or confine it to those parts of their activity that they deem to be regionally relevant. Alongside such assessments it would be necessary to have a program of human resource development targeting those individuals inside and outside of universities that have boundary spanning functions relevant to joint working on economic development. One of the key factors of success in regional partnerships merely act as gatekeepers between different organizations/networks. A small number of staff in universities, labor market and economic development agencies and dynamic businesses hold positions in which extra-organizational networking is a central feature of their job.

Those people who hold such position will do so by virtue of their personal and professional competency; they nevertheless require developmental support for their own professional improvement, and moral support from individuals and groups around them. For the most part the necessary skills and attributes are intuitive and learned through practice; however the growing need for such people suggests that some more

fundamental training and support is required. Relevant skills include: networking; facilitation; working with alternative cultures; setting up projects; planning and contract management; raising financial support; personal organization; supervision and personal support techniques; insight into organizational policies and dynamics. The establishment of such a development program for individuals engaged in the university/regional interface would be a further small positive step towards its improved management. Furthermore this interface would allow for an "entrepreneurial development system" to be created that would be regional in scope and systematic in approach (Lyons, T.S., 2003). As a result economic development in the regions would be enhanced due to these sustainable partnerships. Similar strictures apply to other stakeholders concerned to raise regional competitiveness.

Conclusion

Technological innovation and access to resources for innovation (skills, knowledge, and information) have become vitally necessary and central to the competitive strategy of business and industry. Not only has regional and local intervention and support become more important to economic and workforce success, there has also been a qualitative shift in the form of local policy towards nascent entrepreneurship and innovation, and to providing a more sophisticated environment for mobile capital so as to maximize local value added (R&D and other high status jobs, successful and therefore growing firms).

The location of universities in regions is a powerful facilitator of these processes - concepts links to research; competence links to teaching and connections links to the transfer to and from a region of people and networks grown out of universities. As a result, the academy will need to undergo an elemental paradigm shift that will allow for human and social capital to be cultivated within the walls of the academy and encourage

economic development within the region (Binks, M., Starkey, K. and Mahon, C. L., 2006).

The distribution channels for this knowledge are through students (projects and placements), graduates and post-graduates, as well as through published and contract research and consultancy that leads to new and improved technologies and management processes. Regional universities should take the lead in creating economic development in their regions by supplying the knowledge chain that will produce the human capital and by increasing the quality of life which will provide the social capital.

By fostering entrepreneurism, regional universities provide the catalyst for new businesses and a flexible, creative, motivated, and well-educated workforce that will enhance the economic development of the regions they serve. In essence, the expectations of and opportunities for colleges and universities is rising and can be traced to fundamental shifts in the organization of production and the related regulation of the economy reflected in the processes of globalization and localization. The 'ivory tower' of traditional academe has to continue to move forward and embrace the concept of leading their regions to become more entrepreneurial and competitive in this global economy.

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An Integrative Research Review:

Factors Contributing to the Gender Pay Gap Among Faculty in Higher Education

Abstract

Since the beginning of the 20th century with the women's movement, continuing on into the civil rights movement, there has been the issue of whether there is equal pay for equal work among employees. Pay discrimination may be by gender, race/ethnicity, and/or marital status. Emerging from the aforementioned movements were the Equal Pay legislations and Affirmative Action policies that have been enacted to measure the extent of the, inequalities within the labor market (Toukoushian, Bellas, & Moore, 2007). President Kennedy signed the Equal Pay Act in 1963, and at that time, women working full time earned 59 cents on the dollar compared to men working full time (U.S. Department of Labor & Castro, 1998). This situation had improved by 2007 to 77 cents on the dollar for full time women. (U.S. Census Current Population Survey, 2008). Additionally, there have been numerous studies documented that indicate that women are often paid less than men. The Carnegie Commission conducted the first national study in 1968, and as early as the 1970s, other research had been conducted regarding the salary differentials between male and female. Many of these studies that were conducted were because of changes in higher education from a legal perspective. Since then, many universities have conducted equity pay studies (Barbezat & Hughes, 2005). This paper focuses on the pay gap that exists between gender, which is the salary disparity between male and female, and it concentrates on the factors that contribute to it.

Introduction and Problem Formation

Within this analysis, research by Toutkoushian and Conley (2005) concluded that there is a difference in pay among female versus male faculty members despite equal experience, education, and research efforts. Other studies that have been conducted using national databases have shared the same conclusion as Toutkoushian and Conley, also reporting a pay gap among academic faculty (Barbezat, 1987, 1989; Bayer & Astin, 1975; Dey & Hill 2007; Euben, 2001; Government Accounting Office 2003; Toutkoushian & Conley, 2005). According to the Governmental Accounting Office (2003), the gap is still in existence after controlling for numerous variables such as education level, number of children, demographics, occupation, and work patterns. By 1988, 25 years after the Equal Pay Act, Civil Rights Act, and other legislation, women were still earning approximately 35% less than males. Roughly half of this gender gap is because of "differences in work preferences, productivity characteristics, and labor force attachment" (Fuller & Schoenberger, 1991). Those factors would be considered the "explained" portion of the wage gap with the remaining percentage being the "unexplained" portion of the wage gap. Between 1969-1993, the unexplained wage gap ranged from 1% to 16.3%, with most between 6%-8% (Barbezat, 202, p. 20). Toutkoushian and Conley (2005) reported that the unexplained wage gap between male and female faculty started to decline during the 1990s from 6-10% in 1993 to 4-6% in 1999.

By 2000, this total differential seemed to have narrowed to 20% with questions arising as to if this is accounted for by gender discrimination or because of other factors such as

differences in “discipline, seniority, rank, and productivity” (Carlin and Rooney, 2000). Within institutional types, the total salary gap is 8.3% at liberal arts colleges, 26% at most 4-year colleges, 29% at institutions granting doctoral degrees, and 22% at institutions where research is the main focus (Barbezat & Hughes, 2005). While much of the pay differential can be explained by factors such as “seniority, skills, experience, education, turnover, union membership and size of the firm,….the unexplained residual (is attributed) to discrimination in the labor force” (Carlson and McEnrue, 1985).

The following table shows the most recent pay differential:

Average Faculty Salaries for Men and Women by Rank, 2009-10 Average Salaries for Full-Time Faculty Members, 2009-10

Legend for Chart:

A - Men
B - Women
C - Women's salary as a percentage of men's

	A	B	C
Professor	$113,556	$99,780	87.9%
Associate ***professor***	$78,767	$73,455	93.3%
Assistant ***professor***	$66,718	$62,070	93.0%
Instructor	$47,661	$47,548	99.8%
Lecturer	$55,965	$50,813	90.8%

What professors earn. (2010). *Chronicle of Higher Education*, *(56)*31, 1-7.

Research Problem

A threat to validity when studies have been done on differences in academic salaries is that little attention has been paid to the interactive effects of personal characteristics or even social categories. Researchers will generally consent to agree on the fact that there is a wage gap between male and female workers, but there are fewer consensuses on the factors that are responsible for this wage gap (Toutkoushian, Bellas, & Moore, 2007). Therefore, the research problem in this integrative review is to attempt to examine the factors responsible for the total wage gap that is known to exist between male and female faculty.

Data Collection

This integrative review paper used articles by Jackson (1980) and Cooper (1982) to synthesize 20 separate findings into a whole that is both coherent and logical. This examination was conducted by using both the Clemson University and Lander University Library databases where a literature search was conducted using keywords such as "Salary/Gender/Higher Education/University". From the 20 scholarly publications that were selected, 20 were analyzed and 18 were used.

Data Evaluation

Numerous studies have been done and analyzed in this paper, which prove that women in academia earn less than men. These studies were conducted, and a control factor was implemented for education, experience, academic discipline, productivity, and institution type (Barbezat, 2002; Barbezat, 1991; Bellas, 1993, 1994, 1997; Perna, 2001; Toutkoushian, 1998a, b; Toutkoushian and Conley, 2005). There were some problems associated with methodology when analyzing the effect of labor market discipline on the studies. Some of these problems were that few studies exist that examine the impact of the supply of PhDs on a specific discipline. Next limited samples exist, and thirdly, the methods used in the analysis are limited. To overcome these problems, Umbach, (2007) used two national datasets and a hierarchical linear model to examine the effects of discipline and an individual's characteristics as it relates to academic salaries (Umbach, 2007).

The method used to evaluate the disparity in pay equity by gender for Toutkoushian, Bellas, & Moore (2007) was regression analysis. The variables in this case were X, which represented work-related factors relevant to human capital theory. These were experience, educational attainment, and field, all of which generally have an effect on faculty salaries. Y (sub i) would be the natural log of salary, and the study controlled for "each individual's highest degree, years of experience, academic discipline, and research publications" (Toutkoushian, Bellas, & Moore, 2007). Threats to validity or limitations in this study were that they needed a certain sample size, and as that size decreased, the errors became larger (Toutkoushian, Bella, & Moore, 2007).

Another study using regression analysis to determine pay disparity between genders was Becker and Toutkoushian, (2003). A serious threat to validity in this study was that while rank was included as the independent variable in the study, several characteristic differences between men and women were excluded that correlate to rank and gender. These were degree, seniority, publications, and experience. Because of these characteristics, men could have a higher probability of becoming a full professor than women (Becker & Toutkoushian, 2003).

Limitations or threats to validity in regression analysis in general are that the predictors used may have discrimination built into them. This would occur when analyzing the time frame that a faculty member maintains at a certain level because it may reflect merit, as well as gender bias. Another bias is the fact that regression analysis assumes normal distributions among groups, when in fact distributions of wages are positively skewed (Travis, Gross, & Johnson, 2009).

In addition to using regression analysis in measuring gender wage gap data, most data in gender studies typically comes from U.S. nation-wide data basis using "Ladd-Lipset surveys, Carnegie Foundation surveys, and National Science Foundation data" (Sosin, Rivers, & West, 1998). However, as in the aforementioned studies, many still use institutional data (Sosin, Rivers, & West, 1998). In another study, multivariate regression was used to "identify faculty who were significantly below their projected salaries after controlling for appropriate variables that would be reasonably expected to impact salaries" (Carlin & Rooney, 2000). This same study also identified a discrimination suit filed against another university showing across the board increases in salary had been discriminatory. Two factors that had not been controlled for in the regression model used at the time were productivity and appointments to administrative positions (Carlin & Rooney, 2000).

Analysis and Interpretation

The theory that defines this paper is Human Capital Theory. This theory is the most prevalent within western education and most used in setting government policies since the early 1960's. The theory originated with Adam Smith, who formed the basis of the theory. It progressed over the next two centuries to become the modern theory of late. Basically, the idea behind human capital theory is that "all human behavior is based on the economic self-interest of individuals operating within freely competitive markets" (Fitzsimons, 1999). Becker and Toutkoushian (2003), state that when using regression models, the specifications are partially based on human capital theory. According to them, this theory says that "a worker's level of compensation will be influenced by those attributes that contribute to his or her productivity" (Becker and Toutkoushian, 2003). Additionally, "Human capital factors are often referred to as supply-side variables that reflect personal investment in training, competence, and qualifications, such as education degree, licensing, experience, or other specialized competence" (Travis, Gross, & Johnson, 2009). Some of the measures of human capital theory in academia are the amount of education received, experience in academia, and published research. These measures will also be used in this paper to help explain the gender "wage gap" (Becker & Toutkoushian, 2003) and to help identify the factors that contribute to the pay gap.

A portion of the gender pay gap occurs because of job segregation. Minimum effort is made to "recruit and retain talented women in academic majors associated with high-paying job sectors such as science and engineering" (Travis, Gross, & Johnson, 2009). In some instances this segregation is absolute discrimination or reflects a culture that is not responsive to hiring women. This discrimination is a result of "psychological processes" that occur because of "shifting standards in judgments of qualifications and competence that effectively discounts qualifications of women and other minority members" (Travis, Gross, & Johnson 2009).

This idea of discrimination is a factor that contributes to the wage disparity because some universities may offer a "family wage" to married men. This practice is no longer legal, but may still be prevalent in practice. Offering higher salaries to married men because of the need to support their families explains some of the wage gap among married faculty; however, there still exists a gap between single men and single women (Toutkoushian, Bellas, & Moore, 2007). A reason for the salary differential may be because of past attitudes of those doing the hiring. Men who viewed women more favorably would hire more of them and pay higher salaries. In academia, women tend to be valued more for their teaching skills, rather than their research

skills. Consequently, there is a larger salary gap, and fewer females are hired in research institutions (Sosin, Rives, & West, 1998).

Other researchers say that the lower pay for female faculty is because of the fact that women make certain choices that result in lower pay (Antecol & Bedard, 2004). Women generally spend more time caring for the children and the home than men. This factor actually allows men to concentrate more on their career, while women are "juggling" a multitude of responsibilities (Bianchi, Milkie, Sayer, & Robinson, 2002). Another choice that women make that contributes to the wage gap in gender is associated with the "family wage" concept and is the fact that women are less geographically mobile if they are married and have children (Hagedorn, 1996). This factor could account for the fact that women often accept part-time positions to remain geographically close to their family and spend time with them. Therefore, according to Cropsey, et al (2008), women are more likely to be hired at a lower starting salary than males in academia. One reason for this is that they are less likely to negotiate in an effective way. Another reason is that they may have left a previous university for personal reasons and accept a lower starting salary at a new institution because of the benefits that they provide. These benefits may allow more family time. Therefore personal reasons were cited in the top three reasons for women leaving an academic position (Cropsey, K., Masho, S., Shiang, P.H., Sikka, V., Kornstein, S., & Hampton, C., 2008).

Another factor contributing to the gender wage gap is salary compression. This situation occurs when new faculty are hired at starting salaries that are higher than existing faculty, and this definitely causes dissatisfaction within the faculty involved at the institution. Disciplines such as business, engineering, and medicine typically have this occurrence because of the need to pay the market rate of pay in these areas. As a result, highly qualified faculty may leave academia and take external employment (Faculty Compensation: (2003). Results of salary compression are low morale among faculty reflected in poor commitment to the organization and low research output, ultimately contributing to the high turnover rates (Barbezat, 2004).

This salary compression factor can also be a basis for studies conducted that evaluate whether or not there is gender bias in academic rank which brings the promotion topic into consideration. It is noted here that a promotion to full professor from associate professor brings a significant pay increase (Becker & Toutkoushian, 2003). By including rank in the regression model used to measure the pay disparity, it "will consequently introduce a downward bias in the estimated gender effect and has therefore been omitted in a number of studies" (McNabb & Wass, 1997, p. 334). Another study by Barbezat (1991) allowed for rank to be a control variable because of the possibility of discrimination in promotion of women. Becker and Toutkoushian (2003) observe that women are less likely than male peers to reach higher academic ranks. This conclusion was confirmed by Ransom and Megdal (1993) who used national sampling to determine that female faculty was not as likely as male faculty to reach the higher academic ranks of full or associate professor. In their analysis, the control variables were level of education, amount of experience, level of seniority, and number of publications (Ransom & Megdal, 1993).

Free, Brown, and Clifford, (2007) indicate that college major does play a role in the gender wage gap. They based their conclusion on a study done by Gerhart (1990) where 2,895 employees with bachelors' degrees were studied, and it revealed that 43% of the disparity in beginning salaries between male and female was because of college major. Another study

conducted by Gill and Leigh (2000) revealed that women began moving from education to fields that paid higher salaries, such as engineering and business. It was between the years 1985 and 1990 that the gender wage gap declined (Free, Brown, & Clifford, 2007), and this movement between academic fields could be the explanation for that decline. Three reasons for differences in salary by major are that some majors prepare students to be more valuable in terms of human capital offered; some students may be attracted to a particular major that pays a higher wage; and thirdly there may be labor market discrimination reflected in differences in earnings. This fact may occur because of supply and demand factors. Some jobs, such as engineering, have a limited supply of labor, resulting in high wages, and many times females have a difficult time breaking into these areas (Brown & Corcoran, 1997). Consequently, according to Roksa (2005), females will tend to stay in professions which are "female dominated", such as education, health, and social services. Another study by Daymont and Andrisani (1984) show that men generally chose to major in areas that paid higher salaries, and women majored in areas that had lower salaries. Business was considered one of those high paying fields, and Fuller and Schoenberger (1991) conducted a study with results revealing that women who majored in business generally leaned more toward accounting, which is a high salary area. In their study 35 percent of the women surveyed majored in accounting with 21 percent of males. This conclusion is consistent with the American Institute of Certified Public Accountants in a 1990 study they conducted. As of that time frame 53 percent of accounting graduates were women (AICPA, 1990). In general though, Barbezat and Hughes (2005) confirm the fact that men are drawn to higher paying academic fields such as business, computer science, economics engineering, law and medicine. Their study involved single equation regression analysis with salary being the dependent variable and measures of productivity being the independent variable (Barbezat & Hughes, 2005).

In addition to the above factors, a final explanation for the disparity in wages is the application of the concept of comparable worth. This concept works on the premise that women are "socially devalued"; therefore, the labor they perform is also. Consequently, wages set for the tasks that women perform are lower than those for the work men perform (Bellas, 1994). Grider and Shurden (1985) explain comparable worth as "jobs traditionally held primarily by women receive lower pay than jobs traditionally held primarily by men, even though both types of jobs may contribute the same amount in the organization's worth or profits." Most jobs that are viewed as equal require the same amount of "skill, effort, responsibility and have similar working conditions" (Cascio & Awad, 1981). An example Grider and Shurden (1985) gave was that within a company, a secretary may be paid 30 percent less than a groundskeeper, despite the fact that a secretary may contribute as much if not more to the successfulness of the company as the groundskeeper. Again, the secretary is traditionally a female, while the groundskeeper would traditionally be a male (Grider & Shurden, 1985). However, some fields would be considered to be female dominated, and regardless of whether a man or woman is employed in them, the wages would be low. An example would be that women are more likely to be employed in the area of arts and humanities (Barbezat, 1991; Bellas, 1993, 1997). The theory of supply and demand relates in this situation because individuals who are qualified to teach in a particular area represent the supply, and those wishing to hire represent the demand; therefore, fields that pay lower salaries often have a greater supply of females willing to take those salaries (Barbezat, 1991).

Suggestions for Minimizing the Gender Wage Gap

A possible solution for minimizing the gender wage gap is to allow more unionization in academia. Sosin, Rivers, and West, (1998) conducted a study in 1994 which used data from over 1,100 four year academic institutions to determine if unions indeed made a difference in controlling the wage gap. Their conclusion was that "yes", unions do make a difference; however, the extent is minimal. Unions are effective in improving the salary differences more at the lower assistant professor level with the difference of improvement being a mere $734 per year. The most significant difference that unions make in this area is to improve the impact that women in senior faculty ranks make on salary differentials at the lower, assistant professor level through the collective bargaining process (Sosin, Rivers, & West, 1998).

Another suggestion is for women to realize that employers tend to base starting salaries on characteristics found in their resume. Characteristics such as college major, internships or academic achievements have a major impact on starting salaries. However, once a woman has obtained the job, other characteristics have more of an influence. These characteristics are job performance and experience (Fuller & Schoenberger, 1991). According to Toutkoushian, (2003), it is less costly to adjust salaries in an "across-the-board" method than it is to implement individual salary increases'

A final suggestion for improving faculty salaries is that the academic program seeks accreditation. Generally, the goal of an accrediting organization is to improve quality in the program; however, most contend that the goal is really to increase salaries of faculty. A study by Hedrick, Hensen, Krieg, and Wassell (2010) found that increasing salaries was indeed the motive of schools that became accredited. Additionally, faculty at accredited schools is more likely to publish more frequently and have a more reasonable teaching load (Hedrick, Hensen, Krieg, & Wassell, 2010).

Suggestions for future research

A future study that could be done is to examine the effect on race in gender differences. Some research has been conducted in this area with Barbezat (1989, 1991) finding evidence of a "positive pay difference for being Black relative to being White" (Toutkoushian, Bellas, & Moore, 2007). This may be explained by the fact that Black women have some advantage in the labor market by having childcare help from extended families. Additionally, Toutkoushian, Bellas, & Moore (2007) indicate that they are not aware of research and studies conducted to determine if marriage affects White and minority faculty in different ways.

Another research suggestion is to further explore the gender differences in nonfaculty salaries. A study conducted by Toutkoushian in 2003 indicated that differences in experience and market factors explained about 80 percent of the gender difference in nonfaculty salaries; however, there was still an unexplained wage gap of approximately 2 percent. Again, regression models are often used to provide estimates of this wage gap, and different variables are generally controlled (Barbezat, 1991).

Conclusion

In conclusion, since World War II, women have consistently entered the work force in large numbers; however many studies have found a pay differential that favors men. This

earnings gap has been reduced within the 1970's and 1980's, and many acts have been enacted to try to reduce it even further; however, the differential still remains. The theory used to explain this gap has been human capital theory. This theory is guided by the concept that there are investments made everyday within an individual which increase their productivity and earnings potential. Some of these "investments include formal education, on the job training, job searches, and geographic migration" (Dutt, 1997). Within research, many factors have been found to contribute to the wage gap. These factors include job segregation, discrimination, and salary compression, choices made by women, academic rank, college major, and comparable worth. Suggestions also were made within this paper to improve the labor wage gap. These suggestions were to allow more unionization with academia, have women become more conscientious of the characteristics in their resumes that contribute to the gap, and for the school to become accredited. Additionally, further research ideas were given such as to examine the effect of race or gender differences and to explore the pay differential and causes in nonfaculty salaries. As with any issue, awareness is the key to improvement of any situation, and only time will tell if what appears to be a grievous injustice will eventually be made "right".

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HELPING STUDENTS ANALYZE THE IMPACT OF ESTIMATES AND CHOICES ON NET INCOME

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A B S T R A C T

Financial accounting can be deceivingly reassuring to students. The constant calculation of figures that are "right answers" down to the penny and the double underlining of net income and other numbers can lend itself to a feeling of exactness and finality. (This can happen even when students are reminded of the inexactness of financial accounting numbers.) Often overlooked in the textbook precision of financial accounting, however, is the linkage between numbers used to measure the past and their reliance on a projection of an unknown future. This paper presents problems that differ from those usually found in financial accounting textbooks. The problems have "right answers," but alternative possibilities and comparisons are also presented to alert students to the fact that the "exactness" of a financial accounting answer is often based on inexact estimates and projections of future events.

The e-Book Experience

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Abstract

The inevitable transition in the information age is the movement from a printed to a digital format. The recent development of specialized e-readers such as Kindle, the Nook and more than 23 others, as well as e-reader capable devices like smart phones, tablet computers, PCs and other e-book devices is leading to the rapid replacement of printed books with their electronic equivalents.

This paper reports on the experience of using an e-book in a very intensive business applications course. This course taught students to use all Microsoft Office products. Students completed 70 assignments. There were 14 sections of the course, 9 instructors and more than 240 students. The course relied completely on an e-book.

Neither the students nor instructors enthusiastically embraced the use of the e-book.

Introduction

When Gutenberg invented the printing press in the 1400s, it revolutionized the act of sharing human knowledge. Instead of being hand copied, books could be printed relatively quickly and easily.

The information or computer age began with the development of the first electronic computer, the ENIAC, in the 1940s. Following Moore's Law, the power of computers has grown exponentially from these humble beginnings. The development of the personal computer, the Internet, cellular communication and cloud storage have reduced the cost of creating, sharing and storing large amounts of information.

Just as the printing press caused a paradigm shift in its age, the Internet and the myriad of devices that create store and share data today have created a new paradigm. In the next few years, the typical college student will stop carrying an 80 pound backpack full of textbooks, notebooks, paper and pencils. Instead, students will rely on a multipurpose device such as a tablet computer.

In 2011, more than 25 new such devices were introduced at the Consumer Electronics Show in Las Vegas. These new devices are capable of storing in electronic form, more than an entire library at a mid-size university could hold in 1990. This includes all the books, video/audio recordings and images.

What does this change mean to the college professor? How will students use the capabilities of these new devices? As with the adoption of any new technology, there will be growing pains. New technologies often fail. How will student cope when they cannot access course materials? There a comic on my office door clipped from the newspaper some 15 years ago it says: "the dog ate the PalmPilot that had the URL of the website where I stored my homework."

Literature Review

Research on e-books is just beginning. A search of the online EBSCO Academic Search Premier database using the subject term electronic books and publication type academic journal resulted in only 50 articles. The earliest of these articles was published in 1999.

This section will be expanded in the full paper. See reference section for articles that will be reviewed.

Research Methodology

A survey instrument measuring attitudes toward e-books and satisfaction levels with e-books was developed and administered to the nine faculty members teaching a course using an e-book for the first time. A modified version of this survey instrument was administered to more than 200 students enrolled in this course.

A complete discussion of the survey instrument will be presented in a completed version of this paper.

Research Questions

What is faculty's attitude toward e-books?
Are faculty members satisfied with the books?

What are student attitudes toward e-books?
Are students satisfied with e-books?

Results Analysis

A complete discussion of the results will be discussed in the completed article.

Discussion and conclusions

Yet to be written.

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Panel Simulations and Self-Directed Learning as Part of Quality Enhancement Programs

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ABSTRACT
Accrediting bodies that are regional such as Southern Association of Colleges and Schools (SACS) and international bodies like the Association to Advance Collegiate Schools of Business (AACSB) are looking at teaching practices in an effort to improve educational effectiveness at the College level. This movement known as Quality Enhancement Programs (QEP) is launching in business schools everywhere. This symposium offers a discussion of an example of a Quality Enhancement Program (Enriching Educational Experiences at Coastal Carolina University) and a way to define experiential learning that allows for implementation, measurement, and tracking of quality improvement over time through the use of simulations.

BACKGROUND
Accrediting bodies that are regional such as Southern Association of Colleges and Schools (SACS) and international bodies like the Association to Advance Collegiate Schools of Business (AACSB) are looking at teaching practices in an effort to improve educational effectiveness at the College level.

This movement known as Quality Enhancement Programs (QEP) is launching in business schools everywhere. In the United Kingdom, the University of Leeds has pioneered what has been named the Ripple project. This effort is directed at understanding how internet and communications technologies (ICT) affect higher order learning by the whole student as young as preschool. In the United States, there has been a growing interest in this issue as evidenced by using behavior-based software to harness individual student strengths in grade schools.

Mintzberg [4] said that business managers in the work place dealt with people, information, and decisions. In extending this approach to active learning [2], talked about three types of interactions: those between faculty and student, those between student and course content type, and those between students themselves. Courses with an active learning component are perceived as more useful to post-graduate employment, even though it had no effect on grades, satisfaction, or perceptions of how a course is conducted [6]. McCarthy and McCarthy [3] show that experiential learning has impact on self-efficacy [1] which leads students to learn new skills on their own. Finally, Nentil and Miller [5], argue that simulations as an active learning component helps maximize student focus and motivation to learn.

More recently, the University of Southern California has created the Institute for Creative Technologies whose mission is:

"The University of Southern California Institute for Creative Technologies is revolutionizing learning through the development of interactive digital media. Collaborating with entertainment industry neighbors, ICT is a leader in producing virtual humans, computer training simulations and immersive experiences for making decisions, cultural awareness, leadership and health. ICT is also exploring how video games can be used to revolutionize learning. This unique approach combines state-of-the-art technologies, evidence-based educational designs and engaging immersive user experiences. The end result is a learning experience that the player doesn't want to end."

This approach has been used to teach social skills to autistic children among other applications.

PURPOSE

Currently, the authors of the Coastal Carolina University QEP team are planning to focus upon what they call the four pillars of 'experiential learning':

1. Undergraduate research
2. Internships
3. International experiences
4. Service learning

Experiential learning is defined as "the direct discovery of knowledge and the development of skills through the intentional selection of and participation in applied activities, culminating in the reflective demonstration of learning." On our campus, the primary goal of the Quality Enhancement Program is to "have Coastal Carolina University students explore and critically reflect upon the relationship between their university education and the world in which they live."

This panel is in support of the proposition that another pillar of experiential learning can be found in the use of simulations in courses such as GLO-BUS, the Business Strategy Game, FINGAME, ADSIM, and Market Share among others. Simulations require self-directed learning in an active form as well as reflective demonstration of learning through competition and presentations about performance. Each symposium participant will discuss how the use of a simulation impacts self-directed learning, supports QEP goals, and provides an opportunity for student creativity, critical thinking and problem solving to be developed.

CONCLUSIONS

The symposium participants reflect membership on the CCU QEP team, the Wall College of Business Assessment team, the faculty who use simulations and the administrators who oversee academic programs. Thus, this symposium offers a discussion of an example of a Quality Enhancement Program (Enriching Educational Experiences at Coastal Carolina University) and a way to define experiential learning that allows for implementation, measurement, and tracking of quality improvement over time through the use of simulations. The hope is that seeing what Coastal is doing will spark discussions about ways to implement QEP that lead to self-directed learning involving creativity and experiential learning.

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Advertising Appeals on Global Cultural Spectrum

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Abstract: The research focuses on consumer advertising appeals on a cross cultural spectrum. It is imperative for advertising agencies to understand that each culture is not only different on a global cultural spectrum but also unique in different sub-cultures. The perceptions of advertising appeals are ever changing and this research study discusses the different appeals used to target consumers across the global cultural spectrum. This study addresses the following questions:

- Which emotional appeals to use when targeting different cultures?
- How appeals differ in different cultures and subcultures across the globe?
- How do males and females react to different hard-sell and soft-sell (warmth, humor and eroticism) advertising appeals?

The research paper proposes the AD Hard-Soft conceptual framework which focuses on attitudes toward the ad, brand and purchase intentions through the usage of hard-sell and soft-sell advertising appeals. The paper uses qualitative research wherein different ads with varying advertising appeals were utilized and their findings are recorded. The differences between hard-sell and soft-sell are highlighted through this research.

Key Words: Advertising Appeals, Global Cultural Spectrum, Hard-Sell, Soft- Sell, Sex Appeals

I. INTRODUCTION & REVIEW

As globalization continues to develop at a fast pace, many consumers are being able to view advertisements of products from regions they could not view a few years ago. According to (Kalliny & Gentry, 2007), the diminishing of national boundaries has increased more than ever the selection of products and brand names from which customers can choose. Many of the top 100 brands have worldwide presence in more than 100 countries (Mueller, Okazaki, & Taylor, 2010).

Hard sell refers to a more direct approach to selling which in contrast soft-sell approaches are more subtle and indirect (Okazaki, Mueller, & Taylor, 2010 a). The approach is also viewed as the difference of video advertising between commercials (soft-sell) and infomercials (hard-sell). These hard-sell appeals exploit the values of having more words and fewer pictures or more pictures and fewer words which can make a major impact on the effectiveness of certain. In Figure 1 below (Okazaki, Mueller, & Taylor, 2010 a) the comparison of hard sell and soft sell are illustrated below through the two different automobile ads. The picture on the left has a soft sell approach to selling this car. There are two headlines about the approach that is completely irrelevant to the car. The second picture to the right is a more hard sell direct approach. There are less pictures and they go on to say that there is no equal comparing them to other companies.

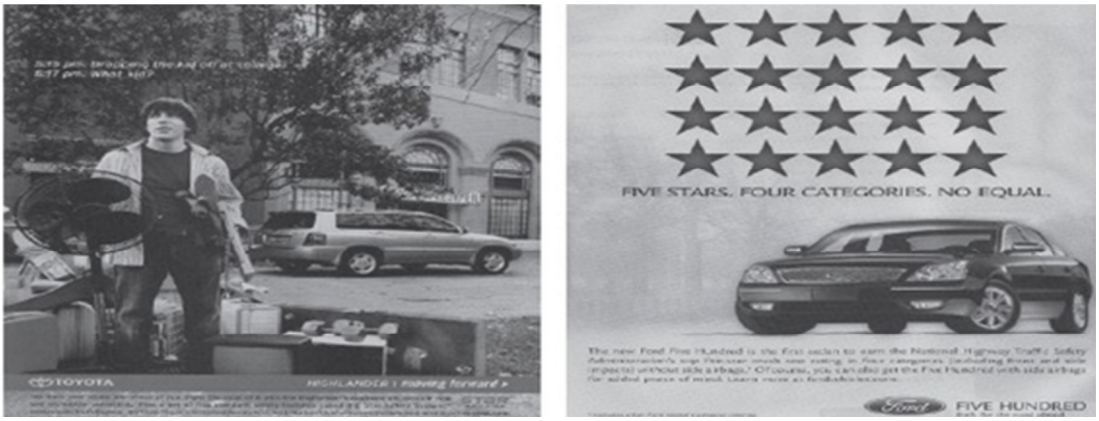

Figure 1: Soft Sell versus Hard Sell Ads

In this research study, hard-sell and soft-approaches are compared and contrasted. The soft-sell approach is more suitable when it is based on image-oriented content that does not emphasize specific reasons to buy but rather conveys general association with the brand (Okazaki, Mueller, and Taylor, 2010 a). This is why Japan, China, India, and other Eastern nations favorably use soft-sell approaches that will not offend consumers by using a direct aggressive approach. It is culturally offensive and even disrespectful to directly approach consumers with the benefits and features of a product or service without first luring them in with a favorable image, perhaps through sensitivity of emotions which are culturally significant and relevant. In contrast, the hard-sell approach is based on distinct and explicit content that emphasizes product advantages, performance (Okazaki, Mueller, and Taylor, 2010 b) and the factual information may be mixed easily with soft-sell by way of imagery and animation.

In contrast to the many definitions that have been provided for hard-sell and soft-sell in the advertising literature, there is no common definition or specific device that can be used to measure either type of appeal.

The research goal is to compare and contrast the effectiveness of hard-sell and soft-sell approaches vis-à-vis different cultures. This research addresses the following questions.

- Why is soft-sell appeal more effective for brand awareness, while hard-sell is more effective to persuade a consumer to make an immediate purchase;

- Why culture is the reason advertising appeals must differ to be effective in target markets of various geographic locations; and
- How modern trends are influencing people of different cultures to be more acceptant of advertising appeals that would otherwise be rejected.

The research proposes the AD Hard-Soft conceptual framework highlighting the attitudes toward the advertising, brand and purchase intentions with the usage of hard-sell and soft-sell advertising appeals.

II. LITERATURE REVIEW

Okazaki, Mueller, and Taylor (2010 b) notes that the hard-sell and soft-sell advertising concepts have been researched and provided with definitions since 1911. Through intensive research, reviews, and discussions they "proposed that three fundamental dimensions underlie soft-sell and hard-sell appeals: feeling vs. thinking, implicit versus explicit, and image versus fact" (Okazaki, Mueller, and Taylor, 2010 b). Soft-sell approaches that displayed images, beautiful pictures and scenery, and other indirect methods were less annoying and aggressive.

(Chu, Gerstner, and Hess, 1995) concluded that hard-sell approaches had a better chance of surviving in a more competitive environment, consumers are negatively affected, and sellers gain more from making their products better (to make features more appealing than competitors). In fact, telemarketers are taught not to use hard-sell approaches at all, but to simply use a script that detects interested consumers (Jolson, 1986). Soft-sell approaches may be more effective when selling products that provide pleasure, whereas technological and functional products and services sell best with a hard-sell approach that can promote the features and benefits. However, simply using a hard-sell approach may fail if good customer service and satisfaction is not provided for the consumer (Marr and Prendergast, 1990).

To further distinguish between hard-sell and soft-sell, "….three primary dimensions of soft-sell appeals: feeling (creative, instinctive, imaginative, and abstract), implicitness (insinuation, appealing, subjective, and expressive), image (entertaining, interpretive, playful, and impression based)" were provided by

Okazaki, Mueller, and Taylor (2010 b). On the other hand, Okazaki, Mueller, and Taylor (2010 a) stated that hard-sell appeals consist of three dimensions: thinking (rational, logical, analytic, factual, and concrete), explicitness (precise, explanation, convincing, persuasion, and instructive), and fact (educational, descriptive, realistic, informative, and evidence-based).

Bülbül and Menon (2010) provided distinctions of how hard-sell appeals are more concrete and they may generate behavioral responses instantly. Their research suggested that hard-sell advertisements influence the consumer to make a decision immediately, but loyalty will not be established as it would through the feelings that are generated through soft-sell advertisements that produce emotions. Chandy, Tellis, Macinnis, and Thaivanich (2001) provide a framework for determining why certain appeals work better in different markets and cultures. Chinese commercials use more soft-sell approaches because it is not polite to be direct in the Chinese culture (Lin, 2001).

Most modern, Western nations use more hard-sell approaches, with the exception of Britain. Britain uses soft-sell approach widely and effectively due to the presence of multi-cultural diverse population, differences in the social-cultural contexts, advertising industry environment variances, and differences in philosophy and execution that may be controlled by government and political structure (Nevett, 1992).

Sexual Appeals in Advertising

"Sexual appeals in advertising often are composed of a variety of execution elements, including visual elements (e.g., attractive models and nudity), suggestive verbal elements and music, or "scent-strip" advertising (Garcia & Yang, 2006). It can be stated that different regulations in different countries play a major role in what is advertised and what is not. "Such restrictions may

also be applied to advertising codes in China, for our findings also indicated Chinese ads in both TV and magazine showed the lowest degrees of nudity across all countries" (Paek & Nelson, 2007). Due to China's strong regulations on nudity on television, the culture in China can be perceived as one who does not agree with the sexual appeals of advertising. Many advertisers would have to create a new

campaign to target their product to a Chinese consumer if their product had any signs of sexual appeals in the advertisement.

Figure 2: Sexual Appeal used in Axe Body Spray – Banned in some countries

In the Figure 2 above is a popular commercial from Axe Body Spray being advertised in many countries. The commercial starts by showing a man that turn into a chocolate figurine after dousing himself in Axe Dark Temptation body spray. While wandering the streets and through different areas of his city he is licked and at the end a woman takes a bite out of his butt. This commercial is considered very risqué in parts of the world such as India where this advertisement has been banned by the government. This is a very prime example on the importance of knowing your region and making sure your advertisements are adaptable.

Figures 3 and 4 are both Levi's advertisements using different methods to appeal to different crowds. Figure 3 is an advertisement where everyone is fully clothed and there is a simple tagline. Figure 4 uses more of a sexual appeal by using a topless male actor and a female feeling on his genital area. When a small focus group was asked to select the best way to convey the message, the views were split 50% by 50%. Many of the students in the focus group felt the clothed models were more decent and more interesting. One student wrote, "Great message and tagline; it was not sexist or bias." Some female students felt that the shirtless model in Figure 4 was a lot better because they viewed the model as sexy.

A female student wrote, “He’s cute and it’s a sexy ad that I would like to see my boyfriend in.” It is safe to say that sexual appeals can be used and be effective but often if the message is conveyed correctly through words, it can be just as effective.

Figure 3: Non-Sexual

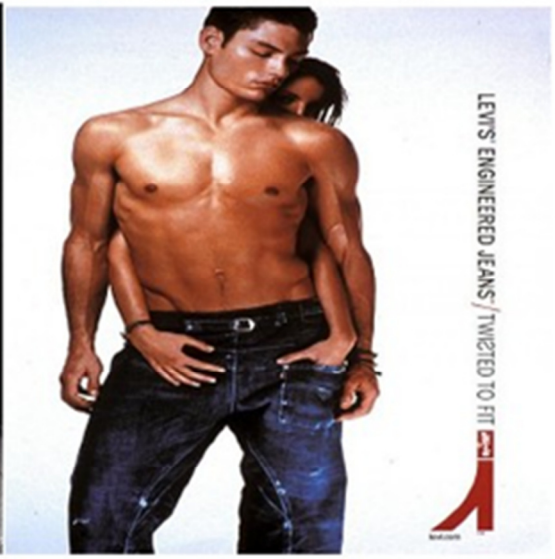

Figure 4: Sex Appeal

Brand and Ad Attitudes

Mitchell and Olson (1981) highlighted the major influence of the attitude towards the ad (A_{ad}) by demonstrating that the effect of visual and emotional elements on the attitude towards the brand (A_b) is mediated by Aad. This theory assumes a direct link between A_{ad} and A_b and implies that a positive attitude towards the ad is directly carried over to a positive attitude towards the brand (Geuens and Pelsmacker, 1998). Research has concluded that ad evaluations were debilitated by negative affect and stimulated by positive affect (Goldberg and Gorn 1987; Mitchell 1986; Russo, Shah, and Park 1994; Scrull 1983).

Figure 5 illustrates the Dual Mediation Hypothesis Model. This model has received most support as a means of representing the interrelationships between Aad, brand and ad cognitions, Ab and PI (MacKenzie and Lutz, 1989; Brown and Stayman 1992).

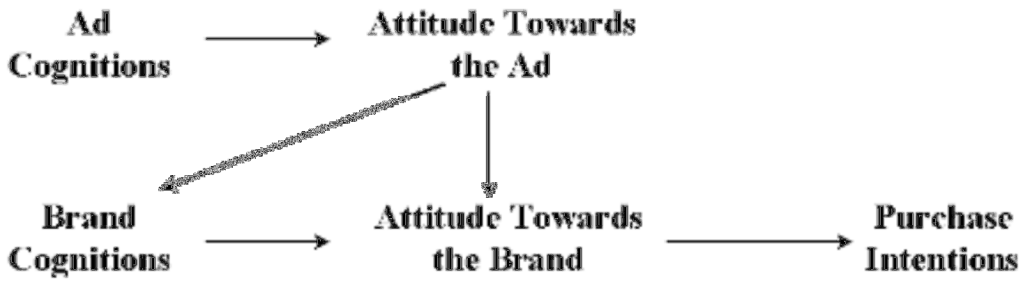

Figure 5: Dual Mediation Hypothesis Model

Figure 5 (Dual Mediation Hypothesis Model) supports models of Okazaki, Mueller, and Taylor (2010) in a way that there is no direct correlation between the dimensions and the advertising appeals, but they can be used as ad-measurements and consequences. Common feelings and other characteristics may be apparent in certain types of appeals, but there has been no proof of how brand and ad attitudes, purchase intention, purchase initiators, and other factors are directly correlated as a result of certain ads displaying specific appeals.

III. CONCEPTUAL FRAMEWORK

Okazaki, Mueller, and Taylor (2010) provided with the models of hard-sell and soft-sell advertising appeals. Dual Mediation Hypothesis Model elaborated on the relationships between ad and brand cognitions, and ad and brand attitudes, leading to purchase intentions. A model called AD Hard-Soft Framework (Figure 6) is conceptualized, illustrating the hard-sell and soft-sell advertising appeals and their consequences on building ad and brand attitudes and purchase intentions. The model is created from the goals and objectives of a firm, which may actually determine which appeal is used, along with the cultural context of the firm / company.

The AD Hard-Soft model in Figure 6 illustrates the cause and effect relationship between the advertising appeals (hard-sell and soft-sell), attitudes (towards the advertisement and brand), and subsequently to purchase intentions.

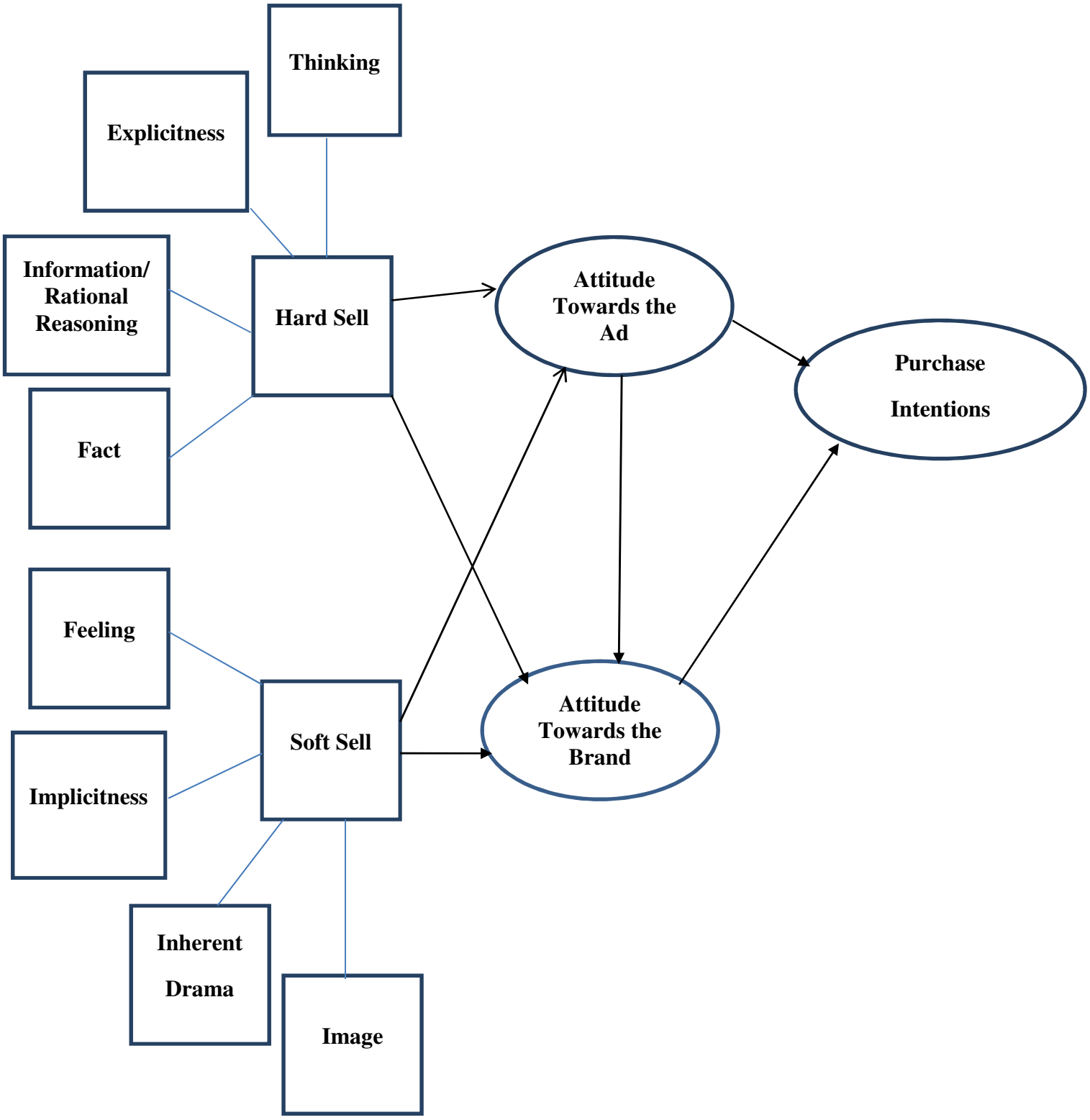

Figure 6: AD Hard-Soft Conceptual Framework and Drivers of Hard-Sell and Soft-Sell Appeals

Figure 6 illustrates our conceptual framework - "AD Hard-Soft" model depicting the drivers of hard-sell and soft-sell appeals and their consequences. We conceptualize a direct relationship of hard sell and soft sell advertising appeals with attitude towards the advertisement, attitude towards the brand; which further affect the purchase intentions. Figure 6 shows four drivers for hard sell advertising appeal – thinking, explicitness, informational/rational reasoning and fact; and four drivers for soft sell advertising appeal – feeling, implicitness, inherent drama and image. These drivers lead to the attitude towards the ad, brand and purchase intentions.

IV. RESEARCH METHODOLOGY

A focus group research was conducted where a sample size of 70 undergraduate students at a Historically Black College University (HBCU) was selected for the purpose of the research study, out of which 45 were women. The group was divided into 2 focus groups of 35 students each. The study was confined to alcoholic and automobile ads. There are several reasons for choosing these categories – all subjects were old enough to drink legally and responsibly, and they had a common preference for cars / automobiles. Seven Volumes of 5 business / fashion magazines and newspapers (Vanity Fair, Time, Cosmopolitan, Wall Street Journal, and People) were screened – the result was an initial set of 33 ads in three categories.

First Qualitative Stage – 33 ads / stimuli were presented to a jury of 15 students in order to judge the degree of humor, warmth, eroticism of each stimulus. The results of this qualitative stage were ordered category ranking of 33 stimuli – frequency counts were conducted and finally, 8 stimuli were selected – 2 stimuli with the highest number of assignments to the "humorous" category, 2 warm, 2 erotic, and 2 non-emotional/neutral hard-sell stimuli. The hard sell neutral stimulus was defined as the one often assigned as "not humorous", "not erotic", and "not warm").

Second Qualitative Stage - These 8 stimuli were then presented to the two focus groups of 35 students each, in random order for each student. Randomization was used to avoid systematic measurement errors as a result of respondent wear-out. Since the population at a HBCU is homogenous with similar

socio-demographic characteristics; only gender was included as a classification question. Thereafter, the findings were recorded for these focus groups and generalized for males versus females.

V. RESEARCH FINDINGS

After conducting the research, we obtain the results as shown in Appendix I. Women feel more cheerful then men when warm and soft sell ads are conveyed and the opposite is true for erotic stimuli – men feel more cheerful than women when exposed to erotic ads. Soft Sell emotional appeals of warmth, humor and eroticism lead to more positive feelings than the non-emotional hard sell appeals.

Brand interest, and positive emotion and impression about the brand and an ad, leads to positive purchase intention. Soft sell strategies make ads more interesting and likeable leading to positive intentions to buy, while hard-sell strategies ignite more likeability but do not strike interest in the target audience.

VI. CONCLUSION

The research study revisits the concepts of advertising appeals, especially hard-sell and soft-sell appeals, and explains how there is not one widely accepted definition for an appeal. However, the fundamental dimensions to measure these appeals are widely accepted, as depicted in Figure 1a and 1b. Our proposed AD Hard-Soft conceptual model may be accepted with new dimensions of information/ rational reasoning dimension, inherent drama, and image, with theory and reasonable explanations. The information/rational reasoning dimension has been added because it is needed to explain the functional aspect of the hard-sell approach. Without information and reasoning, the functional perspective of the hard-sell approach is non-existent in an advertising strategy. Likewise, the inherent drama dimension has been added to the soft-sell model because emotions, feelings, and the other dimensions that measure a soft-sell appeal do not exist if the advertising strategy cannot emphasize the benefits of purchasing a product or service.

Our research findings are significant with respect to the use of warmth, humor and eroticism as soft-sell appeals and neutral stimulus as hard sell appeal. The limitations of the study are that only print ads were

used and analyzed, students alone were included and existing products' ads were used. It may be argued that for new brands and new products, emotional soft-sell advertising appeals may be less suited and informational hard-sell appeals will work better. Future research may focus on the new added dimensions of hard-sell and soft-sell advertising appeal drivers.

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Appendix I

Table 1- Perceived Level of Warmth, Eroticism, Humor, and Fear in Ads (1=low, 7=high)

Level of	Warm	Erotic	Humor	Fear	Neutral
Warm	**4.9**	**4.2**	**3.5**	**1.5**	**2.2**
Erotic	**3.7**	**4.4**	**1.8**	**1.3**	**2.1**
Humor	**3.3**	**2.7**	**5.1**	**2.3**	**1.5**
Fear	**3.4**	**2.8**	**2.1**	**4.9**	**2.5**

Table 2 - Correlation Between Ad-Evoked Feelings
(1=strongest negative feeling; 7=strongest positive feeling)

Correlations

		Worried _ carefree	Depressed _ cheerful	Insulted _ honored	Indifferent _ interested	Irritated __ pleased	Regretful __ rejoicing
worried _ carefree	Pearson Correlation	1	.634**	.553**	.498**	.620**	.577**
	Sig. (1-tailed)		.000	.000	.000	.000	.000
	Covariance	2.835	1.537	1.261	1.222	1.529	1.366
Depressed __ cheerful	Pearson Correlation	.634**	1	.628**	.536**	.675**	.712**
	Sig. (1-tailed)	.000		.000	.000	.000	.000
	Covariance	1.537	2.076	1.225	1.125	1.425	1.440
Insulted ___ honored	Pearson Correlation	.553**	.628**	1	.569**	.620**	.604**
	Sig. (1-tailed)	.000	.000		.000	.000	.000
	Covariance	1.261	1.225	1.835	1.123	1.231	1.150
Indifferent __ interested	Pearson Correlation	.498**	.536**	.569**	1	.616**	.563**
	Sig. (1-tailed)	.000	.000	.000		.000	.000
	Covariance	1.222	1.125	1.123	2.125	1.315	1.152
Irritated __ pleased	Pearson Correlation	.620**	.675**	.620**	.616**	1	.636**
	Sig. (1-tailed)	.000	.000	.000	.000		.000
	Covariance	1.529	1.425	1.231	1.315	2.146	1.309
Regretful __ rejoicing	Pearson Correlation	.577**	.712**	.604**	.563**	.636**	1
	Sig. (1-tailed)	.000	.000	.000	.000	.000	
	Covariance	1.366	1.440	1.150	1.152	1.309	1.973

**. Correlation is significant at the 0.01 level (1-tailed).

Table 3 – Summary of Exploratory Factor Analysis results for Ad-Evoked Feelings

	Rotated Factor Loadings

	Cheerful (reverse coded)	Insulted	Irritated	Interested	Carefree (reverse coded)
•Pessimistic _____ hopeful	***.777***	.253	.156	.284	.177
•Callous _____ affectionate	***.731***	.265	.180	.285	.172
•Dubious _____ confident	***.662***	.258	.335	.229	.236
•Bad _____ good	***.618***	.462	.385	.151	.024
•Cautious ____ adventurous	***.549***	.353	.339	-.018	.449
•*Critical* ____ *accepting*	***.458***	.376	.394	.125	.455
•*Insulted* _____ *honored*	.237	***.754***	.194	.246	.153
•Depressed _____ cheerful	***.670***	.282	.206	.317	.293
•Regretful _____ rejoicing	.368	***.668***	.187	.219	.253
•Sad _____ happy	.423	***.607***	.461	.100	.139
•Irritated ____ pleased	.252	.224	***.585***	.339	.224
worried ___ carefree	.258	.326	.284	.141	***.784***
nervous ___ calm	.304	.260	***.764***	.201	.269
•Unemotional __ sentimental	.215	.174	.081	***.861***	.266
•Indifferent ____ interested	.288	.386	.266	***.612***	.287
•Contemplative __ impulsive	.214	.265	.287	.205	***.807***
Eigenvalues	**3.32**	**3.27**	**2.46**	**1.75**	**1.60**
% of variance	**20.77**	**20.49**	**15.37**	**10.92**	**9.97**
Cronbach alpha	**0.92**	**0.84**	**0.80**	**0.82**	**0.82**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 7 iterations.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.967
Bartlett's Test of Sphericity	Approx. Chi-Square	19284.226
	Sig.	.000

Table 4 - Perceived Level of Warmth, Eroticism, Humor, and Fear in Ads (1=low, 7=high) for Males and Females

Level of	Warm	Erotic	Humor	Fear	Neutral
Cheerful (Male)	**3.5**	**4.1**	**3.5**	**2.5**	**4.2**
Cheerful (Female)	**3.9**	**3.2**	**3.9**	**1.5**	**3.2**
Insulted (Male)	**3.9**	**3.4**	**2.8**	**4.0**	**4.1**
Insulted (Female)	**3.7**	**4.4**	**3.8**	**4.3**	**3.9**
Irritated (Male)	**3.7**	**3.7**	**3.8**	**4.3**	**4.5**
Irritated (Female)	**3.3**	**3.9**	**3.5**	**3.8**	**4.1**
Interested (Male)	**3.8**	**4.5**	**3.6**	**3.9**	**3.5**
Interested (Female)	**3.7**	**4.0**	**3.4**	**4.3**	**2.8**

THE S.H.A.R.P. Conceptual Framework for Young Adults …….. What is Cool?

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THE S.H.A.R.P. Conceptual Framework for Young Adults …….. What is Cool?

Neural Networks and Consumer tracking studies have gained wide popularity and acceptance in studying young adults' marketing and consumption behavior. In this research paper, the author introduces and proposes a revolutionary method to direct advertising campaigns sources of influences on young adults' psychology and moving dynamic interests. The ideas suggested will advance the thinking of the advertising industry to profit from alternative messages to young adults through mass advertising and welfare of society as a whole. The author discusses what goals and directions are for the next generation of research and advertising; how to use mass advertising to address social issues; and how to profit clients through the use of neural networking by way of implementing the SHARP model. This research proposes a conceptual framework - SHARP (Support, Humor, Acceptance, Relevance, and Peer Pressure) and focuses on the following research questions.

- *How can advertising agencies change what is perceived as cool?*
- *What power does advertisement have on the ideas young adults seek?*
- *What does it mean to promote what is not visible rather than what is visible?*

These are the questions and ideas this paper seeks to address. The SHARP conceptual model strives to challenge and improve the way advertising is created.

Key Words: Neural Networks, Consumer Tracking, Psychology, Advertising, Cool

I. INTRODUCTION

The word "Cool" is a very fluid concept; therefore, there is no clear or absolute definition because it changes so often depending on how, when, where, and why it is used. For the purpose of basic interpretation of this research, 'cool' will be described as a desired state of personal peace and social acceptance satisfaction. Young adults refer to ages seventeen through twenty-four. Young adults thrive on being cool, in countless varying ways, and if advertisers can hone on these concepts, profit margins will be almost limitless.

Neural networks can be viewed as an enabling tool for marketing professionals to work smarter and achieve higher levels of effectiveness. A neural network from a marketing perspective represents a software decision tool which assists the decision makers in the selection of an appropriate response to a particular situation (Lin 2004). Behavioral targeting involves the collection of information about a consumer's online activities in order to deliver advertising targeted to their potential upcoming purchases, usually conducted by advertising agencies

(Dwyer 2009). The clear intent of behavioral targeting is to track consumers over time, to build up digital dossiers of their interests and shopping activities (Dwyer 2009).

The research paper proposes a way for advertisers using neural networks and consumer targeting to track the abstract realm of young adults; understanding their thoughts, ideas, and dreams that are influenced by peer pressure and navigating their lives in multiple directions. Advertising campaigns can be tailored to address the interests of young adults while promoting social change in a positive way. A new and widely accepted approach to reach target audiences is the edge needed by government and private organizations to address negative issues in society. This ground breaking conceptual method is being introduced and proposed as the S.H.A.R.P. conceptual framework in the upcoming sections.

II. LITERATURE REVIEW

In 1961, Russell Colley prepared a report for the Association of National Advertisers titled Defining Advertising Goals for Measured Advertising Results (DAGMAR). In it, Colley developed a model for setting advertising objectives and measuring the results of an ad campaign. The major emphasis of the DAGMAR model (Colley, 1961) is that communications effects are the logical basis for advertising goals and objectives against which success or failure should be measured. The DAGMAR approach (Colley, 1961) to setting objectives has had considerable influence on the advertising planning process. Many promotional planners use this model as a basis for setting objectives and assessing effectiveness of their promotional campaigns. Colley's work has led to improvements in the advertising and promotional planning process by providing a better understanding of the goals and objectives toward which planner's efforts should be directed. This usually results in less subjectivity and leads to better communication and relationship between client and agency (Belch & Belch 2009).

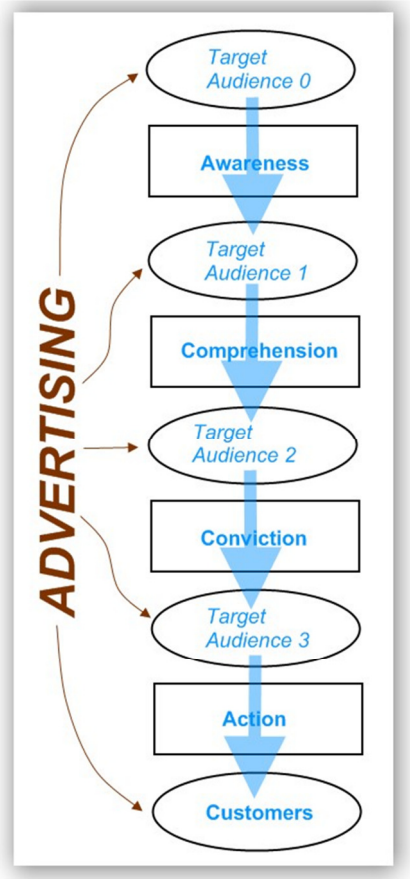

Figure 1: DAGMAR Model (Colley, 1961)

Motion effect theories assume that human beings exhibit an inherent preference for moving objects. That is when people are exposed to moving images, they focus their attention on the source of the motion and process relevant information. This activity is manifested in physiological changes such as decrease in heart rate, increase in skin conductance, and variable brain electrical activity (Sundar & Kalyanaraman 2004).

According to Jerry Kirkpatrick (1986), there in essence are two "social" criticisms of advertising. Overall, both charges attribute to advertising the power of physical force---that is, the power to force consumers against their wills to buy products they don't need or want. The criticism for this model says that advertising changes the consumer's tastes by forcing consumers to conform to the desires of producers, rather than the other way around, as free-market advocates have always argued. In short, according to this charge, advertising is immoral (Kirkpatrick 1986). The SHARP model proposes to eliminate all of this.

A neural network can be developed to shed light on the way in which consumers respond to stimuli contained in advertising messages. Considerable research suggests that advertising executional cues can influence communications effectiveness. MacInnis, Moorman, and Jaworski (Lin 2004) developed a framework that explicitly provides linkage between executional cues to communication effectiveness through their impact on consumers' motivation, opportunity, and ability, and the levels of processing from advertisements is influenced by consumers' motivation, ability and opportunity to process brand information during or immediately after exposure to an advertisement. A simple perception-type model would postulate that consumers respond to certain characteristics of the advertising of a product with decision or intentions to purchases (Lin 2004). This is where the proposed SHARP model perfectly fits. Neural networks change the way to use information in marketing. With such a new information technology, a company using a neural network, can have affordable real-time access to all the raw data it desires. The real difference among competitors will be the quality of analysis each performs and the capacity of decisions flowing from it (Lin 2004).

Figure 2 illustrates the concept of neural networks, which is based upon the way we understand the human brain is structured. Neural networks are computer systems linking inputs with outputs

in a network of structure of nodes and arcs. They are inspired by replicating portions of what is known about the way the human brain functions (Lin 2004).

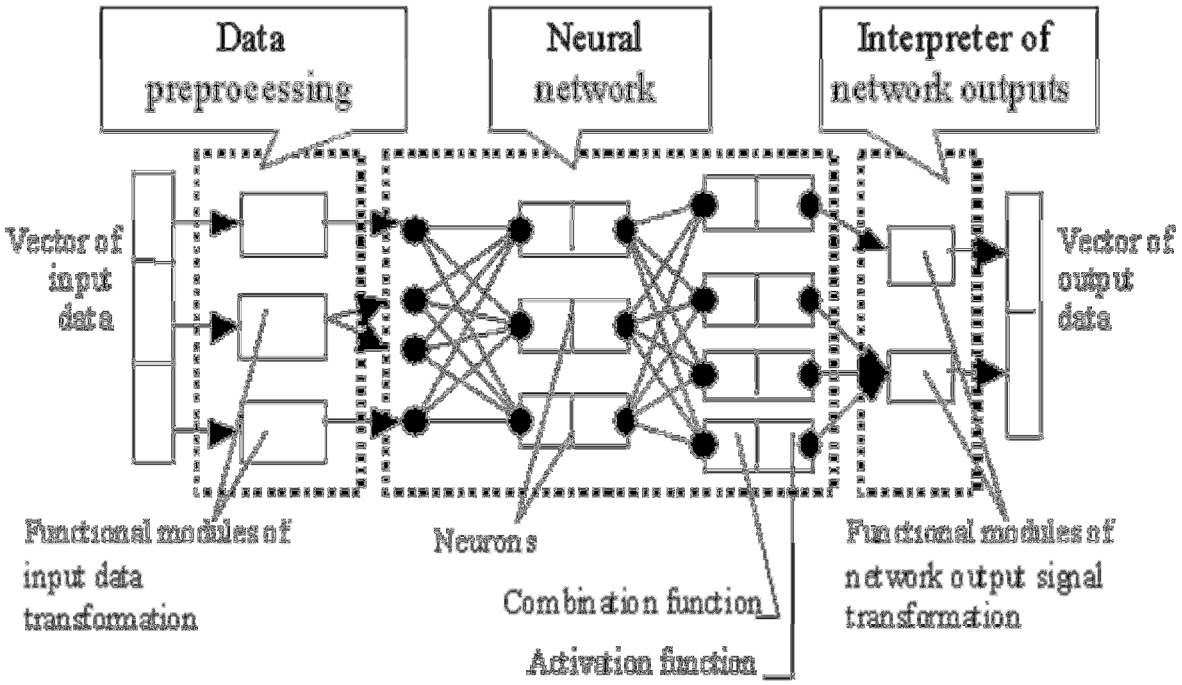

Figure 2: Neural Networks and their impact on Marketing discipline (Lin 2004)

Friestad, Wright, and Boush (2005) note an elaborated and detailed model of content, structure, and usage of everyday persuasion knowledge that focused on the context of advertising and marketing messages. They discussed in depth the different types of persuasion-related knowledge and skills that children, adolescents, and young adults gradually develop to cope effectively with marketers' and others' strategic attempts to influence them. A girl's or boys' marketplace persuasion knowledge develops from nothing into an increasingly interrelated and valid structure of casual---explanatory beliefs about several topics (Wright, Friestad, Boush 2005).

Two objective challenges of adolescence, forming a personal identity and fitting in socially with peers, likely contribute to adolescents' heightened self-consciousness (Pechmann, Levine, Loughlin, Leslie 2005). Furthermore, adolescents often turn to peers to help them forge identities that are independent of their parents, which may make them even more self-conscious. Adolescents' self-consciousness and social anxiety should tend to make them more receptive to image advertising and high-status, heavily advertised brands. It appears that adolescents with low self-esteem are especially attracted to image advertisements and status brands and that they manifest other signs of materialism (Pechmann, Levine, Loughlin, Leslie 2005).

III. CONCEPTUAL FRAMEWORK

An ongoing concern of advertising practitioners is the persuasive impact of their marketing communications. One of the most widely employed measures of persuasive impact is change in brand attitude. Consequently, research attention continues to focus on describing the specific types of cognitive and affective responses to advertising that both lead to and result from brand attitude formation (Coulter & Punj 2004).

I propose the SHARP conceptual framework in this section. Figure 3 illustrates the SHARP model in theory. The five outside bubbles represent the five aspects advertising campaigns must meet in order to reach the "millenials". The innermost center circle represents the consumers; the outside represents the elements and conditions of society. The middle circle ring represents the use of neural networks, in how they merge the consumer with the outside elements by identifying needs and interests using the means typed in the circle.

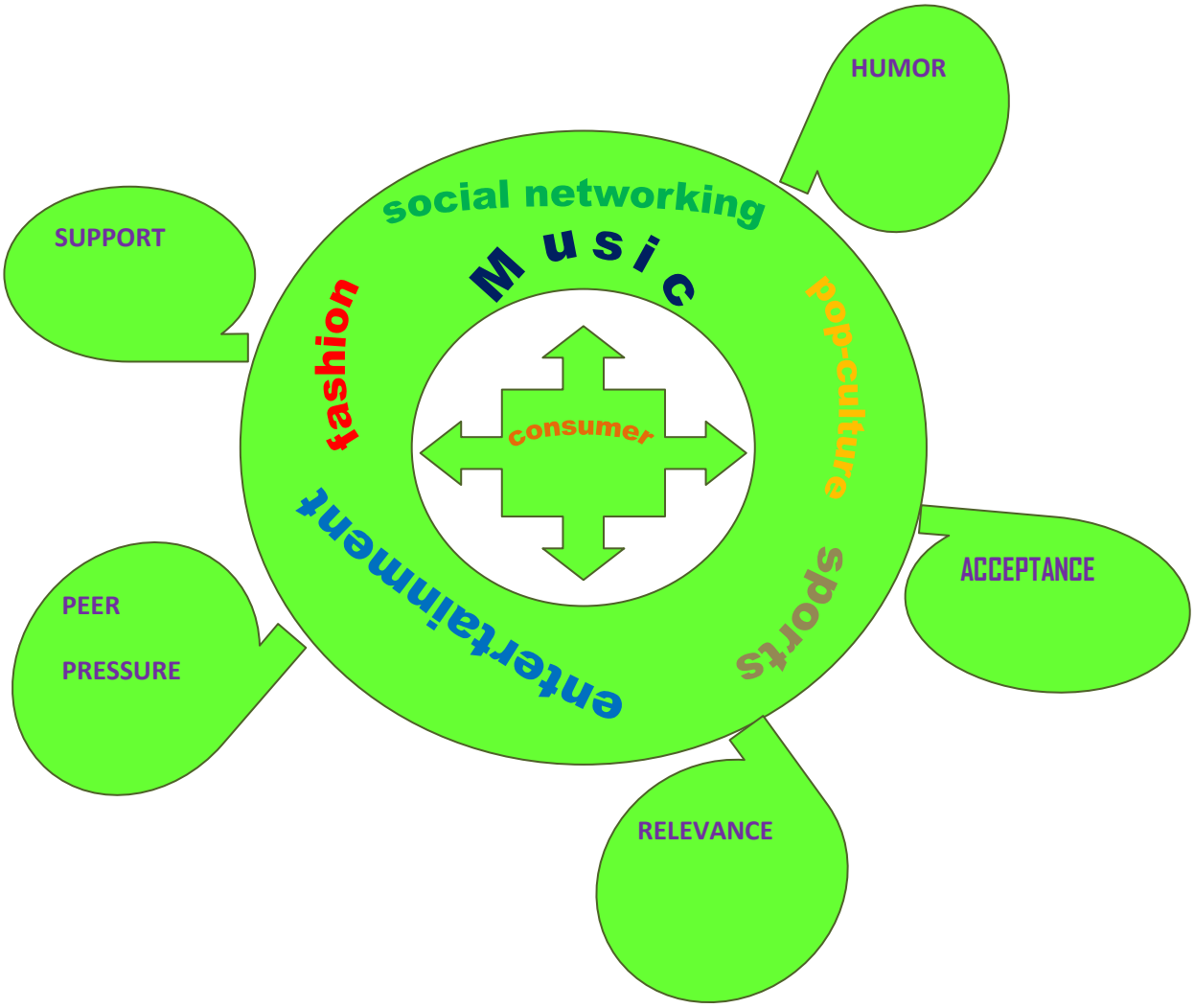

Figure 3: Conceptual SHARP Model targeting young adults

The SHARP model (Figure 3) analyzes five focus points of emphasis to make a successful advertisement campaign for young adults. The information needed to make the model be effective is imperative, and can only be gathered by using neural network systems and behavioral tracking of trending thoughts for the target audience. The SHARP model can be applied to any product or service the firm is promoting or selling. The SHARP model affirms that all

advertisements addressed towards young adults should involve: Support, Humor, Acceptance, Relevance, Peer pressure.

The common denominator and equalizer among all young adults is curiosity. With curiosity as the foundation, tracking ideas and thoughts involves so much more than data interfacing social network platforms of Facebook and Twitter, although they are both excellent places to get general ideas of the target audience. Tracking ideas include following the music industry to see what young adults are listening and responding to, and identifying motives for actions. This means if sex, money, fashion, or partying, for example, are important to young adults, then these topics can be used by advertisers in a positive way to accomplish their objective. Neural networks present a radical attempt to break the logjam of information by building computers that mimic the way in which humans think. In the long run, results from applications of neural networks to the marketing domain will not only lead to a deeper understanding of fundamental marketing decision processes but also enable study of the normative aspects of marketing systems (Lin 2004).

Support is to promote the interest or cause of; to uphold or defend as valid or right. Once a trending thought, idea, or dream is identified, it must be supported by and supporting of young adults as a whole. Humor is to adapt oneself to. Humor is the glue in advertising to young adults. Humorous appeals are used extensively in television, radio, and print advertising. This research examines the effectiveness of humor in accomplishing specific communications and sales objectives. It is argued that previous unsuccessful applications of light-hearted messages are attributable, in part, to our incomplete knowledge of how consumers' process humorously conveyed information. The discussion focuses on the importance of recognizing and managing variables which mediate the impact of humor on audience response and on the need for further

development and testing of behavioral theory as keys to the effective utilization of humor in advertising. The central issue therefore is not whether entertaining commercials can be effective. Rather, advertisers must direct their attention to questions concerning (1) when humorous appeals should be applied, and (2) how amusing messages should be presented. Answers to these questions require an understanding of the factors and mechanisms which underlie consumer response to humorous stimuli (Duncan 1979).

Acceptance is an agreeing either expressly or by conduct to the act or offer of another so that a contract is concluded and the parties become legally bound. Young adults must accept any successful advertising attempt; however, this includes more than being socially acceptable. In 1973, Wright suggested that consumer acceptance of advertising was mediated by the cognitive responses generated by message recipients' rather than by content of the advertisement itself. By combining attribute students with music, humor, affectionate vignettes, story elements, role portrayal, and the like, ad-execution cues evoke moods and feelings that go beyond the evaluative reactions toward a commercial (Batra 1986).

Relevance is a practical and especially social applicability; the ability (as of an information retrieval system) to retrieve material that satisfies the needs of the user. Relevance is timing and ever changing. Young adults rush to stay current and possibly ahead of what may be the next new attention grabber in any setting. The importance of relevance is not just time correlation with young adults, but also how well does it relate to what young adults face or feel in their daily lives. By targeting niche markets directly, one need not track the behavior of a user to deliver relevant ads. This has many benefits, not the least of which is that it completely placates the privacy advocates. For example, OneRiot is the advertising network for the real-time social web. OneRiot partners with leading brands and media companies to reach millions of social

influencers across an exclusive network of top Twitter apps, mobile apps, social networks and content discovery sites. Real-time campaigns with OneRiot build brand awareness, community engagement and drive viral social sharing. OneRiot employs many innovative techniques to deliver realtime social targeting for its partners. One technology cornerstone is the company's proprietary Trending Topics Engine. This analyzes streaming conversational data from leading social destinations – including Facebook, Twitter and MySpace – to surface the topics that are driving most engagement across social web networks right now. OneRiot then algorithmically matches relevant advertising campaign content to those topics in real-time, and delivers advertising messages that are targeted to users during key opportunities for social engagement (Kansascity.com, 2010).

Peer pressure occurs when an individual experiences implied or expressed persuasion to adopt similar values, beliefs, and goals, or to participate in the same activities as those in the peer group. Successful young adult advertising campaigns must survive this crucial test. David Ogilvy of Ogilvy and Mather said, "If you try to persuade people to do something or buy something, it seems to me you should use their language, the language in which they think." Everywhere people go, there are marketers that want to sell something, not in the language in which consumers think, but also in the language based in the way they think consumers best friends think, the way that the object of desire thinks, even in the way the million strangers who seen or interact with each day think. This goes way beyond things a person would normally do, but sometimes people do anything just to be considered cool.

IV. DEVELOPMENT OF A SCALE FOR 'SHARP FRAMEWORK'

In this research paper, a 25-item scale for 'SHARP' framework is developed for measuring advertising effectiveness. The scale developed is given below as Table 1.

Table 1 – SHARP Framework Measurement Scale for Ad Effectiveness

Scale	Code in SPSS
1. This advertisement agrees with my life goals	Sharp_S1
2. This advertisement gives me motivation	Sharp_S2
3. This advertisement supports my background	Sharp_S3
4. I have similar experiences with the ad's intent or message	Sharp_S4
5. I would want this for my family	Sharp_S5
6. I find this advertisement "corny" or "lame"	Sharp_H1
7. How funny is this advertisement?	Sharp_H2
8. I have thought about this before	Sharp_H3
9. I have to think about the advertisement before I laugh	Sharp_H4
10. I would use this as a joke	Sharp_H5
11. There is a clear positive stereotype in this advertisement	Sharp_A1
12. There is a clear negative stereotype in this advertisement	Sharp_A2
13. This advertisement changes my initial impressions of the topic portrayed	Sharp_A3
14. I grew up around situations/messages like this	Sharp_A4
15. I agree with this advertisement	Sharp_A5
16. I can relate how much to this advertisement	Sharp_R1
17. This advertisement is current with today's interests	Sharp_R2
18. I would have understood this advertisement 3 years ago	Sharp_R3
19. This advertisement is old and has no "flavor"	Sharp_R4
20. I agree with the thought process behind this advertisement	Sharp_R5
21. I am one of the more popular persons in my daily surroundings	Sharp_P1
22. I like the advertisement but would not show it publicly	Sharp_P2
23. I can crack jokes at people this advertisement portrays or affects	Sharp_P3
24. I can see my friends in this advertisement	Sharp_P4
25. This advertisement could be so much better	Sharp_P5

The research was conducted on a sample size of 75 undergraduate students at a Historically Black College University (HBCU), selected for the purpose of the research study, out of which 41 were women. The study was confined to ads with African American stereotypes, given in Appendix I. The SHARP framework was presented to 75 students, who were exposed to 5 different ads with African-American stereotypes, and the likert type agreement scale was used where 1 = strongly disagree and 5 = strongly agree. SPSS was used for Exploratory Factor Analyses for 'Sharp' scale.

V. RESEARCH FINDINGS

A Web based survey was conducted from students enrolled in business school at a historic black college and university at Georgia. Elimination of incomplete responses left 75 eligible responses for analysis. Among responders, 46.1% are male students, and 53.9% are female. 47.4% are Marketing majors, 31.6% are Management majors, 11.8% are Accounting majors, 2.6% are Computer Information System major and 6.6% are from some other majors. Most responders are either Senior (50%) or Junior (47.4%).

After conducting the factor analyses for 5 ads using African-American stereotypes, the following results are obtained as shown in Table 2.

Table 2 – Exploratory Factor Analyses - Rotated Component Matrix

	Component				
	1	2	3	4	5
Sharp_H1	***.910***	.091	-.055	-.051	.127
Sharp_H2	***.900***	.290	-.009	-.006	.032
Sharp_H5	***.879***	.253	-.040	.161	.067
Sharp_P2	.118	.222	.026	***.878***	.029
Sharp_H4	***.827***	.276	.053	-.142	-.309
Sharp_P3	.313	.237	.045	***.813***	.019
Sharp_R4	***.795***	.074	.123	.186	.363
Sharp_A3	***.687***	.306	.106	.438	.067
Sharp_P5	.050	.259	.435	***.647***	.018
Sharp_S4	.198	***.896***	.215	.118	.080
Sharp_S3	.292	***.863***	.190	.096	.067
Sharp_S2	.130	***.817***	.399	.120	.233
Sharp_S5	.261	***.810***	.286	.056	-.020
Sharp_S1	.258	***.749***	.354	-.056	.245
Sharp_R1	.371	.241	***.701***	.284	-.074
Sharp_A4	.182	.218	.562	.162	***.649***

Sharp_H3	***.635***	.542	.237	.088	-.150
Sharp_P1	.437	***.584***	.147	.205	.098
Sharp_R3	.007	.170	***.892***	-.012	-.006
Sharp_R2	-.100	.223	***.887***	.000	.089
Sharp_R5	.083	.410	***.756***	.151	-.007
Sharp_A5	.101	.538	.562	.162	***.704***
Sharp_A1	.112	.274	.237	.088	***.666***
Sharp_P4	.311	.356	.348	***.720***	.069
Sharp_A2	.609	.296	.162	.059	***.617***
Eigen values	**7.49**	**6.42**	**4.36**	**1.33**	***1.00***
% of variance	**25.96**	**29.67**	**12.56**	**10.32**	**10**
Cronbach alpha	**.94**	**.95**	**.84**	**.85**	**.81**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.863
Bartlett's Test of Sphericity	Approx. Chi-Square	2135.306
	df	300
	Sig.	.000

VI. DISCUSSIONS

The SHARP scale developed in this paper has good reliability as shown in the Table 2. The 25-item scale of SHARP framework that loaded as per the Table 2 above can be easily dissected into 5 factors - Support (S) with 6 factors; Humor (H) with 7 factors; Acceptance (A) with 4 factors; Relevance (R) with 4 factors and Peer Pressure (P) with four factors as well.

The factors are given in Table 3 below:

TABLE 3: 'SHARP' SCALE FACTORS OBTAINED FROM PRINCIPAL COMPONENT ANALYSIS

SUPPORT	**SPSS Code**
1. This advertisement agrees with my life goals	Sharp_S1
2. This advertisement gives me motivation	Sharp_S2
3. This advertisement supports my background	Sharp_S3
4. I have similar experiences with the ad's intent or message	Sharp_S4
5. I would want this for my family	Sharp_S5
6. I am one of the more popular persons in my daily surroundings	Sharp_P1
HUMOR	
7. I find this advertisement "corny" or "lame"	Sharp_H1
8. How funny is this advertisement?	Sharp_H2
9. I have thought about this before	Sharp_H3
10. I have to think about the advertisement before I laugh	Sharp_H4
11. I would use this as a joke	Sharp_H5
12. This advertisement changes my initial impressions of the topic portrayed	Sharp_A3
13. This advertisement is old and has no "flavor"	Sharp_R4
ACCEPTANCE	
14. There is a clear positive stereotype in this advertisement	Sharp_A1
15. There is a clear negative stereotype in this advertisement	Sharp_A2
16. I grew up around situations/messages like this	Sharp_A4
17. I agree with this advertisement	Sharp_A5
RELEVANCE	
18. I can relate how much to this advertisement	Sharp_R1
19. This advertisement is current with today's interests	Sharp_R2
20. I would have understood this advertisement 3 years ago	Sharp_R3
21. I agree with the thought process behind this advertisement	Sharp_R5
PEER PRESSURE	
22. I like the advertisement but would not show it publicly	Sharp_P2
23. I can crack jokes at people this advertisement portrays or affects	Sharp_P3
24. I can see my friends in this advertisement	Sharp_P4
25. This advertisement could be so much better	Sharp_P5

The reliability of the scale is high with Cronbach alpha for 'Support' as 0.94; 'Humor' as 0.95; 'Acceptance' as 0.84; 'Relevance' as 0.85; and 'Peer Pressure' as 0.81.

VII. CONCLUSION

The research paper presents the SHARP conceptual model as the futuristic mainframe foundation of how advertising campaigns are developed, directed, and created for many years to come. It identifies the definition of "cool", how neural networks can be used to its potential, and addresses the social criticisms of advertising by way of the SHARP model.

The SHARP model developed in this research paper is tested empirically for exploratory factor analysis with 5 factors of SHARP – SUPPORT, HUMOR, ACCEPTANCE, RELEVANCE and PEER PRESSURE. The model needs to be further tested in the future research with regard to ad and brand attitudes and brand equity concepts.

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Examining the Features of Resilient Firms

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The purpose of this paper is to examine the features of resilient firms that reported positive price movements during market downturns. In the last decade, the stock market had two crashes; the first one occurred in year 2000, where the stock market lost more than 40% of its value. The crash destroyed more than $8 trillion in investors' wealth; its effect was devastating on all industries at all levels (Pattanaik, 2009). The second one occurred in year 2008, where the stock market lost more than 50% of its value and shook the global economy. The study highlights the financial characteristics of those firms that reported positive price movements during the 2008 crash period and tests their significance. It employs both fundamental and market measures.

Introduction

In the last decade, investors were confronted with two traumatic experiences with the occurrence of two stock market crashes. As a consequence, they lost more than 40% of their investments in the first crash (year 2000) and more than 50% of their investments in the second one (year 2008). These market crashes had devastating effects on all industries at all levels and shook the global economy (Nofsinger, 2001). During the same period, many firms reported positive price movements despite the negative factors that overwhelmed the financial market. In an effort to help investors to be better informed, the paper aims at examining the financial structure of these firms with a positive price movement by highlighting their unique characteristics and testing their significance. The next sections of the paper deal with the literature review, research methodology, data analysis, study limitations, and conclusions.

Literature Review

Many studies discussed the causes of stock market crash and provided different explanations. Pattanaik (2009) argued that the deregulation of the financial services industry is a main cause of the 2008 crash market. Dell'Aricia et al. (2008) believed the longer-lasting boom factor and the high inflation with the lower growth were among the main factors that resulted in the crisis. Demyanyk and Hemert (2008) highlighted the classic lending boom-bust scenario, where the fluctuation of the subprime mortgage market that was consistent with the unsustainable growth in credit expansion led to the collapse of the financial markets. Rogers (2008) underscored the effect of the rapid development of free market globalization for the economic recession that was followed by the financial crisis. He added that as a consequence, globalization produced two conflicting results; the first is a boost in the economic growth (benefit); the second is deepening the wealth-poverty gap (detriment). Roll (1989) suggested that a crash occurs because of the revised expectations of the worldwide economic activity. Taylor (2009), however, referred the main cause of year 2008 crisis to the abundance of credit because of the unusually low interest rate policy set by the Fed. Di-Martino et al (2007) gave emphasis to the fact that with the decline in the subprime market in late 2006, lending institutions began to anticipate the looming problems; they tightened their lending policies and businesses were not able to obtain loans to expand or even survive the weak economy.

Resilient

Other studies used business cycle model. Shiller (1984) highlighted that stock prices swing from fundamental values because of the trading activities of the uninformed investors. Occhino and Pescatori (2010) showed evidence that debt delinquencies aggravate credit risk and when ignored lead to a financial crisis. They explained, as the excessive debt increases, businesses decrease their investments in projects, which increases the probability to default; this creates a vicious cycle, which leads to the financial crisis. Zuckerman E. and Rao H. (2004) related the market crash of year 2000 to the main features of trading in technology stocks early in the 1990s. Investors and stock traders were not able to explain the implications of the rise and fall of the Internet stock for many years; Ofek and Richardson (2003) pointed out that during that period, the very high volume of trade in Internet stocks indicated a wide gap between the prices and their fundamental values. Demers and Lev (2001) gave two broad reasons for how Internet stocks reached unjustifiably high prices in the late 1990s and early 2000. The first focuses on the fundamental values that highlight the elements of capital gains and losses. Investors change their opinion often based on indicators rather than on fundamental values. The second suggests that fundamentals were indeed responsible for market prices but investors' interpretations of fundamentals were irrationally optimistic in making their assessments.

Financial Performance

In assessing firms' financial performance, there is a wide variety of measures used. Allouche *et al*. (2008) used ROA, ROE, ROCE as well as the financial structure of 1,271 Japanese companies to test the firms' performance. Similarly, the results of a study done by Onaolapo, A and Kojala, S (2010) showed evidence that a firm's capital structure surrogated by debt ratio had a negative impact on the firm's performance (ROA and ROE). Gompers *et al*. (2003) tested the relationship between corporate governance, equity returns, and the firm's value using financial measures along with other measures. They concluded that corporate governance is positively correlated with equity returns and firm's values. Berger and Ofek (1995), in a study about the firms' performance, found a positive correlation between return on assets (ROA) and return on capital employed (ROCE). Dastgir and Velashani (2008) found that comprehensive income is a good measure of a firm's performance.
Bettis and Hall (1982), Densetz and Lehn (1985), Habib and Victor (1991), Gorton and Rosen (1995), Mehran (1995), Ang, Cole and Line (2000), Margaritis and Psillaki (2006), Rao et al (2007), Zeitun and Tian (2007) used ROA and ROE as performance proxies in their studies. Dastgir and Velashani (2008) reported that Earnings Per Share (EPS) is positively correlated with a firm's performance and argued that EPS is also a measure of shareholder value.

The purpose of this paper is to explore the uniqueness of the financial structure of the firms that had a positive price movement during the crash period of year 2008 and to compare them to the measures of the other firms, and then, to test the significance of these measures. The research problem is set in the following question:
Are the financial measures of the firms that reported positive price movement during the market downturns of year 2008 significantly different from those of the other firms during the same period?

Research Methodology

The study tests the structural difference of financial measures of two groups of firms; the first group is made of firms that reported positive price movement during the year 2008 market downturn; the second group is made of firms that reported a negative price movement during the same period. Analysts, practitioners and academicians used financial ratios in assessing stock returns in financial markets. This study uses a combination of accounting measures and market measures, which are ROE, ROA, P/E and P / BV, (De Vaney S. 1994; Arslan, O. and Baha, M., 2010; Bhandari 1988; Basu 1977; Tze, S., and Boon H., 2009; Irwin, 2001). The study employs the following procedure:

1- Firms are divided into two groups; the first group is made of firms that reported positive price movements during the 2008 crash period; the second

group is made of firms that reported negative price movements during the same period.

2- Then, firms of both groups are divided into the following nine sub-groups based on the type of the economic sector: 1- Consumer Discretionary, 2- Consumer Staples, 3- Energy, 4- Industry, 5- Information Technology, 6- Material, 7- Health Care, 8- Financial, and 9- Others (includes Transportation, Utilities, and Tele-Communication Services).

3- The financial measures of all groups are summarized and their mean and standard deviation are calculated.

4- The significance of the financial measures is tested using controlled experiments across the various groups at 1%, 5%, and 10% level of significance.

5- Among each subgroup, the significance of the financial measures of the two main groups (i.e. firms with positive price movements versus firms with negative price movements) is tested.

6- The study is a two-step-process; in the first step, Z distribution is employed to test if the mean of stocks with the positive price movements group is different from that of the negative price movements group across the nine economic sectors; the following test statistics is used:

$$z = \frac{(\bar{x}_1 - \bar{x}_2) - D_0}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}$$

In the second step, Z distribution is employed to test if the mean of all stocks with the positive price movements group is different from that of the negative price movements of the nine economic sectors all together (i.e. they belong to the same population).

Data used is a secondary type and is taken from Compustat. The original number of firms listed is 9,859; the number of firms that remained in the study is 9,344, after extreme outliers were removed from the study; outliers are defined as being those firms with an ROA less than -100% and ROE less than -200%. To capture the price movement during the 2008 downturn, data of these companies were taken from two time frames i.e. January 01, 2008 and December 31, 2008.

Data Analysis

Testing the significance of the difference between stocks with positive price movements (PPM) with the negative price movements (NPM) group among the nine economic sectors is done at 1%, 5%, and 10% levels of significance. Table 1

reflects the P/E mean (M), standard deviation (S) and the number of firms (N) of the two groups of firms across the nine economic sectors and all sectors as one group.

Table 1- Price Earnings (P/E) Summary

Economic Sector	PPM (+)			NPM (-)		
	M	**S**	**N**	**M**	**S**	**N**
Consumer Discretionary	29	25	172	24	20	1283
Consumer Staples	23	13	42	22	14	352
Energy	32	40	41	35	78	480
Financial	23	42	248	31	90	2696
Health Care	31	42	107	40	79	808
Industry	25	125	101	39	133	763
Information Technology	84	84	113	41	71	1230
Material	20	16	61	25	52	444
Others	20	9	30	41	140	373
Overall	**26**	**34**	**915**	**33**	**86**	**8,429**

Testing the difference between the P/E mean of the two groups is summarized in Table 2. The testing is done using Z distribution of comparing the means. The critical value of two-tail-test of the three levels is very strong evidence (1%), Z = $\pm$ 2.33; strong evidence (5%), Z = $\pm$ 1.96; some evidence (10%), Z = $\pm$ 1.65 .

Table 2- Price Earnings (P/E) Significance

Economic Sector	***Test Statistic***	***Remarks***
Consumer Discretionary	2.65	**Strong evidence**
Consumer Staples	0.22	Insignificant
Energy	-0.34	Insignificant
Financial	-2.66	**Strong evidence**
Health Care	-1.84	**Some evidence**
Industry	-1.04	Insignificant
Information Technology	+5.21	**Very strong evidence**
Material	-1.65	**Some evidence**
Others	-2.84	**Strong evidence**
Overall	-4.80	**Very strong evidence**

The P/E of the two groups (i.e. PPM and NPM) of the six economic sectors are significantly different; the mean P/E of the two groups for Consumer stable, Energy, and Industry sectors are not statistically different. However, unexpectedly, the P/E means of the two groups of all economic sectors when put together showed extremely strong evidence (Z = -4.80) that they are not equal.

Table 3 is the output of the summary measures of the mean and standard deviation of price / book value of the two groups.

Table 3- Price / Book Value (P/BV) Summary

Economic Sector	PPM (+)			NPM (-)		
	M	S	N	M	S	N
Consumer Discretionary	5	23	172	1	14	1283
Consumer Staples	3	3	42	2	4	352
Energy	4	7	41	3	29	480
Financial	2	1	248	1	2	2696
Health Care	4	44	107	1	23	808
Industry	2	5	101	39	133	763
Information Technology	4	8	113	1	20	1230
Material	4	10	61	4	75	444
Others	2	1	30	1	24	373
Overall	7	97	915	1	25	8,429

Table 4 is the summary results of testing the significance of the price/book value mean of the two groups among the nine sectors. Five economic sectors showed statistical evidence that the means of the price/book value of the two groups are significantly different; the P/BV mean of two groups of Energy, Health care, Material, and Others sectors didn't exhibit any significant difference. As for the overall sectors, it is quite interesting to notice that the means of the two groups are statistically different with a Z of +1.76.

Table 4- Price / Book Value (P/BV) Significance

Economic Sector	*Test Statistic*	*Remarks*
Consumer Discretionary	2.18	**Strong evidence**
Consumer Staples	2.83	**Strong evidence**
Energy	0.65	Insignificant
Financial	9.34	**Very strong evidence**
Health Care	0.56	Insignificant
Industry	+1.79	**Some evidence**
Information Technology	+3.84	**Very strong evidence**
Material	-0.10	Insignificant
Others	+0.90	Insignificant
Overall	+1.76	**Some evidence**

Table 5 represents the summary measures of the mean and standard deviation of Return on Assets (ROA) ratio of the two groups.

Table 5- Return on Assets (ROA) Summary

Economic Sector	PPM (+)			NPM (-)		
	M	S	N	M	S	N
Consumer Discretionary	174	1932	172	-213	3587	1283
Consumer Staples	5	19	42	-4	21	352
Energy	5	30	41	0	27	480
Financial	3	8	248	0	9	2696
Health Care	-9	29	107	-18	36	808
Industry	3	9	101	3	15	763
Information Technology	13	135	113	4	196	1230
Material	0	18	61	1	45	444
Others	5	4	30	0	15	373
Overall	32	820	915	-36	1480	8,429

Table 6 is the summary results of testing the significance of ROA mean of the two groups among the nine sectors. Five economic sectors showed statistical evidence that the ROA means of the two groups are significantly different; the means of the two groups among the other four economic sectors didn't show any significant difference. Again, the means of the two groups for the overall sectors showed strong evidence that they are significantly different with a Z of +2.16.

Table 6- Return on Assets (ROA) Significance

Economic Sector	*Test Statistic*	*Remarks*
Consumer Discretionary	2.18	**Strong evidence**
Consumer Staples	2.96	**Very strong evidence**
Energy	1.04	Insignificant
Financial	4.41	**Very strong evidence**
Health Care	2.75	**Very Strong evidence**
Industry	+0.61	Insignificant
Information Technology	+0.62	Insignificant
Material	-0.42	Insignificant
Others	+4.97	**Very strong evidence**
Overall	+2.16	**Strong evidence**

Table 7 is the output of the summary measures of the mean and standard deviation of Return on Equity ratio (ROE) of the two groups among the nine economic sectors.

Table 7- Return on Equity (ROE) Summary

Economic Sector	PPM (+)			NPM (-)		
	M	S	N	M	S	N
Consumer Discretionary	3	53	172	-19	399	1283
Consumer Staples	12	85	42	2	102	352
Energy	5	37	41	-1	63	480
Financial	11	13	248	4	48	2696
Health Care	-12	43	107	-67	652	808

Industry	**8**	**37**	**101**	**12**	**41**	**763**
Information Technology	**-38**	**76**	**113**	**-4**	**104**	**1230**
Material	**-1**	**38**	**61**	**0**	**50**	**444**
Others	**15**	**13**	**30**	**8**	**38**	**373**
Overall	**3**	**36**	**915**	**-8**	**280**	**8,429**

Table 8 is the summary results of testing the significance of the means of return on equity ratio (ROE) of the two groups among the nine sectors. Six economic sectors showed statistical evidence that the means of the ROE of the two groups are significantly different; the means of the two groups among the remaining three sectors are not significantly different. As for the overall sectors, the ROE means of the two groups showed very strong evidence that they are statistically different with a Z of +3.56.

Table 8- Return on Equity (ROE) Significance

Economic Sector	***Test Statistic***	***Remarks***
Consumer Discretionary	1.83	**Strong evidence**
Consumer Staples	0.67	Insignificant
Energy	0.85	Insignificant
Financial	5.78	**Very strong evidence**
Health Care	2.38	**Very Strong evidence**
Industry	-.96	Insignificant
Information Technology	-4.39	**Very strong evidence**
Material	-0.15	Insignificant
Others	+2.10	**Strong evidence**
Overall	+3.56	**Very strong evidence**

Limitations of the study

There are three limitations in the study. Neither the internal nor the external validity was tested. Almost 400 companies were identified as outliers and were removed from the study.

Conclusions and Recommendations

The research output showed evidence that the mean of the four measures (i.e. P/E, P/BV, ROE, and ROA) of the firms with positive price movement compared to that of the firms with negative price movement is significantly different (SE = Significant Evidence) among several economic sectors as reflected in Table 9.

Table 9 – Significance Summary

Economic Sector	**Market Measures**		**Fundamental Measures**	
	P/E	**P/BV**	**ROE**	**ROA**

Consumer Discretionary	**SE**	**SE**	**SE**	**SE**
Consumer Staples		SE	SE	
Energy				
Financial	**SE**	**SE**	**SE**	**SE**
Health Care	SE		SE	SE
Industry		SE		
Information Technology	SE	SE		SE
Material	SE			
Others	SE		SE	SE
Overall	**SE**	**SE**	**SE**	**SE**

The results of the study are mixed. The means of all measures of the energy sector firms didn't show any significant difference among the two groups of stocks with different price movements, while consumer discretionary and financial sectors showed significant evidence that the mean of all measures of stocks with positive price movements group is significantly different from that group of stocks with negative price movements. As for other sectors, information technology showed significant evidence that stocks with positive price movement group is significantly different from the negative price movement group for the two market measures only. On the other hand, the fundamental measures of stocks with positive price movements of health care and other sectors showed significant evidence that they differed from the group of stocks with negative price movements. An interesting finding is about the overall sectors; the mean of all measures (market and fundamental) of stocks with the positive price movement stocks group is significantly different from that of the other group.

The review of the market measures across sectors showed mixed results for the mean of the P/E measure; stocks with positive price movements had in some sectors an average that exceeded that of the other group, which is in support of the market theory, while other sectors along with the overall sectors had the opposite. As for the price to book value measure, results were more consistent and almost all stocks with the positive price movement had a mean P/BV greater than that of the negative price movement group, which is in harmony with the market theory.

As for the fundamental measures (i.e. ROA and ROE) across all sectors, the results were more coherent than those of the market measures. Stocks with positive price movements group had significantly higher means than that of the negative price movement group; these results are robust as they show that the firms with positive price movements were performing well before the crash. Another interesting finding applicable to all measures (market and fundamental) is that stocks with positive price movements group had standard deviation measure smaller than that of the negative price movement group. Bringing these two findings together, it seems that consistently well performing firms are more likely not to be adversely affected

during crash periods; is it a safe tip? It is recommended to conduct further studies by using different time periods and or other markets.

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THE ECONOMIC DETERMINANTS OF AGE AT FIRST MARRIAGE: A CROSS COUNTRY ANALYSIS

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ABSTRACT

We employ a dataset for 56 nations to analyze the age at which men and women first marry. In separate equations for each gender, important effects are found for wages, labor force participation rates, educational attainment, and infant mortality rates in predicting the age at first marriage for males and females across nations. Seemingly Unrelated Regression (SUR) methods evince some gains in efficiency over ordinary least squares when the equations are estimated as a system.

INTRODUCTION

Perhaps surprisingly, there is no shortage of papers [see 6, 7, 8, 9, 10 and 11] that attempt to provide empirical economic explanations of the age at which people first marry. Most of these studies reference the analysis by Becker in his models of marriage [see 1 and 2] when choosing the variables that explain when people decide to marry. The extant research on age at first marriage places focus on marriage of individuals within a *single* nation, e.g., the determinants of the age at first marriage for men and women in the United States. Here we attempt to explain the age at first marriage by regression analysis for a cross section of 56 different nations. The remainder of the paper is organized as follows: first, we give a brief review of the economic explanation and empirical analysis of marriage and the "marriage market;" second, we describe the data utilized in the empirical work; third, the results of the estimations are presented; in the final section we offer conclusions.

ECONOMICS AND MARRIAGE

Theory

Becker [1] notes that since almost all marriages are voluntary, the economic theory of preferences can be applied. Persons agreeing to marry "… can be assumed to expect to raise their utility level above what it would be were they to remain single." [1, p. 814] Becker further argues that since many individuals compete for mates, a marriage market can be presumed to exist.

Friedman [3] devotes a full chapter (The Economics of Love and Marriage) to explaining marriage and its motivation. A marriage can be considered as a special type of a firm wherein individuals acting together take advantage of familiar economic concepts such as division of labor, economies of scale, and comparative advantage. In addition, as noted in Matsushita [7] and elsewhere, many of the goods produced in marriage have characteristics of *public goods*. For example, children, housing space, heat, light, landscaping, and the like are typically enjoyed jointly within marriages.

As far as the *market* for marriage, the general models of search theory (such as a job search) can be applied. The age at first marriage can be considered to be determined by the age at which one enters the market and the duration of the search for a mate [5, p. 528]. Individuals enter the market only if the expected benefits of marriage exceed the expected costs, and the search will extend until the expected additional benefits equal the additional (marginal) costs. The market participant determines an acceptance wage (here share of output produced in marriage), and accepts a marriage offer that equals or

exceeds the acceptance wage. Recognize (of course) that "proposals" regarding the share of output produced in marriage are likely to be more uncertain and less explicit than wage offers in the employment market. Nothing herein suggests than love and/or altruism are absent in marriage—love can be one of the goods produced in marriage and a husband (wife) can gain utility from his (her) mate's consumption or that of their children.

Empirical Analysis

The empirical determinants of marriage age identified in prior research include measures such as male and female wages, educational attainment levels, per capita income, infant mortality rates, and life expectancy. Based on economic theory, marriage is expected to be delayed with higher incomes, higher educational attainment levels, lower infant mortality rates, and greater life expectancy.

If male and female wages are measured separately, there is disagreement in both theory and empirical work on the effect of higher male wages on male age at first marriage. The Becker-Keely [6] hypothesis suggests (under certain assumptions) that higher male wages will result in earlier marriage age for males. The reasoning is that males with higher wages have comparative advantage in the labor market, and will thus seek a partner whose comparative advantage lies in home production. Such a male is therefore more likely to marry, and marries earlier than males not so advantaged. Put differently, a male with higher wages gains more by specializing in the labor market and also gains more from the marriage output in the home produced by a mate. In contrast, Bergstrom and Bagnoli [3], suggest that higher male wages are likely to cause marriage to be delayed. Their reasoning is that men who are more likely to be successful (and therefore start with higher wage rates) will postpone marriage because it takes time to "prove" their earning potential. As such proof is realized, higher wage males are able to appeal to more desirable women. Keely [6] finds support for the Becker-Keely prediction while others (Zhang [11] for example), find support for the Bergstrom-Bagnoli prediction.

We note one other interesting empirical result from Loughran [7]. He models a female marital search and finds that male wage *inequality* delays age at first marriage for females. Loughran argues that with greater male wage inequality, a female search participant will search longer because she is more likely to receive an offer from a higher male wage earner with extended search time. Stated in terms of search theory, a risk-neutral female facing a greater spread in male wages is more likely to receive offers above her minimum acceptance wage with additional search time.

DATA

We collected data for 56 nations[1], with the nations included in the sample chosen solely on the basis of available data. The data for each nation include age at first marriage for men and women, measures of male and female wages, labor force participation rates for each gender, infant mortality rates, life expectancy for males and females, educational attainment rates, and per capita income. The data sources include Eurostat, United Nations Statistics Division and the Encyclopedia of Nations. Table I contains descriptive statistics for the variables collected for the analysis.

[1]The nations represented in the sample are Armenia, Australia, Belgium, Belarus, Bolivia, Brazil, Bulgaria, Canada, Colombia, Costa Rica, Croatia, Czech Republic, Denmark, Egypt, El Salvador, Eritrea, Estonia, Finland, France, Georgia, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Iran, Italy, Japan, Kazakhstan, Kenya, Kyrgyzstan, Latvia, Lithuania, Malaysia, Malta, Mexico, Mongolia, Netherlands, New Zealand, Norway, Panama, Peru, Philippines, Poland, Qatar, Romania, Singapore, Slovakia, Slovenia, South Korea, Sweden, Switzerland, Turkey, Ukraine, United States.

The first two variables in Table I, female and male wages were computed by dividing per capita income into male and female components based on the ratio of male to female manufacturing wages. Such a calculation may not be fully appropriate, and we note and account for this in the empirical analysis to follow. Some of the summary statistics are particularly interesting (at least to us). The mean age at first marriage for women across these 56 countries is a little more than 25 years of age. The corresponding age for men averages just over 28. In every nation in the data set, women on average marry older men, with a smallest differential (Marry Age Diff. in the table is men's age at first marriage minus women's age) of 1.29 years (Ireland) and the largest differential of 5.71 years (Eritrea). The infant mortality rate (the number of deaths of infants under one year of age per 1,000 live births) varies widely for our sample of nations, with a maximum of 81 (Kenya) to a minimum of 2.5 (Singapore). The ratio of male-to-female wages reported also varies widely, from a low of .62 (Qatar) to a high of 2.46 (Armenia).

Table I: Descriptive Statistics for 56 Nations

Variable	Mean	Std. Dev.	Minimum	Maximum
Female Wages	$14,906	$18,446	$883	$127,705
Male Wages	$17,759	$14,906	$915	$79,295
Women Marry Age	25.28	3.28	19.56	32.34
Men Marry Age	28.19	2.83	24.00	34.50
Infant Mortality	18.51	18.86	2.50	81.00
Women LF	58.48	12.91	24.80	83.60
Men LF	79.58	5.80	66.80	92.80
Life Women	76.32	6.11	52.70	85.20
Life Men	70.03	6.10	51.20	78.60
Women Education	14.15	3.16	4.09	20.70
Men Education	13.75	2.64	5.68	20.50
Income Per Capita	$16,310	$16,199	$1,020	$103,500
Marry Age Diff.	2.90	0.95	1.29	5.71
Male/Female Wage	1.31	0.28	0.62	2.46

It is also interesting (though not surprising) to note that the labor force participation rates (Men LF, Women LF) for males are much higher than that for women, and that the males also have significantly lower variance for that measure across nations.

RESULTS

Linear regression methods are employed to test the empirical determinants of age at first marriage for this sample of nations. We choose to estimate separate equations for male and female marriage age. In general (and as stated above) we anticipate that marriage age is likely to depend on wages (or incomes), infant mortality rates, life expectancy, and labor force participation rates.

Several of the variables collected are highly correlated in this sample of nations. In particular, per capita income is very closely correlated with our measures of wages for each gender. The simple correlation coefficient between male wages and per capita income is .98 and that between female wages and per capita income is .97. Thus, even though there is fairly wide discrepancy across nations in the ratio of female to male wages in manufacturing, the levels of wages constructed for this research are dominated by differences in per capita income. As a practical matter, the regression results are similar regardless of whether the measure of income or wages enters as an explanatory variable. In the results reported in Table II, we choose to use the measures of male and female wages (results with per capita income are

available from the authors on request). Measures of the general level of heath, life expectancy and infant mortality rates also closely related, with simple correlation coefficients of -.93 for females and -.77 for males. We choose infant mortality rates as an explanatory variable in the regressions, based on economic theory as children are one of the goods produced in marriage.

Consider the first reported regression in Table II in the column "OLS Women's Age." We find statistically important effects for the measure of women's wages (higher wages for women delay marriage), education of women, women's labor force participation, and infant mortality rates. All signs are as anticipated and the equation explains two-thirds of the variance in women's age at first marriage across nations.

Table II: Regression Results

Explanatory Variable	OLS Women's Age	OLS Men's Age	SUR Women's Age	SUR Men's Age
Constant	16.52	22.36	17.89	24.20
Women's Wages	0.000045* (2.95)		0.000037* (3.22)	
Education Women	0.3659* (2.64)		0.2612* (3.03)	
LF% Women	0.0638* (2.74)	0.0542* (2.65)	0.0724* (3.52)	0.0620* (3.27)
Infant Mortality	-0.0440** (-2.09)	-0.0332** (-1.75)	-0.0588* (-3.54)	-0.0564* (-3.60)
Men's Wages		0.000083* (3.88)		0.000049* (3.06)
Education Men		0.1342 (1.04)		0.0398 (0.49)
SEE	1.880	1.821	1.81	1.79
Adjusted R^2	.671	.585	___	___

* indicates statistical significance at $\alpha < .01$, one-tailed tests.
** indicates statistical significance at $\alpha < .05$, one-tailed tests.
(t-statistics are in parentheses below the coefficient estimates.)

The second reported regression, "OLS Men's Age," includes a slightly different explanatory variable set. Higher men's wages across nations leads to later marriage, higher infant mortality rates imply earlier marriage age for men, consistent with the result for women, and men's educational rates are weakly related to later marriage for men. Notice that men's labor force participation is *not* included in the regression, but women's labor force participation is. We found no effect of male labor force participation, but we found that greater women's participation was associated with later marriage age for men, as well as women. Recall that men's labor force participation rates varies far less than that for women, and that the gap in marriage age (male – female) is narrow across nations. It is not, then, surprising that greater labor force participation for females delays marriage for both sexes. The OLS regression for male age at first marriage explains a smaller percentage of the variance in age, accounting for about 60% for this sample of nations.

Since the marriage age for each gender is clearly related across nations (males on average marry younger women with narrow differences), it is likely that the error terms of the two equations are correlated. In such instances, the *seemingly unrelated regression* (SUR) technique yields increased efficiency by estimating these equations as a system, accounting for the correlation across equations. The last two columns of Table II contain the regression results for SUR. Examining the results of the SUR

estimations, most of the t-scores are "improved," but more importantly, notice that the standard error of the estimate is reduced for each of the two equations. We conclude that the SUR technique is appropriate for this project.

We conducted several experiments to test for possible effects of the ratio of male to female wages, since some research suggests that higher male wages relative to females may have ambiguous effects on age at first marriage for men within a nation. We could find no case in any formulation that such effect is observed across nations, at least for this sample.

Note also that we did not include any measure of religion, status of women, form of government, or other social measures regarding marriage for the individual nations of this sample.

CONCLUSIONS

A data set for 56 nations yields estimates of the determinants of marriage age for men and women. We find that male and female marriage ages are positively related to income, negatively related to infant mortality rates, and positively related to female labor force participation rates. We also find that women's marriage age is positively related to their educational attainment, whereas men's marriage age is, at best, very weakly related to male educational attainment. Marriage age for males does not appear to be related to male labor force participation rates. We also conclude that the method of *seemingly unrelated regression* (SUR) yields increased efficiency in estimating male and female marriage age equations as a system.

As a future project we may utilize measures of income inequality, perhaps with GINI coefficients, to test to see if Loughran's [7] result (that with greater male wage inequality, women search longer and thus delay marriage) can be captured for a cross section of nations.

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THE M FINANCE TEXTBOOK: NEW TREND OR PASSING FAD?

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ABSTRACT

McGraw – Hill Irwin has recently introduced a "radical" textbook for the Principles of Finance class. M Finance is a soft cover text that appears to be very "student friendly". It contains fewer chapters than the traditional finance text and incorporates more color and visual aids. It is also priced significantly lower than competing texts. The Fall 2011 semester marks the first time it is available for adoption by faculty. Accordingly, it is far too early to determine whether this text will be embraced by faculty and students. This paper will contrast the M Finance text with our previous text and highlight why we chose to adopt it.

INTRODUCTION

The author has taught Accounting and Finance at Winthrop University for the past twenty-one years. Finance has always been regarded as the most challenging course in our business core. In earlier years, students demonstrated a willingness to accept this challenge head on. They typically came to class having read assigned materials and having made a concerted effort to complete assigned problems. More recently, the author has witnessed a decline in the amount of advance preparation undertaken by students. Unfortunately, many students have the goal of getting by with a grade of C. The assumption is Finance is for Finance majors only. I often hear the following from students. "I'm majoring in management or marketing (or one of the other functional areas of business); I won't need to know financial management." Clearly, we have work to do to change this mindset.

The author has always mandated that each student purchase the designated textbook and a specified financial function calculator. It was not uncommon for students to arrive for the first class of each semester with their text and calculator in hand. Now, a number of students do not acquire the assigned text until the second week of classes or later. There are more attempts to get by without buying the text. Further, buying a text via the internet has grown exponentially in an effort to minimize the cost of buying books. These actions are understandable given the cost of textbooks today.

Over the years, the author has relied less on the textbook during classes. A robust set of lecture notes have been prepared. They are available to students on the author's webpage. Further, the author emphasizes the practical aspects of Finance by integrating experiences as a Financial Planner over the past 28 years. The assigned text has largely been used as a source of homework and review problems.

The relative efficacy of textbooks has been debated in the literature. Some have suggested that textbooks should be discarded. It is noted that texts are costly and contain far more material than can ever be covered in a semester.

We typically offer 4 or more sections of the Principles of Finance course each semester. These sections are taught by 4 professors. Our most recent text was Foundations of Finance, 6th edition by Keown, Martin & Petty. My colleagues and I selected this text because we found it to be one of the more student-friendly texts that we reviewed. It was more condensed than the typical finance textbook and was fairly easy to understand. Nonetheless, this text contained chapters that we typically did not cover and had a few other limitations as well.

In March 2011 the author attended a workshop on Technology in Finance sponsored by McGraw-Hill. The primary purpose of the workshop was to expose the professors to the online tools available for students (e.g. quizzes, study materials) and instructors (e.g. homework manager, quizzes, exams, etc.). During one of our sessions, I mentioned the need to get creative in the classroom and to conduct class discussions in new ways. Being somewhat facetious, I suggested that I was going to write a rap song for selected finance topics. I also mentioned the need for a "different" type of textbook (i.e. one that only included the topics we would likely cover in one semester and was soft cover and concise and colorful in its presentation).

McGraw-Hill staff said they had such a text and showed me the M Finance text by Cornett, Adair and Nofsinger. I was impressed with what I saw and immediately shared the text with my colleagues at Winthrop University upon my return. After my finance colleagues had an opportunity to review the text individually, we decided to adopt it for the Fall 2011 semester.

A COMPARISON OF THE TWO TEXTS

The author has utilized a soft cover text in the Personal Finance class. However, the M Finance text is the first soft cover text I've seen for the Principles of Finance class. Further, the cover gives one the appearance of looking at a magazine, hence, its name. It is also much more concise than other texts I've reviewed. It contains approximately 360 total pages versus 584 for the Keown text.

The following table shows the chapters and topics included in each text.

Table 1 – Chapters

Chapter	M Finance	Foundations of Finance
1	Intro to Financial Management	Intro to Financial Management
2	Reviewing Financial Statements	Financial Markets & Interest Rates
3	Analyzing Financial Statements	Understanding Financial Statements & Cash Flow
4	TVM – Single Cash Flows	Evaluating Firm's Financial Performance
5	TVM – Annuity Cash Flows	TVM

6	Valuing Bonds	Risk & Return
7	Valuing Stocks	Bond Valuation
8	Understanding Financial Markets	Stock Valuation
9	Characterizing Risk & Return	Capital Budgeting Techniques
10	Estimating Risk & Return	Cash Flows in Capital Budgeting
11	Cost of Capital	Cost of Capital
12	Estimating Cash Flows – Capital Budgeting	Determining the Financing Mix
13	NPV and Other Capital Budgeting Criteria	Dividend Policy
14	Working Capital Policies	Short-term Financial Planning
15		Working Capital Management
16		Current Asset Management
17		International Business Finance

It has always been my expectation that students should have a working knowledge of the following upon the completion of the principles course.

- Format of the basic financial statements
- Ability to analyze the financial statements (i.e. ratio analysis)
- Time value of money
- Tools and techniques of capital budgeting (i.e. payback, npv, irr)

Further, students should have an understanding of the relationship between risk and return. They should also have a basic understanding of the role of financial markets and institutions in our society. Accordingly, these are the topics that have been emphasized in class. Chapters 1-9 of the Keown text have always been covered. Although, not always in the same order in which they appear in the text. Chapters 11 and 14 have also been consistently covered. Anecdotally, only one of the four professors who teach the principles course covered dividend policy and none covered the last three chapters. It should be noted that finance majors cover each of these topics (i.e. working capital and current asset management and international finance) in subsequent courses.

Prior to my discovery of the M Finance text, some of my colleagues were considering ordering a custom text that would leave out some of the chapters from the Keown text. The M Finance text eliminated the need to design a custom text because it did not include the chapters that we were not covering. Further, each chapter is shorter in length and tends to be written in a more conversational style. We believe students will find our newly adopted text easier to read (if they choose to do so!). It clearly is easier to transport and should be available new in our bookstore for under $100.

The M Finance text includes tear out sheets containing key formulas grouped by chapter. Professors may elect to allow students to bring the appropriate formula sheet(s) to class on exam dates. At any rate, this should prove to be an effective preparation tool prior to an exam. The downside is that there are no check figures for homework problems in the text. The student site also includes online quizzes, I Pod downloads and video. The instructor site includes the solutions manual, a test bank and PowerPoint

lecture slides. It should be noted that the test bank contains overwhelmingly multiple choice questions. There are essay questions and problems for most chapters. However, they are in relatively short supply.

From a teaching standpoint, I noticed that one must be diligent to be consistent with some of the approaches used by the authors. For example, the authors multiply accounts receivable by 365 days to compute the average collection period as opposed to dividing annual credit sales by 365. Similarly, the authors place a great deal of emphasis in using formulas to solve examples of time value of money problems. This may prove advantageous for our finance majors because they are required to use formulas in the next finance course in the sequence. A working knowledge of a financial function calculator is likely sufficient for students in other majors. Each example has a calculator hint box that displays the keystrokes.

CONCLUSION

It's much too early to tell if the M Finance text will revolutionize the format and content of texts for the principles of finance class. I suspect that some professors will feel that the content is too watered down and will want to stick with a more traditional text. More importantly, it remains to be seen how aggressively the text is marketed. We were using the text from a different publisher so McGraw-Hill Irwin will realize additional revenue from our students. There is some concern that the M Finance text could cannibalize sales of other principles texts published by McGraw-Hill Irwin.

Clearly, the M Finance text offers a relatively low cost option for students. Students reported that they were able to purchase the text new from our bookstore for $75. Online prices were lower. The text should prove to be an easy read as it is written in a conversational tone and includes numerous examples that students should be able to relate to.

SO WE HAVE A TRADING ROOM – MOVING BEYOND THE WOW!

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ABSTRACT

Trading Rooms have proliferated at colleges and universities around the country. They are viewed as a potent recruiting tool for a business school. Trading Rooms also facilitate a hands-on learning experience for students in the fields of economics and finance. Students who become experienced users of the hardware and software may gain a competitive edge when seeking employment opportunities with investment banking, money management and other financial services firms.

We dedicated a new facility that includes a trading room in 2009. It has all the bells and whistles. The initial reaction to the new facility was – WOW! The initial euphoria has faded. Now we face the question of, "How do we leverage our investment to integrate the use of this facility across our curriculum and to develop and/or strengthen partnerships with our business community?"

INTRODUCTION

For a number of years, the Dean of the College of Business Administration at Winthrop University lobbied for a new facility that would house an auditorium and some additional classroom space. He was pleasantly surprised to learn that State construction monies were approved to build this facility. During the early planning stages, the Dean learned that a Trading Room would also be incorporated into the building design. Unfortunately, there was a catch. The State of South Carolina would provide the construction monies. The Dean would need to secure funding for the hardware and software.

A meeting of selected administrators and faculty members was held to brainstorm a list of potential donors. They specifically wanted to identify an individual(s) who had a connection to the University and also had the ability to make a significant cash contribution. Larry Carroll's name appeared at the top of the list.

Larry W. Carroll, CFP®, CIMA is recognized as one of the best financial planners in the country. His firm, Carroll Financial Associates, Inc. manages over $1.5 billion in client assets. Larry is frequently included in the ranks of top financial planners in publications such as Barron's. He is a native of Rock Hill, SC which is the home of Winthrop University. Further, his wife, Vivian, received her undergraduate degree from Winthrop University before beginning a successful career as a financial advisor at Merrill Lynch.

A member of our faculty was asked to determine Larry's interest and willingness to make a contribution to Winthrop University. He and Larry had a personal and business relationship of over 25 years. The faculty member was part of Larry's financial planning organization. They had also started a community bank the previous year. In 1999, Larry provided funding to start a student managed investment fund at Winthrop University.

Larry was immediately intrigued with the idea of providing funding for the new facility. He had previously made substantial gifts to his alma mater, Austin Peay State University. He now wanted to make a gift to Vivian's alma mater.

Three options were presented to Larry. He could choose to underwrite the:

1. Entire building
2. Auditorium
3. Trading Room

Larry pledged $1.25 million to underwrite the entire facility. Planning for the new facility began.

An overwhelming number of students in the College of Business Administration at Winthrop University arrive on campus having had no exposure to the capital markets. Many are the first in their family to attend college. They did not have the experience of listening to their parents discuss prospects for the stock and bond markets or the performance of their portfolios. These students are often highly risk averse and are reluctant to venture beyond certificates of deposit and other investment vehicles deemed "safe". This often manifests itself in their reluctance to trade risky assets in the investment simulation that is part of the Investments course that is required for all finance majors. One of the Dean's major goals for this new facility was to provide students with exposure to the capital markets and to promote the use of the facility across the curriculum. Accordingly, he evaluated hardware and software alternatives for the Trading Room.

Vivian M. Carroll Hall was dedicated in 2009 to great fanfare. The building received rave reviews. It consists of a(n):

- 125-seat Auditorium
- Executive Conference Room
- 40-seat classroom with a computer terminal at each seat. It can also be used as two 20-seat classrooms.
- 2 student break-out rooms that can be used for group projects and group study. Each room contains a smart board.
- Computer lab
- Administrative office
- 23-seat trading room with a 2nd floor observation deck

THE TRADING ROOM

The Trading Room consists of 23 workstations. We have a Bloomberg terminal and licenses for 7 Telemet users. There is a streaming electronic ticker that goes around the entire trading room and can be seen from the street. There are also electronic displays with key financial and economic data.

The initial reaction from all who visited the facility was WOW! Positive feedback was received from the Winthrop University community, residents of Rock Hill, prospective and current students and from members of the Charlotte Chapter of the Financial Planning Association. Nonetheless, we face a number of challenges in effectively utilizing the potential of this facility as a learning tool for our students.

These challenges include:

- The inability to hire staff for this new facility. We do not have a staff person charged with managing the facility. Further, we do not have an individual, experienced with Bloomberg, to direct Trading Room activities.
- The lack of faculty trained in the use of Bloomberg or Telemet
- Limited access to the building
- The perception among faculty that the use of the Trading Room is to be incorporated into the Finance curriculum only.
- The perception that the Bloomberg Terminal will likely be tied up whenever one wants to use it.
- The physical separation of faculty offices and classrooms from Carroll Hall which houses the Trading Room
- The lack of a formal (preferably online) reservation system for the Bloomberg Terminal

Progress has been made to mitigate some of the above issues. However, the implementation of additional strategies is required in order to integrate the use of the Trading Room across the curriculum.

The literature includes numerous articles on building a Trading Room. Much of the discussion centers on the selection of hardware and software (Alexander, Heck & McElreath, 2002). Curriculum and personnel issues are also addressed (Sinha, Ferreira & Green, 2006). The basics of using a Bloomberg Terminal are discussed effectively (Scott, III, 2010). However, it appears that the goal of utilizing a Trading Room across the curriculum largely remains unrealized. The need to encourage faculty to integrate the Trading Room into their courses and to utilize cases that integrate across disciplines was noted (Lester & Cole, 2009). Earlier this year, Rise Display, a marketer of display solutions, sponsored a workshop on using trading rooms across the curriculum. One of the presenters noted that the Trading Room is being utilized, not only in Finance classes, but in Economics, Marketing, Statistics, Operations Research, Business Journalism and Risk Management classes (Holowczak, 2011).

The authors of this paper were given the task of analyzing the current use of our facility and to propose recommendations to enhance the learning experience of our students and provide faculty with additional tools for conducting research.

PROPOSED STRATEGIES

Most importantly, we determined that the building needs a "Champion" (Sinha, Ferreira & Green, 2006). Unfortunately, we do not have the ability to hire someone to manage and promote the use of the new facility. Accordingly, we suggest that a senior member of faculty be recruited to take on this responsibility. This should be someone who is well-respected within the College of Business and one who is passionate about the facility and enthusiastic regarding taking on this responsibility. Ideally, incentives such as a 10-month contract or course releases could be offered as an inducement.

Twenty-nine students began and/or completed the Bloomberg certification program during the Spring semester. These students should form the pool from which students are hired to staff the Trading Room this semester. The students hired should be charged with preparing a Bloomberg user's manual. They should also be available to assist faculty in designing projects that require the use of the Bloomberg Terminal.

With respect to incorporating the Trading Room across the curriculum, we propose that:

- Undergraduate students should be introduced to the Trading Room in the Intro to Business class. Each section should schedule a full or partial class in the Trading Room to discuss financial topics lead by one of the finance faculty. This would afford all students in the College of Business Administration an introduction to the capital markets early in their matriculation.
- An assignment should be made in all sections of the Principles of Finance class that requires use of the Bloomberg Terminal. Currently, one of the four professors who teach this course is assigning a Bloomberg project. We have discussed the possibility of assigning a common project.
- Our economics faculty should make use of the Trading Room to discuss and/or assign projects related to currencies and exchange rates, global economic indices, yield curves, monitoring the activities of the Federal Reserve, etc.
- Our capstone management course should also require students to utilize the Bloomberg Terminal to perform a detailed company analysis, assess management strategy and to examine merger and acquisition activity.
- Curriculum changes should be implemented at the graduate level to incorporate the use of the Trading Room. We reviewed the MBA curriculum and identified courses across the curriculum where projects requiring students to use the Bloomberg Terminal could be applied. Our MBA – Finance Emphasis program should add additional investment and corporate finance classes that prepare students to take the CFA exam.
- Offer basic economic/financial literacy programs for high school students.
- Increase the number of presentations by financial services professionals.
- Offer continuing education programs for CPAs, Certified Financial Planners and other professionals who have mandated annual continuing education requirements.
- Market the facility to area corporations and nonprofit organizations to conduct staff training programs and retreats.

- Impress upon faculty that Bloomberg is a user-friendly data base. In a matter of minutes, one can obtain a user number and password and immediately begin to access a tremendous amount of data. There is no steep learning curve!
- Encourage our students, particularly our graduate students, to complete the Bloomberg certification program.
- Begin a new student managed portfolio.

CONCLUSION

We remain enthusiastic that we will be successful in integrating the use of Carroll Hall across the curriculum. We note increased student use of the facility. There has also been considerable discussion among faculty regarding assigning projects that will require use of the Trading Room. To date, Carroll Hall has been an effective recruiting tool. We expect that it will be become a significant asset for student learning and it will enhance our level of involvement with members of the business community.

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THE LAST 20 YEARS OF JOURNAL OF BUSINESS LOGISTICS: A GUIDEPOST FOR CONTINUING CONTRIBUTIONS IN LOGISTICS RESEARCH

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ABSTRACT

This current work seeks to explore the logistics discipline via a content analysis of the Journal of Business Logistics. This work was undertaken with the purpose of first gaining insight into past and current research trends, and second, using such insights as a roadmap for increasing awareness of potential sources of academic contribution in the field of logistics research. The authors' analysis reveals the emerging prominence of supply chain management topics, the increasing use of explicitly defined theory, and the increasing reliance on more rigorous data analysis tools, among other findings.

INTRODUCTION

A guidepost generally refers to a sign that gives directions to travelers and passersby or to something that serves as a guide or an example. Along the terrain of logistics, *The Journal of Business Logistics* (JBL) has served as a guidepost- an example to researchers of current of logistics and supply management trends- for over thirty years. The *Journal of Business Logistics* is regarded as one of the premier journals in the field of logistics and supply chain management (Carter 2002; Emmelhainz and Stock 1989; Fawcett, Vellenga, and Truitt 1995; Gibson and Hanna 2003; Kumar and Kwon 2004). Since 1978, *JBL* has grown in prominence. While other journals in the field have undergone losses in readership over the years, *JBL* has managed to not only maintain but to increase it readership (Fawcett et al., 1995; Rutner and Fawcett, 2005; Fawcett, 2009). Under the editorship of La Londa, Coyle, Daugherty, and Stock, *JBL* has remained ahead of the curve by respecting the timeless tradition of academic scholarship and embracing the future of logistics research.

Over a decade ago, Miyzaki et al. (1999) produced a paper highlighting research trends among articles that had been published in *JBL* during of the journal's first 20 years. This current study takes the next step and covers the last 20 years of the journal, from 1990 through 2010. While this paper follows the pattern of Miyazki et al. (1999) and other retrospectives (e.g. Carter and Ellram, 2003), it is distinct in purpose. The purpose of this study is to report potential opportunities for making contributions to the field of logistics and supply chain management research, using JBL as a "guidepost" for uncovering current and future research trends.

What constitutes a significant contribution?

When viewing what is a contribution or not, the most significant contributions create what I call the "wow, that's really neat" response from reviewers and readers

(James Stock from Brown and Dant, 2008).

What makes a significant contribution? "Contribution" is based upon somewhat subjective criteria, and this evaluation may differ across disciplines. However, many authors have weighed-in on the subject and have provided guidelines. In general, for a contribution to be considered significant in academic research, it must be rooted in scholarship (Boyer, 1990; Brown and Dant, 2008). A contribution does not have to be "ground breaking" or "game changing" to make an impact. A contribution adds to what is already known or extends prior work (Ladick & Stewart, 2008). Very often research is conducted to fill some sort of "gap." This perceived "gap" is identified by the researcher as content that he or she believes should be brought to the attention of the academic and/or practitioner community. The researcher then bares the burden to prove that this "gap" should indeed be filled. A significant contribution is also typically considered interesting (Davis 1971; Smith, 2003). It challenges current assumptions, within reason. It is relevant and tackles "now problems." It stands to reason then that a "gap" may or may fall into the category of interesting or relevant. In fact, some "gaps" may be obvious and entirely unnecessary to fill. It is also then the burden of the researcher to understand the state of his or her discipline and recognize the areas that have not been addressed but should be addressed (i.e., the "gap").

How can we make a contribution?

There is certainly no one right way to make a significant contribution. Many authors have suggested tips for making contributions, such as adding new knowledge, deepening our understanding of existing knowledge, surprising and interesting results, or tackling problems that interest practitioners (Smith, 2003; Brown and Dant, 2008). In general, contributions can be viewed as falling under one of three domains encompassing context, theory, or method (Ladick & Stewart, 2008). *Context* is referred to as *content* in this manuscript and is helpful in creating interest for readers, reviewers, and editors. Keeping abreast of current trends is beneficial to the academic researcher who wants to add to a current discussion or open a dialogue for new discussion. *Theory* is the substance of good research (Mentzer, 2008). While there have been numerous calls to greater use of theory in logistics and supply chain management research (Mentzer & Kahn, 1995; Stock, 1997; Schmenner & Swink, 1998), a recent study (Defee et al., 2008) shows there still remains a sufficient room for scholars to increase their use of theory. *Method* is final domain. Wagner and Kemmerling, (2010) report that the field of logistics and supply chain management remains a survey dominant discipline. While generalizability is currently being threatened by decreasing response rates, there remain other, unexploited methods of data collection, each with unique strengths and weakness (see McGrath, 1982). Therefore, making a discipline-specific contribution, involves understanding state of the discipline, where research is going and where it could go. In the following section, we present our research methodology focusing on sampling and the coding process. We then discuss our analysis and the results. The article concludes with a recommendation on the type of publications, which are generally accepted at *JBL* based on our content analysis of the journal publications in the last twenty years.

RESEARCH METHODOLOGY

For this study, we set out with two objectives. One, we want to understanding the past and current state of logistics and supply chain management research. Two, we want to use this

understanding to uncover areas of improvement within the discipline. By improvement, we refer to underrepresented areas within the domains of content and method that could be used to advance the discipline and thus make a significant contribution. To satisfy these objectives, we chose to conduct a longitudinal content analysis of *JBL*. In the subsequent sections we describe our research methodology with respect to the sampling and coding process.

Sampling

Our study is based on articles published in *JBL* over the past two decades, from 1990 through 2010. The year 1990 was deliberately chosen as the starting point for this study, as this provides us with two decades to data. We believe that a twenty-year time window provides us with sufficient insight into research trends and patterns, thus accomplishing our purpose. Moreover, a content analysis of all articles published *JBL* from 1978 to 1993 was conducted by Mentzer and Kahn (1995). Our study avoids unnecessary overlap by focusing specifically on the last two decades of publications. The initial dataset was composed of all published material (n = 515) falling within our twenty-year time window and was accessed thorough the Business Source Complete database provided by EBSCO Host. The preliminarily step of our analysis involved refining our dataset. Items such as book reviews, editorials or special comments were filtered out (n = 69). As a result, only research articles (n = 446) were retained for further analysis.

Coding Process

To conduct the content analysis, we prepared a well defined coding scheme prior to the actual coding process accounting for research topics (adopted from Miyazaki et al., 1999), type of research (adopted from Carter and Ellram, 2003, and Mentzer and Kahn, 1995), theories used, research design (adopted from Carter and Ellram, 2003), data analysis techniques (adopted from Carter and Ellram, 2003), and source of dataset. The coding scheme used in this study is given in Appendix A.

The entire dataset was coded by the authors independently. Prior to full coding, the dataset was divided into two equal halves based on the year of publication. Initially 45 articles representing 10% of the total database were coded by both the authors separately and the results were then compared to test for intercoder reliability. Intercoder reliability is defined as the number of agreements divided by the number of combined agreements and disagreements. During this preliminary phase of the analysis, intercoder reliability was found to be 0.93, which is higher than the recommended 0.90 minimum threshold (Miles and Huberman, 1994).

ANALYSIS AND RESULTS

We operationalized the articles published as a function of six variables, which are Research Topic, Type of Research, Use of Theory, Research Design, Data Analysis Techniques, and Source of Dataset. The variable, year of publication, represented by "Year" was further segmented into four time periods of Period 1 (representative of years 1990 through 1995), Period 2 (representative of years 1996 through 2000), Period 3 (representative of years 2001 through 2005), and Period 4 (representative of years 2006 through 2010). Time periods were segmented in order to compare the evolution of the journal considering the six variables over the course of four, five-year blocks. The data was analyzed using SPSS. The valid sample size obtained for each of the variables is n=445 (for Year), n=446 (for Research Topic), n=435 (for Type of Research), n=446 (for Use of Theory), n=327 (for Research Design), n=268 (for Data Analysis Techniques), and n=446 (for Source of Dataset).

Trends of Research Topics

The content of each article was classified according to 1 of 42 research topics, 36 of which were previously identified by Miyazaki et al. (1999). Additional categories were added for prominent and repeating themes. In addition, an "Others" category was added to account for unidentifiable content. Each article was assigned to a topic category, which the authors believed best described the overarching focus of the study. The top five research topics published over the full time period of twenty years were Supply Chain Management (14.8%), Inventory (11.0%), Materials Management / Logistics (9.2%), Customer Service (8.3%) and Firm Performance (4.9%) which together comprised 46.2% of the total research topics published. Table 1 and figure 1 illustrate the top five research topics in each of the four time periods.

Period 1 (1990 to 1995)		**Period 2 (1996 to 2000)**		**Period 3 (2001 to 2005)**		**Period 4 (2006 to 2010)**	
Topic	**%age**	**Topic**	**%age**	**Topic**	**%age**	**Topic**	**%age**
Customer Service	12.0	SCM	13.4	Inventory	19.5	SCM	28.3
Logistics	9.8	Logistics	12.5	SCM	16.1	Inventory	9.7
Others	9.8	Customer Service	8.9	Firm Performance	10.3	Content Analysis	8.0
Inventory	8.3	Inventory	8.0	Strategy	8.0	Logistics	7.1
Computers Apps	6.8	Intl. Logistics	7.1	HR Apps	8.0	Customer Service	7.1

Table 1: Top research topics in the last twenty years (percentage distribution)

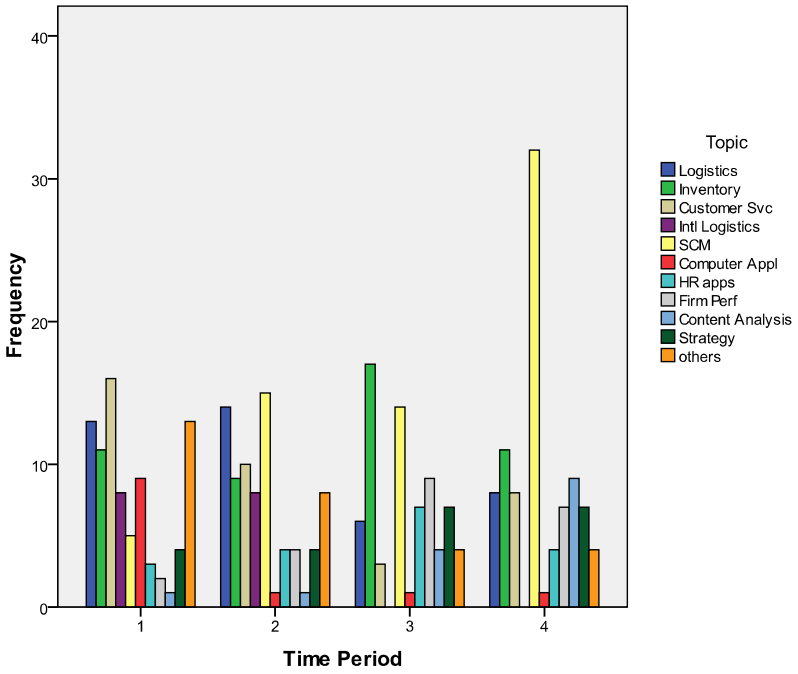

Figure 1: Top research topics in the last twenty years (frequency count)

As seen in our analysis, supply chain management and topics falling under that content area gained prominence, starting from Period 2. Issues of supply chain management have increased significantly in importance since 1996. Inventory management is a mainstay of logistics research. Not surprisingly, topics related to inventory have been consistent over the past twenty years.

Trends of Type of Research

The type of research refers to purpose of the research (e.g. exploratory or confirmatory). In 1995, Mentzer and Kahn noted that logistics research consisted mainly of normative studies and called for more use of theory. The increase in hypothesis testing maybe an indicator of the increasing use of theory in logistics research. The major type of research published over the full time period of twenty years comprised of Hypotheses Testing (33.1%) and Literature Review / Normative Literature (25.7%).
Table 2 and figure 2 illustrate the trends of type of research conducted in each of the four time periods.

Period 1 (1990 to 1995)		**Period 2 (1996 to 2000)**		**Period 3 (2001 to 2005)**		**Period 4 (2006 to 2010)**	
Research Type	**%age**	**Research Type**	**%age**	**Research Type**	**%age**	**Research Type**	**%age**
Normative / Lit Review	36.8	Methodology Review	26.8	Hypothesis Testing	42.5	Hypothesis Testing	40.7
Hypothesis Testing	24.8	Hypothesis Testing	25.0	Exploratory Studies	36.8	Exploratory Studies	31.9
Methodology Review	19.5	Normative / Lit Review	20.5	Normative / Lit Review	16.1	Normative / Lit Review	23.0
Exploratory Studies	2.3	Exploratory Studies	7.1	Methodology Review	4.6	Methodology Review	3.5

Table 2: Type of published research in the last twenty years (percentage distribution)

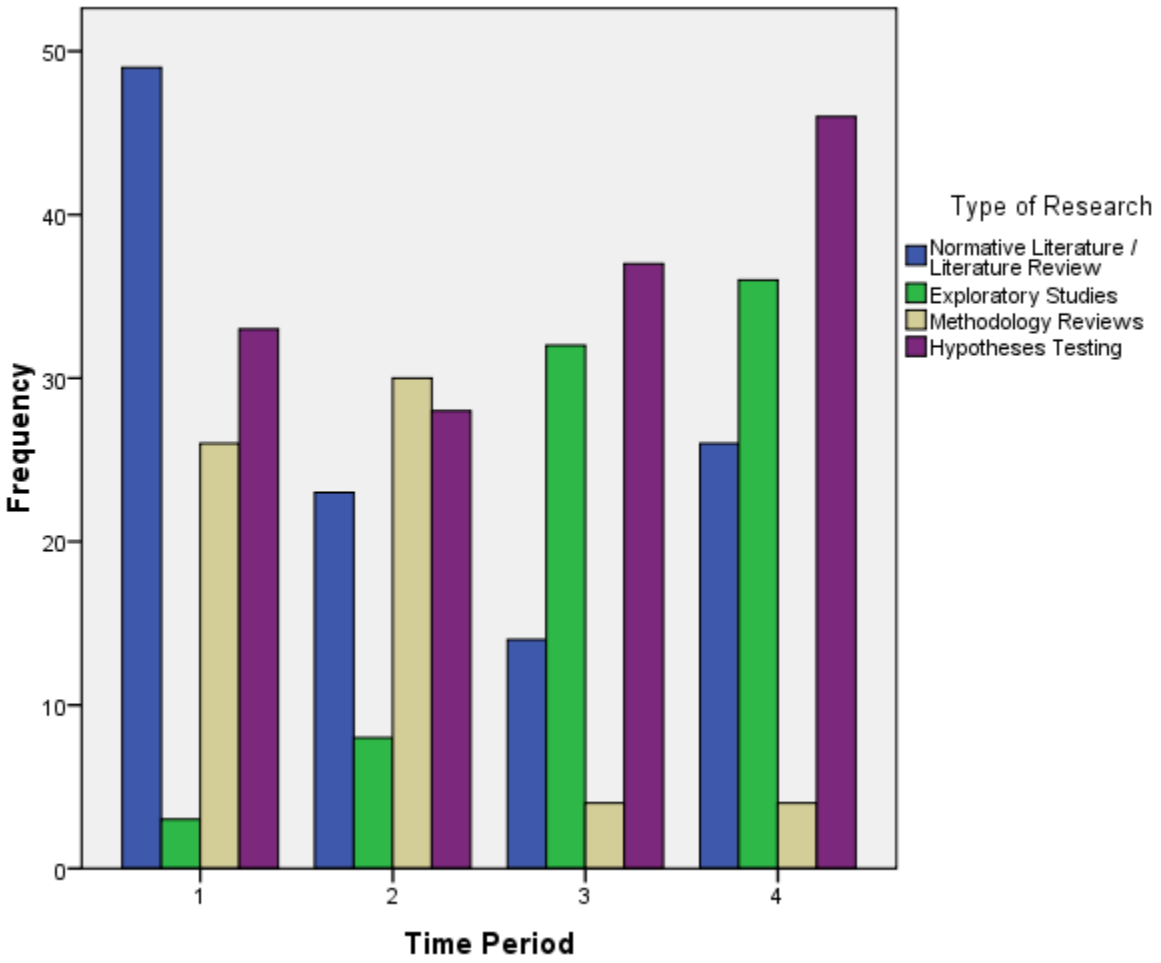

Figure 2: Type of published research in the last twenty years (frequency count)

Hypothesis testing and exploratory studies have gained prominence since 2001 and account for approximately 40% of the articles published in *JBL* since 2006. In contrast, articles classified as methodology reviews have decreased in prominence. Methodology reviews refer to "how-to" articles and refer to articles review or introduce an academic research methodology (Carter and Ellram, 2003).

Trends of Usage of Theory

The increase in hypothesis testing can be an indication of an increased reliance on theory in research. However, an increase in hypothesis testing is not a perfect proxy for assessing the use of theory, since hypotheses may arise without theory and articles not testing hypotheses may in fact use theory. Therefore, our aim was not to understand the manner in which theory was used as much as it was to understand how often it was used. As part of data collection process, we coded for the explicit use of theory. However, in many instances, the name of a theory was simply mentioned in the body of the text without any effective use of the theory in the study. Since we intended to code for use of theory and not simply the mention of theory, such articles that did not meet this minimum standard were excluded from the results. Our findings reveal

that 18.8% of the total articles published explicitly employed the use of theory. The construct, Use of Theory, was derived from coding which relied on scanning the title, abstract, keywords, and the body of the article for the explicit use of theory.

Period 1 (1990 to 1995)		Period 2 (1996 to 2000)		Period 3 (2001 to 2005)		Period 4 (2006 to 2010)	
Usage of Theory	**%age**	**Usage of Theory**	**%age**	**Usage of Theory**	**%age**	**Usage of Theory**	**%age**
Yes	9.8	Yes	14.3	Yes	26.4	Yes	28.3
No	90.2	No	85.7	No	73.6	No	71.7

Table 3: Usage of theory in the last twenty years (percentage distribution)

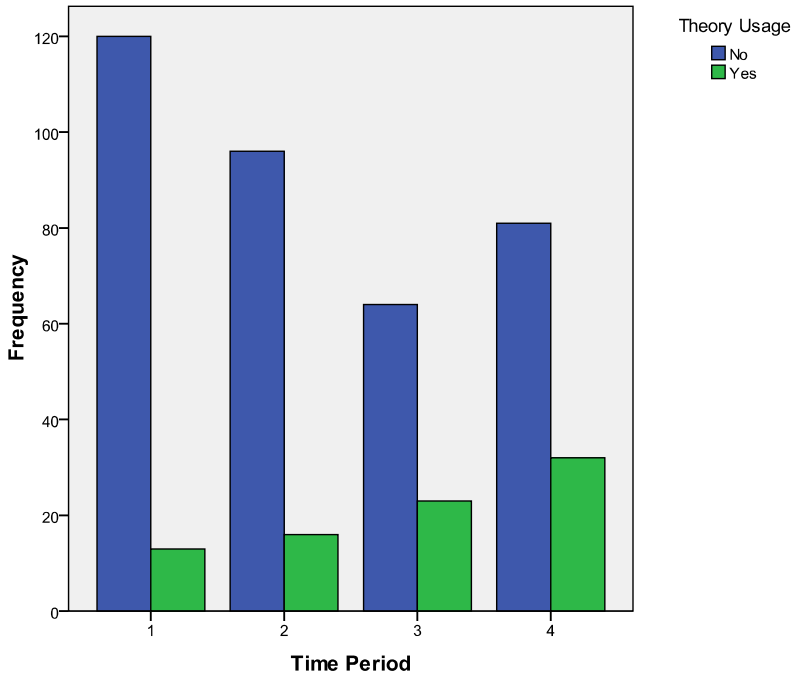

Figure 3: Usage of theory in the last twenty years (frequency count)

There has been a consistent rise in the use of theory in the articles being published in *JBL* as seen in Table 3 and Figure 3. Menzter and Kahn gave a call for an increasing the use of theory in 1995. While we do see this increase in explicit use of theory from period 1 to period 4, there still remains a significant opportunity. In period 4, over 70% of articles published in *JBL* did not report explicit use of theory.

Trends of Research Design

Survey (44.0%) dominated the research design of the published articles followed by mathematical modeling (19.0%) over the full time period of twenty years. Table 3 and figure 3 illustrate the trends of research design employed in each of the four time periods.

Period 1	Period 2	Period 3	Period 4

(1990 to 1995)		(1996 to 2000)		(2001 to 2005)		(2006 to 2010)	
Research Design	**%age**	**Research Design**	**%age**	**Research Design**	**%age**	**Research Design**	**%age**
Survey	30.1	Survey	33.0	Survey	35.6	Survey	31.9
Math Modeling	15.0	Math Modeling	15.2	Math Modeling	16.1	Simulation	13.3
Simulation	10.5	Case Studies	8.0	Archival Studies	12.6	Interviews	12.4
Archival Studies	4.5	Archival Studies	4.5	Simulation	9.2	Math Modeling	9.7

Table 4: Research design methods in the last twenty years (Percentage distribution)

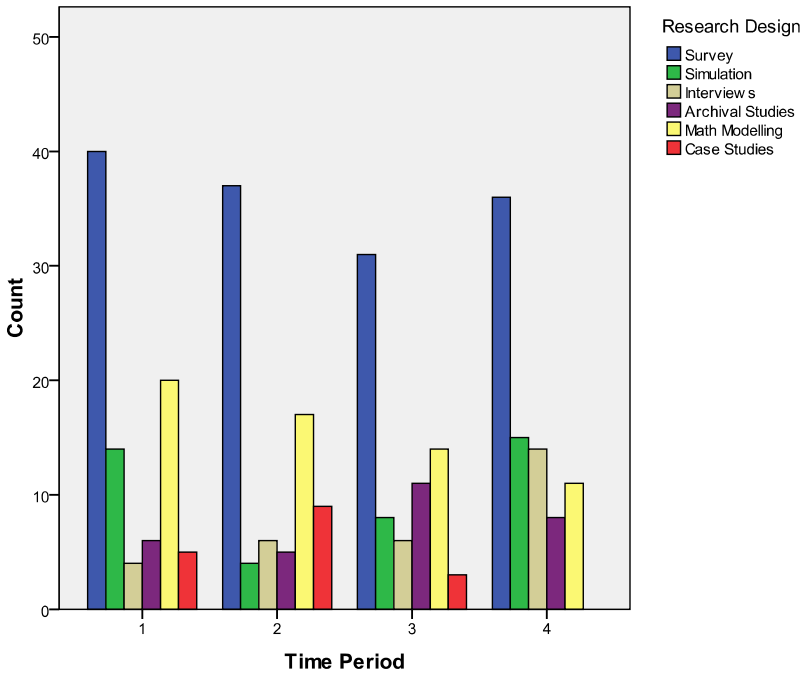

Figure 4: Research design methods in the last twenty years (Frequency Count)

Survey remains the dominant form of research design in the articles published in *JBL* with almost one-third of the articles using it consistently since 1990. One interesting finding is the emergence of using interviews as research design starting very recently from 2006 onwards. Also a mixed method approach is also emerging with researchers using survey and interviews together as a research design method.

Trends of Data Analysis Techniques

The top three data analysis techniques were descriptive statistics (21.6%), regression analysis (19.8%), and structural equation modeling (19.0%) over the full time period of twenty years. Table 5 and figure 5 illustrate the trends of data analysis techniques employed in each of the four time periods. We coded the analysis technique based upon the use of the most sophisticated technique employed. It is not uncommon to have multiple analysis techniques within one article.

For example, if SEM and descriptive statistics was used, the article was coded as SEM, since SEM represents a more sophisticated form of data analysis.

Period 1 (1990 to 1995)		Period 2 (1996 to 2000)		Period 3 (2001 to 2005)		Period 4 (2006 to 2010)	
Analysis Technique	**%age**	**Analysis Technique**	**%age**	**Analysis Technique**	**%age**	**Analysis Technique**	**%age**
Descriptive Statistics	12.0	Regression Analysis	14.3	Descriptive Statistics	20.7	SEM	23.0
Regression Analysis	9.0	Descriptive Statistics	11.6	SEM	19.5	Others	14.2
Anecdotal Analysis	6.0	SEM	6.3	Others	17.2	Regression Analysis	13.3
Other	3.8	Means Testing	4.5	Regression Analysis	11.5	Descriptive Statistics	9.7

Table 5: Type of Data Analysis Techniques used over the last twenty years (percentage distribution)

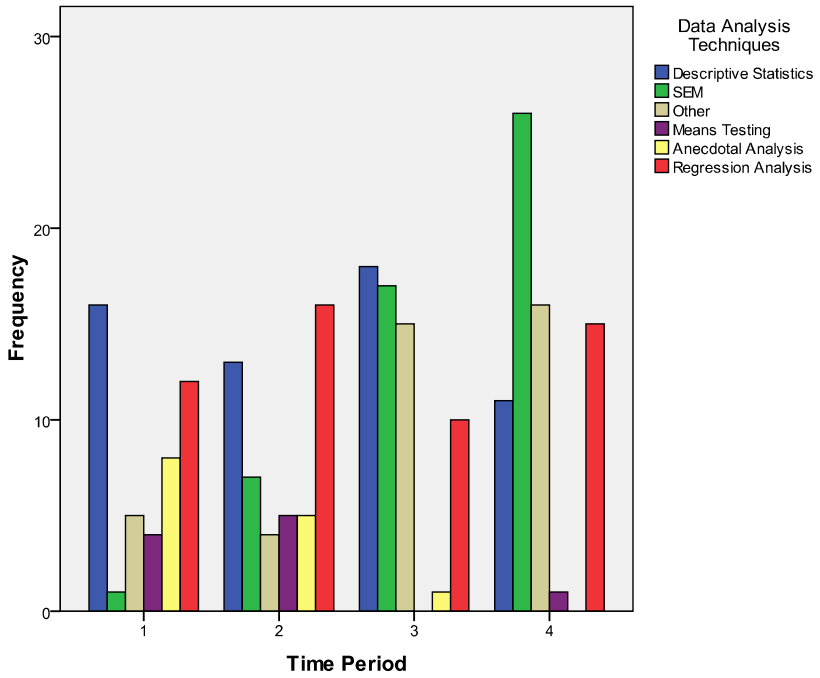

Figure 5: Type of Data Analysis Techniques used over the last twenty years (frequency count)

Descriptive statistics and regression analysis remained the preferred form of data analysis techniques employed by researchers till the year 2000. Since 1995 structural equation modeling has gained prominence, and in the last five years has emerged as the top data analysis technique employed in research published in *JBL*.

Trends of Source of Dataset

Forty-one percent of the articles relied on US companies as the source of the data, with majority relying on firms and managers listed in the Council of Supply Chain Management Professional (CSCMP) database. In contrast, only 9% of the articles used international dataset sources over the full time period of twenty years. Table 6 and figure 6 illustrate the trends of source of dataset used in each of the four time periods.

Period 1 (1990 to 1995)		Period 2 (1996 to 2000)		Period 3 (2001 to 2005)		Period 4 (2006 to 2010)	
Data Source	**%age**	**Data Source**	**%age**	**Data Source**	**%age**	**Data Source**	**%age**
No data	65.4	No data	58.9	US	56.3	US	48.7
US	28.6	US	36.6	No data	24.1	International	20.4
International	3.0	International	2.7	International	11.5	No data	17.7
Literature / Archival	3.0	Literature / Archival	1.8	Literature / Archival	8.0	Literature / Archival	13.3

Table 6: Source of dataset over the last twenty years (percentage distribution)

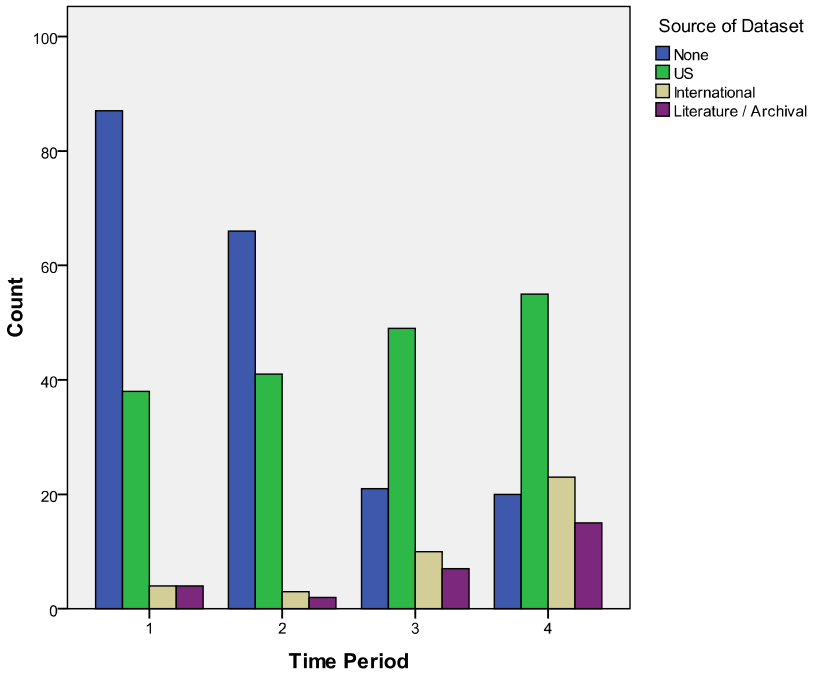

Figure 6: Source of dataset over the last twenty years (frequency count)

There has been an increasing trend of empirical papers. Purely conceptual papers using no data set have declined rapidly over the last twenty years. Although almost half of the articles being published use domestic data source (primarily relying on CSCMP), there has been an increasing use of data procured from international sources, thereby adding an international dimension to *JBL*.

CONCLUSION

The purpose of this study was to examine the state of logistics research per *JBL* to gain insight into potential discipline-specific contributions. The current study makes it own contribution to the logistics research by continuing to provide an update on logistics research and by shedding light on areas of improvement. In our research, we have presented the trends of publications in *JBL* by breaking up the last twenty years, from 1990 to 2010, into four time periods of five years each. We have analyzed the trends over these four time periods in terms of six variables: research topic, research design, data analysis techniques, type of research, use of theory, and source of dataset.

Our results indicate a growing importance of supply chain management topics with over a quarter of the publications in *JBL* devoted to these topics in the last five years. There has been a tremendous increase in the publication of empirical studies employing hypothesis testing and exploratory studies in *JBL*. There has been a continuous increase in the testing of theories in the published articles over the last twenty years. This trend indicates the growing importance of theory usage in published articles. Survey method remains the dominant form of research design in the publications. However, it is worth noting the emergence of interviews being used in the research design, particularly in the last five years. The use of structural equation modeling as a data analysis technique has been gradually increasing for the last fifteen years and in the last five years, it has emerged as the top technique used by researchers. Publications which do not use any data (i.e. purely conceptual) in the research have been dwindling continuously over the years and the use of international datasets have been gradually increasing. However, domestic datasets remain the dominant trend. A significant positive relationship was found between the period of publication and data analysis techniques and use of theory, and source of dataset.

Our results, though not exhaustive, do serve as a guidepost for researchers in the field of logistics and supply chain management for making a contribution to this field by conducting research in relevant areas and using rigorous and diverse techniques to test theories in the field. While our results show current trends, they also reveal possible under-explored area, which could be leveraged to make an impact on logistics research. For example, survey remains the dominant data collection method in the discipline. There is then room to explore other techniques within both the quantitative and qualitative realms, for example experimental design and ethnography respectively. However, a caveat should be made. Research, especially which does not follow the status quo, may be difficult to publish. There is a very real tradeoff at times between career advancement and scientific advancement (see Armstrong, 1982). At the present, logistics research, as evidenced by the work published in *JBL,* is more diverse than ever before. As this discipline continues to grow, it will only continue to broaden in terms of the content, theory, and method employed. This trend of continuous improvement and evolution of the journal and the discipline will continue to be shaped by seasoned researchers as well as upcoming scholar.

LIMITATIONS

Our study and content analysis though exhaustive, has some inherent limitation. We have focused our study to only one journal in the field of logistics and supply chain. Though *JBL* is one of the top journals in this field, it will be interesting to include more journals of this field to increase the generalizability of the results. In our findings and results we have presented the

correlations among the variables of our study. However, it will be interesting to further the research by assigning the weights to each of the variables to form a regression equation using the period of publication as the dependent variable. We did not include citation analysis in our study and this can be investigated as another dependent variable and see its correlations with the independent variables in our study.

SCOPE FOR FUTURE RESEARCH

Despite the limitations, this current study provides a number of future research opportunities. First, there is the opportunity for deeper analysis into current research trends. This analysis could be compared with current trends across other related areas such as marketing, management, and finance. Second, there is also an opportunity to perform a more comprehensive literature review regarding research contributions. This sort of research is helpful for academic scholars at all stages of their career. Finally, the content analysis of this current manuscript should be deepened. In doing so, the authors can offer more informed and accurate advice to those desiring to make a contribution in the area of logistics research.

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APPENDIX A

Classification of Research Topics of JBL Articles (adopted from McGinnis, Boltic, and Kochunny, 1994)

Code	Research Topic	Adopted / New
1	Materials Management / Logistics	Adopted
2	Physical Distribution Management	Adopted
3	Purchasing	Adopted
4	Inventory	Adopted
5	Motor Freight	Adopted
6	Rail Freight	Adopted
7	Water Freight	Adopted
9	Intermodal Freight	Adopted
10	Warehousing	Adopted
12	Customer Service	Adopted
13	International Logistics	Adopted

14	Packaging	Adopted
15	Traffic Management	Adopted
16	Supply Chain Management / Third Party	Adopted
17	Planning Concepts	Adopted
18	Systems Design	Adopted
19	Network Design	Adopted
21	Information Applications	Adopted
22	Computer Applications	Adopted
23	Financial / Accounting Apps	Adopted
24	Human Resources Apps	Adopted
28	Warehouse Location	Adopted
30	Math and Stat Application	Adopted
31	Deregulation	Adopted
32	Productivity / Quality	Adopted
34	Bar Coding	Adopted
35	Firm Performance	New
37	Content Analysis	New
39	Strategy	New
40	Reverse Logistics	New
42	Outsourcing	New
99	Others	

Classification of Type of Research

1	Normative Literature / Literature Review
2	Exploratory Studies
3	Methodology Reviews
4	Hypothesis

Classification of Use of Theory

0	No theory used
1	Theory used

Classification of Research Design

1	Survey
2	Simulation
3	Interviews
4	Archival Studies
5	Math modeling
6	Case Studies
7	Experiment

Classification of Data Analysis Techniques

1	Descriptive Statistics
2	Means Testing
3	Anecdotal Analysis
4	Regression Analysis
5	Discriminant Analysis
6	Correlation Analysis
7	MANOVA
8	ANOVA
9	Path Analysis
10	SEM
11	Others

Classification of Source of Dataset

0	No data set
1	US
2	International
3	Literature / Archival data

IT PROGRAM CURRICULUM RECOMMENDATIONS BASED ON A SURVEY ON KNOWLEDGE AND SKILL REQUIREMENTS FOR ENTRY-LEVEL IT WORKERS

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ABSTRACT

This paper provides an updated view of the importance of various skills and traits for entry-level IT workers as perceived by the IT industry based on a web-based survey administered to IT managers nationwide. The survey consists of 47 skills and traits that include personal and interpersonal skills, as well as technical skills. This study finds that the top 12 skills and traits are personal and interpersonal skills with honesty and integrity ranked most highly. The top 5 technical skills are operating systems, security, hardware, networking, and database, which have been part of the IT core for many years. The noticeable change in technical skills is the low ranking of programming. Based on the analysis of the survey, several ideas for curriculum recommendations for IT-related programs are provided.

INTRODUCTION

Information Technology (IT) is a fast growing profession. According to the U.S. Bureau of Labor Statistics, IT employment is projected to grow much faster than the average for all occupations and add 286,600 new jobs over the 2008-2016 decade (http://www.bls.gov/oco/ocos305.htm). Money magazine and PayScale.com have been giving ratings to careers in the past four years (2006-2010). The newest list of 2010 rated the top 100 careers with great pay and growth prospects in America (http://money.cnn.com/magazines/moneymag/bestjobs/2010/full_list/index.html). Out of the 100 careers, there are 26 jobs in the sector of Information Technology, with Software Architect ranked as number 1 ($119,000 median salary and 34% 10-year growth) and Telecommunications Network Engineer ranked as number 21 ($87,000 median salary and 53% 10-year growth).

The IT profession is also well known for its rapid development of new technologies. College students enrolled in IT-related degree programs should be prepared with knowledge and skills that are aligned with industry Therefore, constant curriculum review and development is crucial. Program enrollments have been rising since 2008, reversing the national decline that started in 2000. For example, according to the CRA (Computing Research Association) 2008-2009 Taulbee survey, the number of new students majoring in computer science increased 8.5 percent over the previous year. Computer science graduation rates should increase in two to three years as these new students graduate (Taulbee, 2008-2009).

The primary purpose of this paper is to provide an updated view of the importance of various skills and traits for entry-level IT workers as perceived by the IT industry and discuss the results in light of curriculum design. A nationwide survey was designed and conducted in 2010 on IT managers for the importance of various skills/traits to entry-level full-time IT employees.

LITERATURE REVIEW

This work is an extension of the two previous studies (Author1, Author2, & Author3, 2009a; Author1, Author3, & Author4, 2009b), which were based on a nationwide survey conducted in 2006. Authors (2009b) asked the managers and workers to rate the importance of the 32 skills based on the survey for 348 IT managers and 238 IT workers. Personal and interpersonal skills were consistently rated the most important on average with honesty/integrity the highest rated attribute on average. Awareness of IT technology trends, operating systems and networking were the highest rated technical skills/traits. Authors (2009a) examined gaps between industry and academicians' perceptions based on the survey for 348 IT managers and 78 faculty on the importance of 32 skills as they relate to entry-level IT workers. Overall, faculty and industry were in agreement about the ranking of the skills categories (interpersonal, personal, technical, organization, experience & GPA). There were some differences in specific skills (industry viewed hardware concepts, operating systems, packaged software and work experience as more important than faculty).

Many other studies have examined the perception gaps between IS/IT industry and academicians with regards to knowledge and skill sets (Cappel, 2001/2002; Kim, Hsu, & Stern, 2006; Lee & Fang, 2008; Lee, Koh, Yen, & Tang, 2002; Tang, Lee, & Koh, 2000/2001; Trauth, Farwell, &

Lee, 1993). For example, Kim et al. (2006) provided the perceived IS/IT skills gap from the perspective of end-users, academia, and IS/IT employers through a survey of end-users, IS curriculum models, and reports by employers. Project management was one of the highest ranked skills by the 71 respondents but is still only taught in a small percentage of AACSB accredited IS programs. In addition, security, ERP, end-user computing, and the integration of soft skills were indicated as being important and should be given more emphasis in the IS curriculum. A limitation with this study is that the all respondents were employees from one manufacturing firm in the northeast.

Many studies conducted in the past twenty years have investigated IT/IS knowledge and skills (Doke & Williams, 1999; Gallagher, Kaiser, Simon, Beath, & Goles, 2010; Lee, Trauth, & Farwell, 1995; Leitheiser, 1992). Gallagher et al.'s surveyed (2010) 104 senior IT managers in 94 non-IT companies in 2005 and found that foundational skills (programming, system testing, help desk, database, operating systems, voice/data telecommunications) are not critical to retain in-house. These skills are important to get hired, but over time the importance of these skills diminish. Another study by Lee et al. (1995) examined critical skills necessary for IS workers and made curriculum recommendations based on the findings. A lot of research consistently found that personal/interpersonal skills were more important in new hires than core technical skills (Fang, Lee, & Koh, 2005; Young & Lee, 1996).

In a recent study by Lee and Mirchandani (2010), students surveyed 70 IS managers. The IS managers rated their perception of the importance of the IS/IT skills in the past (five years before today), present and future (five years after today). The study found that the skills with fastest growing importance are wireless communication and applications, mobile commerce applications and protocols, IS security, web applications, services & protocols and data management. Based on these results, implications and recommendations for IS/IT educators, researchers, and practitioners are provided. However, in this study, only 21 companies from the Midwest U.S. were represented and the IS 2002 model curriculum used to identify courses was relatively old.

Based on a field study of 9 IT executives, Havelka and Merhout (2009) developed a theoretical model of knowledge, skills, and abilities desired for IT professionals, named "theory of IT professional competence". The theory was composed of four broad categories: personal traits, professional skills, business knowledge and technical knowledge. This study could help to better understand gaps between IT academic programs, employers' needs, and IT students' perceptions. However, the number of participants in this study was small. The theory needs to be further validated by larger scale studies.

In another study, Downey et al. (2008) surveyed 153 IT professionals from 6 organizations in the mid-South about skills important for entry-level IT professionals and used results to develop an IT model curriculum including core and specialization. Since only 6 firms represented, results do not generalize. In addition, this curriculum was written under the assumption of only 9-10 courses in curriculum. However, we have 15 IT courses in our curriculum (not including math, but including internship and 3 specialization courses). Another limitation with this study is that there are accepted model curricula but there was no comparison to these in the paper.

Lee and Han (2008) also studied skill requirements for entry-level IT professionals. The focus was on programmers/analysts in Fortune 500 companies and investigated the gap between the IS 2002 model curriculum and the requirements of the industry. They found that application development, software, social and business skills were highly valued, and recommended that knowledge of technological trends, knowledge of business functions and general problem solving skills be taken into account by the designers of future IS curricula. Java was still the most popular programming language (cited specifically in 30.7% of 837 ads for entry level programmers), followed by VB, then COBOL. Lee and Han (2008)'s study adopted Lee (2005)'s skill categorization, which was built on the coding framework proposed in the study of by Todd et al. (1995). Lee (2005) focused on the skills desired in systems analysts job ads posted on Fortune 500 corporate websites. Another related work by Lee and Lee (2006) looked at 555 IT manager job ads from 2001 to 2003 and concluded that IT managers needed both technical (although less in the area of hardware) and behavioral skills. It was also noted in this study that management positions only mentioned certifications in 7.7% of the cases.

There are other studies that also used job ads to collect data. For example, the study by Prabhakar et al. (2005) used Internet IT job advertisements to examine changes in demand of skills over a 3-year period (2002-2005). Identified top skills were web programming, Unix, C++, Java, SQL programming and Oracle DB. Five percent of jobs ads required certification. Gallivan et al. (2004) examined classified ads for IT professionals from 1988-2003. They found that job ads focused on technical skills rather than the "soft skills" that organizations claim are important in new hires.

Using a survey for more than 150 IS graduates, Plice and Reinig (2007) determined that emphasizing technical topics in the IS program helped graduates in the short term but maintaining the existing balance between business and technical skills taught in the program was beneficial to graduates in the long term as they moved to more managerial roles in their field. However, this study only looked at graduates from San Diego State University's IS program and there was no basis for judging IT and CS graduates.

Another research paper published in the same year is by Surakka (2007). The author used a Delphi technique to survey a small sample of Finnish IT professionals, academics and students to evaluate the importance of various subjects and skills related to software development. This study compared the results to prior similar research done by Lethbridge (2000a; 2000b). Several of the findings of Lethbridge's studies still hold, like less importance placed on continuous mathematics and basic science. In addition, new areas of emphasis were discovered, such as web-related skills. This study also analyzed the implication of the survey results for CS (Computer Science) degree programs. One of the limitations of this study is that the survey data was older and had a small sample size: 11 software developers answered the survey in 2003-2004, 19 professors or lectures in 2005 and 24 master's students in 2004.

Lastly, Abraham et al. (2006) conducted in-depth interviews with 104 senior IT managers. They found that the "business content" in IS curriculums was highly likely to be retained in-house by the interviewees. In addition, they found that technical skills were cited as being more likely to be outsourced while being listed as the skills most desired in new hires. The sample in this

research consisted of non-IT firms only and had a proportionally larger share of Fortune 500 companies than found in the overall population of organizations in the U.S.

METHODOLOGY

The primary purpose of this study is to provide an updated view of the importance of various skills and traits for entry-level IT workers as perceived by IT managers for a larger and broader sample than used in previous studies. To this end, a survey was administered to IT managers nationwide.

The survey instrument contains questions related to skills and traits of entry-level employees as well as demographic questions about the respondent and the respondent's organization. The questions relating to skills and traits were created by combining questions on the Authors (2009b) study with skills, knowledge areas and traits listed in the ACM/IEEE – IT 2008 curriculum guidelines and in the program outcomes in the ABET accreditation standard for IT programs. Certification and research experience were added as traits. The rationale for including certification is that the ACM/IEEE IT 2008 model curriculum does not advocate certification as part of academic credit. The authors wanted to see if industry opinion differed. Research experience was added because undergraduate students sometimes get the opportunity to conduct research with faculty. The authors wanted to see whether industry considers research experience important.

The survey consists of 47 skills/traits that participants were asked to rank in terms of importance on a scale of 1 (not important) to 5 (very important). The survey was web-based and administered via email by a reputable online survey company to IT managers listed in a database maintained by the survey company. There were 315 respondents with 310 responses complete enough to use for analysis. Rationale for using a survey company is to gain access to the widest spectrum of IT managers as possible for the greatest generalizability of the study results. Of the 310 that were complete enough for analysis, 282 respondents were currently working in the IT industry. These 282 responses were used for analysis.

DATA ANALYSIS

Profile of Respondents and Their Organizations

The majority of respondents (72%) were currently in an IT leadership position (i.e. CIO, CTO, Director, Manager, Project Leader). The location of respondent's organization includes all but 7 states, as well as 3 international organizations. The size of the respondents organizations as measured by the number of employees varied from under 100 (17.4%) to over 10,000 (24.8%).

Respondents were asked about areas in which they were hiring entry-level IT workers in the next year. Table 2 shows the areas where respondents are hiring entry-level IT workers of the respondents who were hiring in the next year and knew the areas in which they were hiring (194 respondents). The respondents could select more than one area, so percentages add up to more than 100%.

Table 2: Areas for hiring entry-level IT workers (in the next year)

IT Help Desk	45.88%
Networking	34.54%
Programming/Software Engineering	33.51%
Database	29.90%
Security	29.38%
Systems Analysis and Design	25.26%
Business Intelligence (Reporting, Analytics, Data Mining, Decision Support Systems)	23.20%
Storage	22.68%
Web Design & Development	22.16%
Virtualization	21.65%
Enterprise Resource Planning Systems	20.10%
Disaster Recovery	17.53%

Importance of Various Skills/Traits to Entry-Level Full-Time IT Employees

In order to assess what skills/traits are important for IT-related degree programs, respondents were asked to rate the 48 skill/traits listed in Table 3 in importance on a Likert scale with 5 being "very important" and 1 being "not important". The mean rating, rank and adjusted rank are provided in Table 3. The adjusted ranking represents the ranking of technical skills and knowledge areas that would be part of all IT programs (database, networking, programming, web, human computer interaction, etc.) and a few that would be part of many programs (storage, virtualization, etc.).

The top 12 skills/traits are personal and interpersonal with honesty and integrity ranked the most highly. Of these, the only skills/traits not mentioned in the accreditation standards nor model curriculum are attitude, creative thinking and organizational skills. Attitude is the second most important trait of a new IT hire. The only personal skill that did not rank highly is entrepreneurial skills.

After personal and interpersonal skills, the next most important skill is "relevant" work experience (ranked 13) which is much more highly ranked than "any" work experience (ranked 25) or internship/co-op experience (ranked 43). It is curious that internship/co-op experience was not as highly valued as relevant work experience nor any work experience.

The top 10 technical skills are: operating systems, security, hardware, networking, database, packaged software, systems administration and maintenance, integration of IT solutions, business intelligence and web systems development. All technical skills, marked with an adjusted rank, are considered at least somewhat important (3.3+ on a 5 point Likert scale, between neutral and important). The technical skills with the lowest average ratings are ERP (3.30) and virtualization (3.46).

Awareness of IT technology trends ranked higher than any of the skills/knowledge areas typically taught in an IT program. In addition, awareness of the impact of IT on individuals, the community or globally was ranked higher than all but two of the technical skills.

Table 3: Importance of skills/traits

Skill/Trait/Knowledge Area	Mean	Rank	Adjusted Rank
Honesty/integrity	4.55	1	
Attitude	4.49	2	
Willingness to learn new skills	4.44	3	
Communication skills (oral and written)	4.42	4	
Analytical skills	4.40	5	
Professionalism	4.38	6	
Ability to work in teams	4.37	7	
Flexibility/adaptability	4.32	8	
Motivation	4.31	9	
Interpersonal skills	4.23	10	
Creative thinking	4.12	11	
Organizational skills	4.10	12	
Relevant work experience	4.05	13	
Awareness of IT technology trends	4.02	14	
Operating systems	4.00	15	1
Security	3.98	16	2
Awareness of impact of IT (on individuals, community or globally)	3.96	17	
Hardware concepts (PC, server, router, network)	3.95	18	3
Networking	3.93	19	4
Database	3.88	20	5
Packaged software (e.g. word processing, spreadsheets, etc.)	3.84	21	6
System administration and maintenance	3.81	22	7
Integration of IT solutions	3.80	23	8
Knowledge of primary business functions (e.g., finance, marketing)	3.74	24	
Any work experience	3.71	25	
Business intelligence (e.g. reporting, analytics, data mining)	3.71	26	9
Web systems development (XHTML, XML, Javascript, JSP, ASP, etc.)	3.70	27	10
Knowledge of your company's specific industry (retail, health care, transportation)	3.70	28	
Leadership skills	3.69	29	
Project management	3.68	30	11
Knowledge of your company	3.67	31	
Relevant certification	3.66	32	
System integration and architecture	3.64	33	12
Configuration management	3.62	34	13
Human computer interaction (e.g. interface design, user testing, etc.)	3.61	35	14
Systems development life cycle methodologies	3.60	36	15
IT disaster recovery	3.60	37	16
Storage	3.59	38	17
Information assurance	3.59	39	18
Programming (Java, COBOL, etc.)	3.59	40	19
High IT GPA	3.46	41	
Virtualization	3.46	42	20
Internship/co-op experience	3.45	43	
Relevant academic research experience	3.40	44	
High overall college GPA	3.31	45	
ERP systems	3.30	46	21
Entrepreneurial skills	3.27	47	
Extra-curricular activities	3.03	48	

IMPLICATIONS FOR CURRICULUM DESIGN

The most highly ranked skill is honesty and integrity. This is not surprising given that the IT staff is entrusted with the organization's data, information and systems that access the data and information. In addition, IT professionals are responsible for securing the organization's data, ensuring that sensitive data is kept private and confidential, and ensuring that the rest of the employees of an organization are behaving ethically with regards to IT (not surfing unauthorized Internet sites, not shopping online, not downloading non-work related applications, not using email for personal or unauthorized use, etc.). Although one cannot teach a student to be honest or to have high integrity, the teaching of ethics and ethical decision making can increase awareness of ethical dilemmas, especially as they relate to IT, as well as highlight the importance of considering alternatives when making decisions and the consequences of each alternative.

Similarly, teaching a student to have a good, positive attitude or influencing their willingness to learn, the second and third highest ranked items on the list of skills and traits, is difficult. However, as educators we can share these results and highlight the importance of attitude. We can also stress how much IT changes, especially in earlier classes in the curriculum, to educate students about the fact that they will be constantly learning in the IT field, arguably more so than in many other fields. Teaching students about professionalism, how to communicate and how to work in teams is important in an IT program as well.

IT related degree programs also need to include curriculum on trends in technology, what reputable sources to use to keep abreast of these trends and the impact of changes in technology on the organization and individuals in the organization. These topics were ranked as more important or at least as important as the top technical skills listed. Recognizing the impact of IT on individuals in an organization dovetails the "people-centric" approach (people and what they do are the most important considerations when developing and modifying systems) contemporary organizations are taking to improve information privacy and security in systems (Want, 2007).

The top five technical skills or knowledge areas identified were operating systems, security, hardware, networking, and database. Historically, these have been the core of the IT field and remain to be so today. An interesting note is the lack of programming, systems development life cycle (SDLC) methodologies and human computer interaction in the top ten skills. In addition, certification is ranked higher than all three. In the past, programming and the SDLC (one or both) have been mainstays of many IT related degree programs. Perhaps programming is more important for those hiring programmers and software engineers. Table 2 shows that 33.51% respondents are hiring programmers and software engineers in the next year, while Table 3 indicates a relative lack of importance of programming/software engineering with the programming skills only ranked as 41 out of 48. This disconnect is probably because those who are hiring programmers ranked programming higher than those who are not. Further explanation concerns the current state of the economy. Organizations tend to reduce spending and investment during periods of economic turbulence. The need for programmers and software engineers may be therefore be reduced if firms are not investing in the development or expansion of systems. In future work, we plan to investigate the importance of skills and traits from the perspective of those who are hiring programmers and software engineers.

CONCLUSION AND FUTURE RESEARCH

A survey with 282 respondents of which 72% were in a leadership role was administered to determine the importance of various IT skills and knowledge areas as well as personal and interpersonal traits. After analyzing the average responses, several ideas for curriculum recommendations for IT related programs were suggested. These included the importance of teaching ethics, professionalism, communication skills and how to work in teams. In addition, educators in these programs should stress the need for continued learning throughout an IT workers career and the importance of attitude and motivation in the IT field. Of course, one could argue that these personal and interpersonal skills are important in all fields and should be included as part of the core curriculum in all universities.

The core skills and knowledge areas in an IT program have not changed considerably. They are operating systems, security, hardware, networking, and database according to the responses in this survey. In addition, IT programs should include curriculum on technology trends and their impact. One noticeable change is the low ranking of programming, typically considered part of the IT core, in relation to other technical skills listed on the survey.

Areas of future research include a comparison of the current results to the study conducted in 2006 by Authors (2009b) and a comparison of the results to current model curricula and accreditation standards for IT related degree programs. As mentioned previously, another area of research is to compare the skill ratings for employers hiring programmers and software engineers to those that are not. This will highlight some of the key differences between important skills and traits for students in degree programs that focus on programming and software engineering, like computer science, and those for students in other IT related degree programs, like information technology and information systems.

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THE SIX DIMENSIONS OF SOCIO-TECHNICAL CHANGE APPROACHES TO INFORMATION SYSTEMS DEVELOPMENT

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ABSTRACT

Socio-technical theory, socio-technical design and socio-technical approaches began emerging in the middle of the 20th century, as an alternative to the mainstream technical approach to information systems development. The basic premise of this exploratory research is to present a socio-technical fit between organizational social and technical subsystems. This socio-technical approach suggests that a fit is achieved by a design process aiming at the joint optimization of the subsystems. The interdependence of the subsystems must be recognized for maximized performance to be achieved. In addition, the subsystems must work in harmony to ensure superior results. The findings suggest that humanistic principles and managerial values are reflected in socio-technical thinking.

INTRODUCTION

Today, in this socio-technical world (Figure 1), understanding an information system will need to include an understanding of the human and organizational aspects that embed and situate how people interact with and through the information systems at hand in the course of their work and workflows (Scacchi 2003). Hence, the most important thing that socio-technical design can contribute is its value system, which tells us that although technology and organizational structures may change, a balance (Doherty, Coombs et al. 2006) of all parts (human and non-human) must be maintained. (Mumford 2006) extends the discussion to future scenarios where he speculates that socio-technical principles might emerge. One scenario is that technology in the workplace will be humanized in a world where consistent organizational and economic changes are the norm.

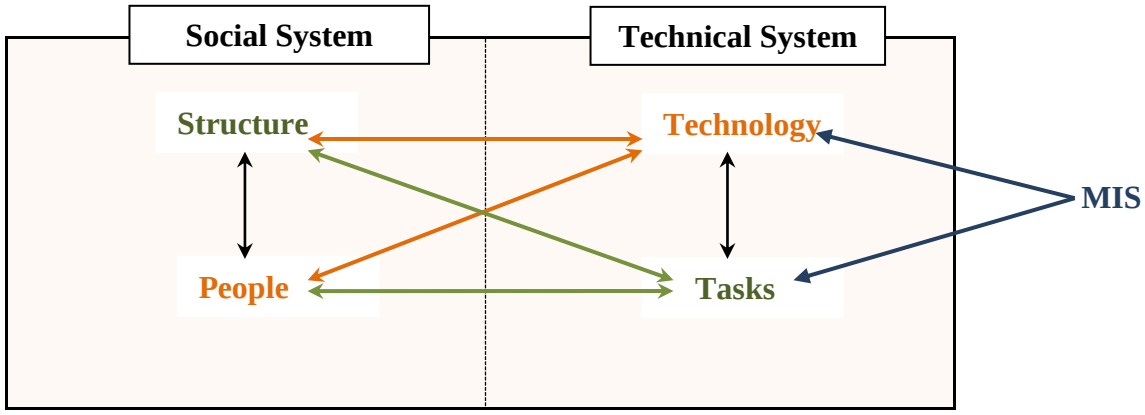

Figure 1. Socio-technical Theory (Robert P. Bostrom and Heinen 1977)

My purpose in this paper is to continue the movement from technical to socio-technical thinking by delivering a coherent collection of information systems research that can provide significant new insights

into how the human and organization aspects of information systems development projects and the resulting change can best be managed. This collection of papers provides a variety of different perspectives and viewpoints as they try to illuminate different aspects of this complex dilemma. The papers range in the conceptual lens that is used, statistical analysis employed and level of analysis conducted, they provide both new tools and new interpretations. Some of the case studies provide new concepts or approaches for analyzing the organizational impacts of information systems projects. Some bring to light development problems, as well as pointing out possible ways of predicting them and dealing with them. These papers do not provide a complete, or even a partial solution, but together they provide sufficient background for those concerned with IT projects to proactively engage in developing better ways of handling the organizational change (impacts) resulting from IT projects.

Technical change is almost always the catalyst for organization change (Doherty and King 2005). If this argument is true, then in a world where consistent organizational and economic changes are the norm, will these changes be a catalyst for technical change? Previously published studies show interesting approaches and what I will call "contextualized" results. One recent study on technochange management (Markus 2004) is an approach where IT is strategically used to drive organizational (change) performance improvements. Effective technochange management requires a different kind of attention to the features of the 'solution' and a different change process from those prescribed by either IT project management or organizational change management. Therefore, it is fundamentally different from both IT projects and organizational change programs. Successful technochange is characterized by completeness; it is a fit between the technochange solution and organizational processes, culture, and incentives. Successful technochange involves careful up front design, a balancing act of the technical and social subsystems and an integrated technical and organizational implementation.

Markus and Robey (1988) conducted a study that examined the causal structures found in theories and research about the relationship between information technology and organizational change. They focused on the 3 dimensions of causal structure: 1. causal agency, 2. logical structure, and 3. level of analysis. This study concluded that very few good theories about the role of information technology in organizational change exist, although there is the potential for more. Is this conclusion still valid?

It is possible for this paper to offer many plausible theories, approaches and explanations as to what works and doesn't work in information systems development projects. I only have mentioned a few (so far) as background for understanding the coherent collection of information systems research that will be presented.

This paper uses numerous dimensions to evaluate the current selection of papers. The 3 dimensions put forth in the Markus and Robey (1988) paper and a few others deemed by this researcher to be important that will also be described. Causal agency (i.e., causal agent and its influence), is the first dimension. This dimension refers to the analyst's assumptions and the identity of the agent and the direction of the causal influence (Table 1).

Causal Agent	Direction of the causal influence
Technology (Technological imperative)	External forces cause change
Organizational (Organizational imperative)	People act purposefully to accomplish intended objectives
Emergent (Emergent imperative)	Change emerges from the interaction of people and events.

Table 1. Causal Agency (Markus and Robey 1988)

The second dimension is logical structure, which refers to the logical relationships between the causes and the outcomes. This refers to the time span of the theory (variance models versus process models). Third is the level of analysis, which refers to the entities (collectives = macro, individual = micro, or both = mixed) about which the theory poses concepts and relationships.

REVIEW OF SELECTED INFORMATION SYSTEMS DEVELOPMENT STUDIES

I primarily selected a sample of studies since 2005. Although there are many articles discussing the human and organizational aspects of system development, only relatively few report on actual statistical analysis. For my review, I selected a sample of articles that I believe meet the following requirements:

- a clear specification of the type of data;
- the research method is specified;
- Causal agency can be determined;
- Logical structure can be determined;
- Level of analysis can be determined;
- Well presented results that show the organizational impact of IT projects.

RESULTS AND DISCUSSION

The sample of research literature is presented in this paper on how the human and organizational aspects of systems development projects can be successfully managed to result in effective business solutions. This treatise was analyzed and briefly summarized to make additional contextual information available. The summarized articles show a spectrum of recently published viewpoints, and illuminate the six dimensions of socio-technical change approaches to change management in information systems development. Some of the analyzed results are as would be expected. Case studies were the dominant method of research, with qualitative data being collected and analyzed. Causal agency had mixed instances, but interestingly enough, emergent imperative was 50% of the direction of the causal influence. This would suggest that effective business solutions would need to manage the change that results from the interaction of people and events. The logical structure was predominantly process models as would be expected, when doing case studies, which focus on dynamic outcomes, but what is worth noting, is the broad range of theories used as the conceptual lens for understanding the studies. The level of analysis (micro, macro, and mixed) had mixed instances, which would suggest that case studies are flexible in the level of analysis needed. Therefore, it can be decided on a case-by-case basis. The organizational impact supported the observation that emerging in the literature is realization that results are contextualized, therefore they vary from situation to situation.

Below is a brief description of each of the selected studies.

Contextual influences on technology use mediation: a comparative analysis of electronic medical record systems. (Davidson and Chiasson 2005)

Davidson & Chiasson uses two separate healthcare organizations that operate electronic medical record systems to explore and provide insight into technology use mediation (TUM) process (Orlikowski W. J., Yates J. et al. 1995). In addition, TUM is used as a conceptual lens, to examine how software technologies and social practices are mutually shaped during information systems development. The authors concluded that crucial TUM actions occurred during systems development phases as well as during system use, that mediation was vitally important with these specialized IT artifacts, and that system configuration required changes to software infrastructure and code. Organizational size influenced the availability and the

effectiveness of mediation resources; with adequate resources committed to the task, the institutional environment presented substantial, but not insurmountable, challenges to technology use mediation

Information systems development as emergent socio-technical change: a practice approach (Luna-Reyes, Zhang et al. 2005)

This paper explores the dynamics of these social and organizational factors to better understand the causes of success and failure through a longitudinal study in a NY State agency. Based on data from a detailed case analysis of an ISD project, the paper depicts the ISD process as an emergent and dynamic process-oriented view of information systems, characterized by continuous local adaptations. The paper ends with a proposal of a feedback-rich framework, which offers a theoretical explanation of the information systems development process based on a practice view of socio-technical change.

Social ties, knowledge sharing and successful collaboration in globally distributed system development projects (Kotlarsky and Oshri 2005)

This paper studies successful collaboration in globally distributed IS development teams due to the contribution of social ties and knowledge sharing. Data (codified using Atlas.ti software) were drawn from two successful globally distributed system development project teams at SAP and LeCroy. The results suggest that human and organizational aspects, such as rapport and transactive memory, were important for collaborative work in the teams studied within the systems development context.

The ability of information systems development project teams to respond to business and technology changes: a study of flexibility measures (Lee and Xia 2005)

The ISDP team's flexibility in responding to organizational and technical changes has become a critical success factor for system development, but the research literature lacks a consistent definition and validated measures of the construct. Drawing upon the socio-technical and the capability-based perspectives and using a systematic multi-stage approach, the authors identified major business and technology changes and developed measurement scales of ISDP team flexibility along two dimensions: Response Extensiveness and Response Efficiency. The results of the study indicated that while the ISDP teams experienced and responded more extensively to business changes than technology changes, they were much less efficient in dealing with business changes than technology changes.

The social and political construction of technological frames (Lin and Silva 2005)

The authors of this paper explore the dynamic nature of technology frames, in information systems development. In particular, this work argues that the management of information systems' adoption is a social and political process in which stakeholders frame and reframe due to the changing context, their perceptions of an information system. A case study carried out in a European bank illustrates how the Bank's technical team influenced users' technological frames, including those of senior management in order to ensure a smooth implementation process.

The surface of emergence in systems development: agency, institutions, and large-scale information systems (Chae and Poole 2005)

The systems development literature has primarily focused on the system under development, and the role of pre-existing information systems is treated as constraint on development or completely ignored. A case study is used to explore the role of a pre-existing information systems in the development of a new system within a major university system in the U.S. The case study develops the argument that pre-existing information systems are active forces in systems development because of the experiences and learning from

previous systems, which shape developers' approaches to building the new system. The study also develops a theoretical framework that integrates elements of structuration theory and actor-network theory to provide a more fine-grained analysis of how information technologies and institutional features interact in the structuring of organizational information systems.

Towards the development of a social capital approach to evaluating change management interventions. (Hatzakis, Lycett et al. 2005)

The poor relationship, collaboration and communication between business and IT colleagues before, during and after information systems development lead to dissatisfaction with information systems and services. To address these relational issues, relationship management initiatives (RM) have been introduced and in response, this paper proposes a framework, based on social capital theory, for conceptualizing the effects of change management interventions. It uses a case study and questionnaire to explore the strengths and limitations of the approach, and concludes that there is potential merit in using a social capital approach for the evaluation of change management interventions.

A re-conceptualization of the interpretive flexibility of information technologies: redressing the balance between the social and the technical. (Doherty, Coombs et al. 2006)

Interpretive flexibility is the capacity of a specific technology to sustain divergent opinions due to its social construction, but a gap exists in the literature on how a system's technical characteristics might limit its ability to be interpreted flexibly. In this paper, the authors use the results of two in-depth case studies, in order to propose a re-conceptualization of the role of interpretive flexibility by looking at the role of the human agent in shaping the technical artifact, and the artifact's shaping potential. In summary, this model helps explain how the initial interpretations of stakeholders are influenced by the scope and adaptability of the system's functionality, while the stakeholder interpretations will then, in turn, influence how the system's functionality is appropriated and exploited by users.

CONCLUSION

In summary, systems development projects often are treated as technical change processes, rather than social or organizational change processes. While the development of technical systems is an important component of systems development, the achievement of added business value is the principal organizational goal. With this in mind, I provided a coherent literature review and discourse on how the human and organizational aspects of systems development projects can be successfully managed to result in effective business solutions. This treatise was summarized in Table 2. It showed the spectrum of recently published viewpoints, and illuminated six dimensions of socio-technical change approaches to information systems development.

The information systems literature reviewed is clear on three points: a good "fit" and a balance of technical and organization aspects are needed; the primary need is to adequately predict and manage organizational impacts (change); emerging in the literature is realization that results are contextualized, therefore they vary from situation to situation. Consequentially, this paper continues the movement from technical to socio-technical thinking by delivering a coherent collection of information systems research that provide significant new insights into how the human and organization aspects of information systems development projects and the resulting change can best be managed. This collection of papers was only a sample of the different perspectives and viewpoints available in the research literature. Future work would definitely need to expand the range of the papers to more articles in other journal. The inclusion of additional research papers could provide a broader range of conceptual lens (theories) that are used, statistical analysis employed and level of analysis conducted. They could provide new tools and new interpretations, new

concepts or approaches for analyzing the organizational impacts of information systems projects. My conclusion is that these papers do not provide a complete, or even a partial solution, but together they provide sufficient background for my research to continue. In addition, these articles engage those of us concerned with IT projects to proactively develop better ways of handling the organizational change (impacts) resulting from IT projects.

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"Internet, Disintermediation and Human Capital: Present and Future Candidates"

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Abstract

The Internet is gradually becoming more of a major player in organizational strategies for efficiency and success for public as well as private organizations. The increasing power of the Internet stands out even more as higher levels of displaced and laid off workers are reported. For example, for the first time, the U.S. Postal Service is laying off 7,500 employees, in part because of increased electronic communications using the Internet. This research focuses on examination of the Internet and disintermediation.

Introduction

According to Internet World Statistics, as of March 2011 there are 2 billion Internet users. The Internet is a powerful, constantly growing and evolving resource which has the potential to provide both valuable opportunities as well as devastating threats to many people. Thomas Friedman [2005] discusses how the Internet exploded in 1995 when the user-friendly Netscape browser went public. With the easy-to-use browser, all types of users world-wide were able to connect and easily access the Web. The Internet provides valuable real time, anywhere, anytime, fast, easy and efficient access to all types of resources globally such as: products, services, information and people. The Internet is used for all types of purposes such as: travel, banking, e-book downloads, music and video downloads, buying and selling, social networking and so much more.

Mobile computing and the use of smart phones have also increased functionality and access to the Internet. New mobile applications are steadily being developed to address mobile phone users' needs. For example we can now use our mobile phones to pay for purchases such as food and tickets.

The Internet has evolved into a powerful necessity for many. Before the Internet explosion, face-to-face, telephone and postal mail service were seen as more popular methods of communicating. People went to the banks, the post office, the music stores and book stores to transact business. There were no online emails or social networks to interact with. The Internet had little strength and ability to control our lives.

The Internet, which is defined in this paper as a network of individual networks was very different than it is today. It started with a very limited number of users working on government research. In the mid 1990s the Internet was much more expensive and exclusive. In 1995 there was an estimated 16 million users of the Internet. However in July 2011, this number sky rocketed to 1700 million users.

As the Internet continues to grow, it provides many opportunities for startups as well as existing businesses. The Internet e-business has many e-models such as: business-to-Business (B2B), auctions, and affinity portals. Many businesses are pure e-businesses where all of their business is conducted over the Internet. Whereas, other businesses are mixed where part of their business is conducted over the Internet and part is conducted at a physical (brick and mortar) location.

With both of these methods there maybe workers involved. However, as the product or service becomes more of a "pure" online experience where they are increasing their online e-business activity, there may be more opportunities to remove the "middleman" from the traditional business process. With this removal comes the potential for greater job loss and displaced workers.

Herein is one of the downsides to the Internet. The increased digitization of the products or services in conjunction with lower costs may open the possibility for increased job loss and displaced workers due to Internet disintermediation.

Disintermediation is defined as the elimination of intermediaries also referred to as "middlemen". One example of disintermediation occurs when a customer buys an e-ticket directly from the airline company instead of the travel agent. The travel agent is being replaced by the customer's ability to do the task without an agent's help.

In the future it will become important for firms to continually reassess the role and value of the Internet and possibilities of disintermediation within the firm. It is important to demonstrate value of intermediaries in order to survive [Wigand and Benjamin, 2005; Patel, 1999].

This value becomes particularly important for brick-and-mortar businesses. Firms with strategies involving agility and innovativeness regarding their Internet competitors may experience more success. Evaluation of e-commerce initiatives in concert with their physical businesses may help in sustaining a competitive position [Wigand and Benjamin, 2005; Porter, 1985].

Some services and products are better candidates for e-businesses than others. The e-business success and need for an intermediary can relate to the type of customer that is targeted by the firm Wigand and Benjamin [1995]. For one, if you have a customer who knows the product well and is only interested in getting the product with very basic, generic information, the intermediary may be less valuable. The customer may be more willing to use an online, Internet-based version of the business. In this case, disintermediation may be more of a threat. However, if the customer relationship is more of a strategic partnership which requires more negotiation, and direct interaction, the intermediary may be more valuable and the threat of Internet disintermediation may not be as great.

Wigand and Benjamin [1995] argue that transaction costs and intermediary costs in a Business-to-Consumer (B2C) environment are reduced and therefore the intermediaries' value is lessened which can then lead to disintermediation. These lower transaction and labor costs can lead to lower costs for customers, which may then increase demand for the B2C environment. As customers choose the Internet over the brick-and-mortar location, this can decrease the need for workers and increase job loss.

The employment picture in this country is not rosy. We have an unemployment rate of 9.1% with about 14 million persons unemployed, and there is no indication that employers will begin hiring anytime soon. In addition, there are another 8.8 million people who are underemployed – they are working part-time but would prefer to work full-time. And there are another 2.6 million unemployed people who have become frustrated with their job prospects and have stopped looking for work; they are not counted in the official unemployment figures [Leonard].

There are several reasons why the unemployment rate has remained high. First of all, the recession, which officially ended in June 2009, appears to still be present among workers. Companies have expanded their output, profits are higher, but there has not been a corresponding increase in hiring. Many firms that reduced their employee levels during the recession discovered that they could increase their production without adding employees once the economy brightened. They had become more efficient and learned how to produce more with less.

During the recession firms that saw profit declines evaluated many options to reduce costs. Many decided to move some or all of their production facilities abroad where operating costs were lower. Thus when the economy improved and they decided to add workers, the increase in employment did not help the employment picture in this country.

As the recession ended and the economy improved, there has been no robust increase in consumer spending. There is some question as to whether the economy will continue to improve since consumer spending is the major driver of economic growth. This uncertainty has made some firms reluctant to hire additional workers at this time.

There is also uncertainty over future congressional actions an spending and debt management. The Joint Select Committee on Deficit Reduction, which consists of 3 Democrats from the Senate, 3 Republicans from the Senate, 3 Democrats from the House of Representatives, and 3

Republicans from the House, has the responsibility to develop a proposal to reduce the deficit by November 23. If it cannot agree on a set of recommendations, or if the recommendations are not enacted by Congress, there will be across the board spending cuts. These spending cuts will have a negative impact on the economy, and some firms have developed a wait and see posture.

Spending cuts by state and local governments have resulted in the layoffs of thousands of teachers, university personnel, and other state and local government employees. These layoffs have added to the jobless rate.

When hiring new employees, there is a trend by some employers to refuse to consider unemployed persons for the new positions.

Another contributor to job losses, one that has not been widely recognized, is the Internet. The purpose of this paper is to explore the impact of the Internet on the loss of jobs in this country.

Recent Job Losses Because of the Internet

U. S. Postal Service

The U.S. Postal Service is an agency in financial disarray; it has had large losses in recent years primarily because of drops in revenue. The Internet is primarily to blame: individuals pay bills on line, taxes are largely paid on line, individuals send email and text messages rather than send letters, social security checks and other payroll checks not sent by mail - direct deposit is used. It has been estimated that the amount of first class mail declined by 19% over the last decade, and it is expected to fall by another 37% over the next ten years [Garvin, 2011]. Even those who use the mail can purchase their stamps online. Since about 80% f the postal service's budget goes to employees in the form of salaries and benefits, any cost cutting to reduce the agency's losses will require significant job cuts [Garvin, 2011]. Over the last four years 110,000 jobs have been cut, 7,500 administrative staff positions have been eliminated, and the agency is seeking congressional approval to cut an additional 120,000 positions and close 3,653 post offices [Schmid, 2011; Levitz, 2011].

Book stores

Borders, the second largest bookstore in the nation, filed for bankruptcy and closed 237 of their 642 stores and 11,000 jobs in February 2011 [Barror, 2011]. They are scheduled to close all their stores in September 2011. One factor blamed on their closing is the increased use of downloadable e-books [Barror, 2011]. Bookstores are experiencing major challenges as Internet downloading of digital books to e-readers and electronic books (E-books) continue to increase in popularity.

According to the Association of American Publishers, e-book sales have doubled since 2010 and make up 9% of total consumer book sales. E-readers, such as the Apple Ipad; Sony Reader; Amazon Kindle and Barnes and Noble Nook, are devices that allow Internet access to e-books and other reading materials quickly and easily. With e-readers, customers do not need to go to the bookstores to purchase their books or get help from the sales staff. In many cases, they are buying at reduced costs by cutting out the middleman.

The use of the e-reader and the Internet to access digital books is eliminating the need for many employees working in the bookstores [Barror, 2011]. As the number of e-book downloads are increasing, disintermediation is leading to job losses for employees.

Record stores

The Internet and the use of digitized music have had a major impact on the basic operating principles of the record industry. Increased use of the Internet for digital music has contributed to online music piracy, the decline of purchasing music CD's and DVD's and the decline of the traditional record label business. As digital music downloads to digital electronic devices continue to escalate, CD in-store sales continue to decline [Bachman, 2007]. According to the U.S. census data there was a net loss of 1,900 record stores from 2002 to 2005. In other words, for every four record stores, one record store closed [Tozzi, 2008].

As music devices and digitized music increased, the Internet provided easy access to the music through downloads. Since 1996 when illegal downloading of music gained major attention, the retail music industry has been steadily declining [Ryan and Hadida, 2010]. Users were able to use different websites such as Napster to access music for free. The music was accessed and delivered directly over the Internet, which eliminated the need for the intermediaries in the physical record stores. Customers were able to select which music they wanted rather than being limited by the selections on the shelf. So convenience, cost and accessibility helped to diminish the value of the record store employees. Physical distribution of CDs dropped to 21 percent in 2009 [Ryan and Hadida, 2010]. Many employees in the music industry are no longer needed when customers are able to obtain their music without the help of music employees. This is another case of disintermediation leading to job loss.

Video rental companies

Video stores are experiencing the effects of the Internet and possible layoffs for many video store employees. Blockbuster, the nation's largest video chain, filed for bankruptcy a year ago. They are not alone in their struggles as numerous accounts of problems from other video stores are also being reported [Hodges, 2009]. Hollywood Video, Family Video are just a few of the companies that are closing some of their stores. The video industry is changing as new ways of obtaining video movies are spreading.

Customers are turning to other more attractive, cheaper alternatives such as on-demand downloads and online rentals from competitors such as Netflix, Vudu and Amazon. Netflix has

over 11 million subscribers who are able to inexpensively get mail-order rentals and online streams using the Internet [Hodges, 2009].

The ease, cost and convenience of using digital video downloads is forcing video stores to rethink their strategies and look for inter-connections with the Internet. For example, Blockbuster started selling their CDs and DVDs rentals online like Netflix. The Video stores will have to find common connections using online web-based businesses.

Future job losses because of the Internet

Bookstores

E-books are growing in popularity and at the same time creating challenges for traditional books stores. Bookstores are struggling with how to adapt and continue to show their value as intermediaries within the stores. Without new strategies that look for synergies that complement the e-reader and the e-book popularity, the cost and value of in-store employees may steadily decrease. Along with this is the potential for many bookstore employees to lose their jobs through disintermediation.

Barnes and Noble, the nation's largest bookstore is restructuring and re-strategizing to address the e-books and the threat of increased disintermediation. They are planning for the future by increasing their digital presence and consolidating many of their 717 superstores [Minzesheimer, 2011]. Their digital presence will complement their in-store presence and capitalize on their customers and loyalty programs.

Barnes and Noble is also selling their own e-reader. They promote their own e-reader called the Nook where customers can download e-books from their websites. After books are downloaded, they can customize them. For example, they can convert the text to large print books. Young readers who are familiar with the Internet devices and technology may quickly gravitate toward reading e-books.

Book Publishers

Self-publishing using the Internet continues to grow. It provides competition for the traditional publishing process while also increasing the potential threats of disintermediation.

Self publishing using electronic publishing software allows a user to publish their books effectively and efficiently without help from publishing staff. In the future, if this trend continues, many publishing staff employees will not be needed as authors decide to use the Internet resources to publish for their self. Benefits of self-publishing include: independence, cost savings, convenience, flexibility, reduced time associated with interacting with the publishing company.

For example, one e-publishing company, Lulu.com is inexpensive, easy and faster as it cuts out the middleman (intermediaries). Lulu.com allows the authors to pick the layout, put their text into the layout and the book is then ready to sale to customers through Amazon.com. Amazon will get 20% of the profit as opposed to the traditional publishing (non-electronic) where publishers get a 50% cut [Kharif, 2005].

Traditional publishing companies will need to find creative ways to demonstrate value while complementing the electronic self publishing market.

Movie Theaters

All across the country there are reports of movie theaters closing. One contributing factor involves downloadable digital movies. The ability of users to access and download digital movies is creating competition for the movie theater industry.

For years people have been enjoying going out to the movie theaters with friends and family. However, fewer people are going to the movies as they find less expensive alternatives to viewing movies at movie theaters. As a result, movie theaters are experiencing reduced viewership and less profit [Fisher, 2008].

In many cases, downloading digital movies are less expensive. For one, movie piracy provides a free alternative for potential movie theater customers. There has been increased interest and access to illegal movies through illegal file sharing and movie piracy. In June 2007 nine websites were shut down for movie pirating where users were allowed to download and view movies illegally for free [Smith and Benoit, 2007].

Movie theaters are also experiencing competition from legitimate websites such as: Netflix, Vudu and Amazon where customers can buy or rent movies from a broad selection.
The ease of digitizing and accessing digital movies may increase the chances of disintermediation and job loss in the movie theater industry. Porter [1985] emphasizes the need to find synergies when developing competitive strategies. New strategies for the movie theater industry may include inter-relationships between the online and brick and mortar businesses.

Banking

The Internet is having a substantial impact on employment in the commercial banking industry. The need for bank branches at traditional banks will be decreased because more and more deposits are being made online, payments are being made online, and cash can be obtained from automated teller machines. Brokerage firms Charles Schwab and E*Trade offer online banking services without brick and mortar banking locations, and there are several Internet only banks (ING Direct, Ally Bank, FNBO Direct, and HSBC Advance are several examples). As branch banking declines, there will be declines in the need for tellers, head tellers, branch managers, janitors, security guards, and other branch related personnel.

Real estate agents

The use of the Internet is slowing destroying the business of real estate agency. The days are long gone when a typical agent, for a commission, would take a client to physically inspect several houses, prepare and submit an offer to the agent of the seller, negotiate a counter offer, and arrange the closing. Today one can specify the area and price range in which he is interested, the number of bedrooms, bathrooms, and other amenities desired, and arrange a virtual tour, where he can view the bedrooms, kitchen, living room, back yard, and other features of the house – all from a computer screen. After a potentially desirable house has been found, an appointment can be made for a physical inspection, and arrangements for a sale can be made – all without the use of an agent [Virtual Future, 2009]. Some agents will still be needed for unsophisticated purchasers and the sale of very expensive properties, but the number of agents in the business will decline substantially. The number of agents at Coldwell Banker Triad Realtors, a real estate firm operating in the Greensboro, NC area, decreased from nearly 300 agents in 2006 to about 210 today. A smaller Greensboro area firm, Century 21 Elliott Properties, saw a decrease from 45 to 22 agents. And the North Carolina Real Estate Commission licensed 2,500 new agents in 2010, a drastic drop from the 15,000 licensed in one year when the real estate market was at its height [Frazier, 2011]. The decline in the need for agents will also decrease the need for real estate schools and their instructors who provide pre-licensing education for new agents and continuing education classes for established agents.

Life and Automobile Insurance Agents

Agents who sell life, health, and auto insurance to clients for a commission will see a continued decline in the need for their services. Individuals are increasingly purchasing insurance coverage from insurance carriers directly without use of an agent. There are a variety of web sites that allow individuals to compare insurance costs online, information is widely available about the

features of different types of insurance policies, and purchases can be made without the pressure of dealing with an agent [More Drivers, 2009]. If one wishes to discuss his insurance needs with an agent, that option is, of course, still available.

College and University Faculty Positions

There is a cost squeeze in college education today, and the public anxiety is becoming more evident. David Shi, a former president of Furman University, noted that college costs have increased 50% over the last decade, whereas family incomes actually fell between 2000 and 2009. [Fischer, 2011]. In a survey conducted by the Pew Research Center, 75% of those polled felt that college education was out of reach of most families because of the cost. In this year of cost cutting, state legislatures around the country have not been much help; they have been cutting higher education budgets at a time when enrollments are increasing.

The Internet has an answer to this problem: cut costs by eliminating faculty positions. A continuation of events occurring today will lead to a reduction of thousands of faculty positions. What are some of these events?

An online course on artificial intelligence is being offered by the computer science department at Stanford University by two leading experts in artificial intelligence. There is no cost for the course, and over 58,000 students from around the world have registered for it. This course is one of three that Stanford is offering on an experimental basis. [Markoff, 2011] Technical assistance from Google and Amazon will provide for grading and online chat sessions [Chu, 2011].

Consider the cost savings (and job reductions) if other courses in the computer science department were prepared by experts and offered in a similar fashion; video tutorials could be prepared and students could review them at their leisure. Students from other universities around the country could be directed by their schools to take the courses and thus eliminate the need for those schools to offer them. Courses in other disciplines could also be prepared by experts in those fields for online delivery, and thousands of faculty positions could be eliminated. Of course some faculty members in each department at each university would be retained to teach those courses that are not amenable to the online process and to answer questions raised from the online courses. The loss of faculty positions would also likely result in the loss of ancillary positions and consolidation of some departments.

Education online is rapidly growing field; most universities offer some courses online, entire degrees at some traditional universities can be earned online, and there are several online universities. Students can order, pay, and track transcript requests online, and at least one university, the University of Hawaii, has held a virtual graduation [Gutierrez, 2011]. Job losses will be huge as the use of the Internet increases on the college campus. the quality of course offerings will decline, but state governments will save billions of dollars.

Secondary school teachers

At the secondary school level, use of the Internet will also lead to job losses. A forecast of things to come occurred in Guilford County, North Carolina during the summer of 2011. Most school districts offer summer school classes for students who failed a course during the regular school year and wish to make it up, or who wish to get ahead. For the first time ever, no classes were offered this summer in the typical classroom setting with a teacher; instead, all of the classes were offered on-line. Thus students could complete their work at home, at the library, or anywhere else where they could access the Internet. This Internet-only approach enabled the schools to reduce the summer school budget by over $350,000; of course this savings meant fewer jobs for classroom teachers and other school personnel who might be needed to assist the students [Glover, 2011].

Online learning has been expanded substantially beyond summer school offerings. In an article in the Wall Street Journal, it was noted that 39 states have established virtual schools that allow students statewide to enroll, providing advanced placement, remedial, and other courses that might not be available at the local level [Moe, 2011]. The Florida Virtual School offers a full academic curriculum, with more than 220,000 annual course enrollments, and virtual charter schools operate in 27 states with a full-time enrollment of over 200,000 students [Moe, 2011]. Online teaching will certainly increase, thus reducing teaching jobs.

Attorneys

Attorneys are also in danger of losing some of their business because of the Internet. Attorneys answer legal questions for their clients, provide legal advice, prepare documents, negotiate settlements, and represent their clients in court. Some of these functions can be performed online, without a face-to-face meeting with an attorney. Legal questions can be answered, advice can be given, and simple forms can be completed and sent by email to the client. There is a website, www.justanswer.com, which provides experts to answer legal questions that one might have. For a nominal fee, one can ask a legal question, an expert (an attorney with several years experience) will obtain as much information from the client as possible concerning the issue, and provide an answer and give advice when needed. The experts are rated by individuals who submit questions, and the ratings generally range from 95% to 100% satisfaction. There will still need for attorneys to negotiate, prepare complex documents, and represent their clients in court, although there is a company that provides a "Complete Case-Winning 24-hour Self-Help Course" that promises to teach one how to win in court without a lawyer [Graves, 2011]. Access to the course is delivered by email for a cost of $249.00. There will be some persons who will use this course to avoid hiring a lawyer, and others who will get their questions answered through the Internet. Thus, there will likely be some decrease in the need for attorneys in the future because of the Internet.

Medical doctors

Physicians can also expect repercussions from use of the Internet. Physicians answer questions posed by their clients; provide medical advice; complete disability, health, and other required medical forms; and provide treatment for diseases, accidents, and other medical conditions. Answering questions, providing advice, and completing some forms can be accomplished online without a face-to-face meeting with a doctor. www.justanswer.com and www.healthcaremagic.com are two of several web sites where individuals can submit questions to medical experts and receive an answer and/or medical advice. Doctors from a variety of medical specialties are available to answer questions, and individuals have indicated a high level of satisfaction with the services. This portion of local physicians' practices will decline as patients become more acclimated to using the Internet for medical purposes, although physicians will certainly be needed to perform surgeries and other medical procedures.

Retail stores

Brick and mortar retail outlets are also feeling the impact of the use of the interne from the proliferation of Internet sales. Most items that are offered for sale at shopping malls and other retail outlets can be ordered online and shipped to one's home. Shoppers find Internet purchases convenient, prices are often lower than prices on identical items at retail outlets, and no sales tax is added to the total if the purchase is made from out of state (although purchasers are supposed to pay their state's sales tax as a use tax at tax time, but many often do not). According to the U.S. Commerce Department, Internet sales increased to $165.4 billion in 2010, an increase of 14.8 % from 2009; total retail sales, which includes online sales, increased by only 7.0% in 2010. Internet sales now make up 4.2% of total retail sales, up from 3.9% in 2009 [Enright, 2011]. The largest online retailer, Amazon.Com, had a sales increase of 39.5% in 2010 [Brohan, 2011].

The recession and loss of business to the Internet has had a devastating effect on some retailers. They have responded by reducing the number of employees per store, reducing the number of hours employees work, and in some cases closing stores [Farfan, 2010]. In 2008, more than 500,000 jobs in the retail industry were eliminated [Farfan, 2009]. Sears is an example of a retailer that has been battered by the recession and the Internet. During the second quarter of 2011, same store sales declined, it closed 29 stores and 7 product repair center locations, and it reported a loss of $146 million. Its online sales, however, increased by 32% [Talley, 2011].

Telecommunications

Cell phone usage has changed the way individuals communicate and reduced the need for workers in the industry. According to the Labor Department, telecommunication firms employed 869,900 people in June 2011, 28,400 fewer than a year earlier, and about 560,000 fewer than a decade ago [Lahart, 2011]. The decline in employment is likely to continue as cell phone increase, since many individuals use their mobile phones as their primary means to access the Internet [Hood, 2100].

Printing: Newspapers and Magazines

For several years newspaper circulation, the purchase of magazines at newsstands, and magazine subscriptions have declined. According to figures released by the Audit bureau of Circulations, the declines have been widespread, with almost all of the large newspapers and many small ones suffering declines [Plambeck, 2010; Liedtke, 2011]. The magazine industry has also seen a substantial decline in its advertising revenue, as advertisers recognize the drop in readership [Magazines, 2010]. There is less reliance on newsstands today, compared to the past, to acquire sources of information; rather, individuals use the Internet through their smart phones and computer terminals. In recognition of the trend toward use of the Internet, many newspapers and magazines now offer an online version, as well as a print version, of their papers. As online usage continues to increase, some companies may eliminate their print versions to reduce costs. The elimination of the print versions will cost thousands of jobs, since those involved in the production and distribution functions will no longer be needed. Of course when magazines and newspapers cease publication, jobs will also be lost. Some recent examples of magazines that are no longer published in print version because of financial problems brought on by the Internet and the recession include Gourmet, the country's oldest food magazine; PC Magazine, a magazine popular with computer buffs; and Southern Accents, a magazine devoted to home decorating, entertainment, and landscaping [Ives, 2009].

Pages in the House of Representatives

For almost 200 years the House of Representatives has brought high school students to the Capital to deliver correspondence, packages, and phone messages to lawmakers and their staff members. The pages were usually high achieving juniors, sponsored by their member of Congress; they spent a semester living and working in Washington, DC, learning about the intricacies of the legislative branch of government. The House has decided to end its page program because the use of e-mail and other technological advances has rendered the program superfluous [Glueck, 2011]. The demise of this program will not have any impact on job losses in the economy, but it is one more indication of the impact of the Internet on the decreased need for individuals to perform certain tasks.

The use email and fax machines has decreased need for local messenger services, where letters and other documents are delivered within a city or county. The messengers were often young men in their 20's or early 30's who made their deliveries by bicycle. These messengers have largely disappeared. To remain in business, these messenger services have expanded their operations to include ship by air service, medical deliveries, lost luggage retrieval, printing materials, and package deliveries of all sizes.

CONCLUSIONS

Progress cannot be stopped; throughout our history technological change has destroyed some jobs and created others. In the 1800's farriers were hired to make and place shoes on horses' hooves. But today travel by automobile, air, and train has practically eliminated the need for farriers. The transportation industry, though, has created thousands of jobs that did not exist earlier. In the 1940's and early 1950's elevators required the use of an elevator operator; someone had to open and close the elevator doors manually and stop the elevator on the appropriate floors. The introduction of the automatic elevator, however, has eliminated the job of the elevator operator. In recent years a company called InstyMeds has developed a machine that dispenses prescription medication. The machine has been installed in 33 states and Washington, DC, and it has been approved by the federal Drug Enforcement Agency and appropriate state regulators [Sennott, 2011]. The machine cannot counsel patients, but there will be a decrease of the need for pharmacists if use of the machines becomes widespread.

The use of the Internet has created more efficient methods of distributing and obtaining information than existed 30 years ago. An unintended consequence has been the elimination of thousands of jobs in a variety of industries. Unlike job losses due the recession, most of these jobs are not coming back as the economy recovers. Jobs lost because of companies moving their operations abroad will also not be coming back. Even when companies begin to hire again, they may place their part-time employees into full-time positions, thus having no impact on the official unemployment rate [Leonard, 2011]. We are also likely to see little or no hiring at the federal, state, or local government levels with the spending cutting legislators now in power. It appears, then, that extraordinary job creation efforts will be necessary if there is to be a dint in the unemployment rate.

The growth of the Internet has certainly created some jobs: Internet providers, web developers, programmers, security personnel. But the number of new jobs created is substantially less that the number of job losses. If these jobs are not replaced, we may experience several years of a near double digit unemployment rate.

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Implementing a Prototype for Modeling Access Rights over Time Using the CRUD Security Cube—A Proof-Of-Case Scenario

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Implementing a Prototype for Modeling Access Rights over Time Using the CRUD Security Cube—A Proof-Of-Case Scenario

INTRODUCTION

Defining access rights is a challenge in many settings. Since a database often serves as the foundation for information systems, proper specifications at the database level can ensure proper access rights exist within the system. How do organization set and maintain user and group access rights to information systems in general and within databases specifically? Turnover, promotions, job and task shifts are just a few of the situations that arise in maintaining an up-to-date set of security and access rights for users and groups within organizations today. This paper describes a database implementation of access rights using the CRUD Security Cube (Lunsford & Collins, 2008) and incorporates the time dimension into the CRUD proposed security cube model.

Access Rights

Although the nature of an access right varies from system to system, most contemporary systems provide some mechanism for managing access to resources. Access rights, also known as permissions or privileges, define the types of access a user or group has to a securable object. In many systems, access rights apply to either users or groups. In Unix systems, access rights apply to an object's owner, a group, and the world (December, 2008). In Windows systems using the NT File System (NTFS), access rights apply to users and groups (Melber, 2006). The targets resources for access rights include directories and files, devices, executables, as well as other objects (Changing Access Security on Securable Objects, 2008). Common access types include full control, modify, read & execute, read, and write under NTFS (Melber, 2006; Eckel, 2007) and read, write, and execute under Unix (December, 2008). NTFS offers advanced mechanisms for access rights, including inheritance and the ability to deny

access (Melber, 2006; Mullins, 2006; Eckel, 2007). Additionally, under NTFS the specification of access rights is either explicit or inherited. Finally, NTFS provides the ability to deny a user or group any particular access type.

THE CRUD SECURITY CUBE

The traditional CRUD matrix provides a method for identifying the types of access system processes have to data objects. The CRUD Security Cube adds a user/group dimension to the CRUD matrix (Lunsford & Collins, 2008). This dimension documents the access rights for users or groups to processes and data. Analysts may use the CRUD Security Cube to specify security for information systems, including any setting where the user employs specific programs to access data objects.

In this paper, we propose an extension of the existing proposed security cube to include an incorporation of time as a valid and important dimension through which organizations would want to control users or group's access and privileges to processes and data objects.

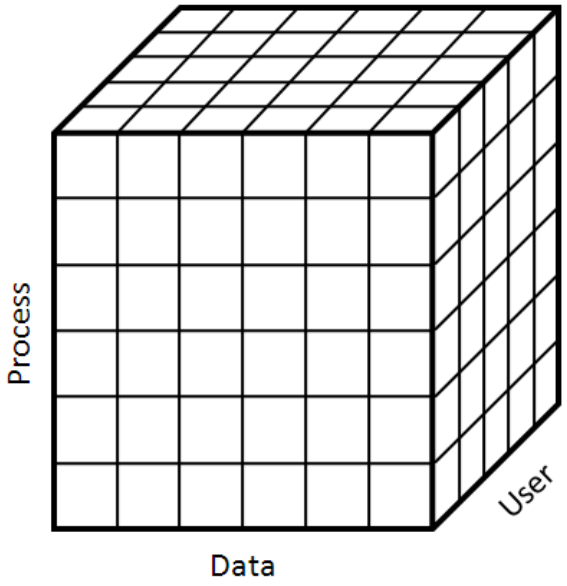
A Time Dimension Example

The CRUD matrix assists database administrators in mapping out usage access for databases within an organization. Working from CRUD Security Cube extension, this paper proposes the incorporation of time within the security cube. Using time as a fourth dimension, while hard to draw, is very important conceptually. Most organizations have constraints and policies in place that require strict attention to what processes and objects are available to what users and groups and to what extent those privileges are granted. The question we ask in this paper is do those privileges remain the same for all points in time? Stated another way, would a particular user or group have access to (create, read, update, or delete) a process or data object at one point in time and not have access to that same object or process at a different time? With many organizations controlling when access is granted is as

important as the granting of the access itself. Many situations call for the granting, ungranting, and granting again of access to a process or object.

Using time as another dimension to the proposed CRUD security cube this need to restrict and allow access across time can be accomplished. Presented in Figure 1 is the original security cube as proposed in (Lunsford & Collins, 2008).

FIGURE 1: CRUD SECURITY CUBE



Incorporating the Time Dimension

Adding time to the CRUD security cube would in effect potentially add a very large number of cubes to represent the point in time the access is granted or removed from a user or a process. This unit of time could be months, weeks, days, hours, minutes, or even seconds depending on the needs of the organization. Imagine if you will a "long row" of cube after cube after cube with each cube representing the setting for the CRUD security cube at a particular point in time.

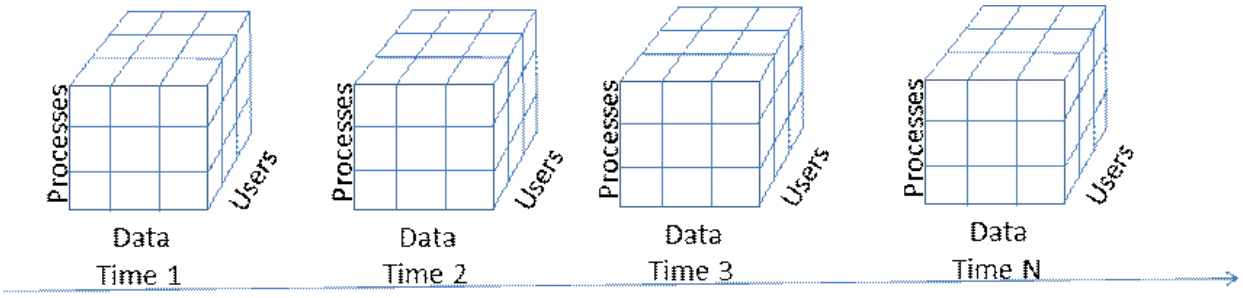
This incorporation of the time dimension could be implemented in a database by adding a time parameter and having the security management program scan the security table for restrictions or grant requests based on points in time.

FIGURE 2: GROUPS, PROCESSES, AND DATA OBJECTS

Groups	Processes	Data
Group One	Maintain Inventory	Customer Information
Group Two	Invoice Customer	Vendor Information
Group Three	Pay Vendor	Product Information

Figure 3 depicts the CRUD Security Cube with the time dimension.

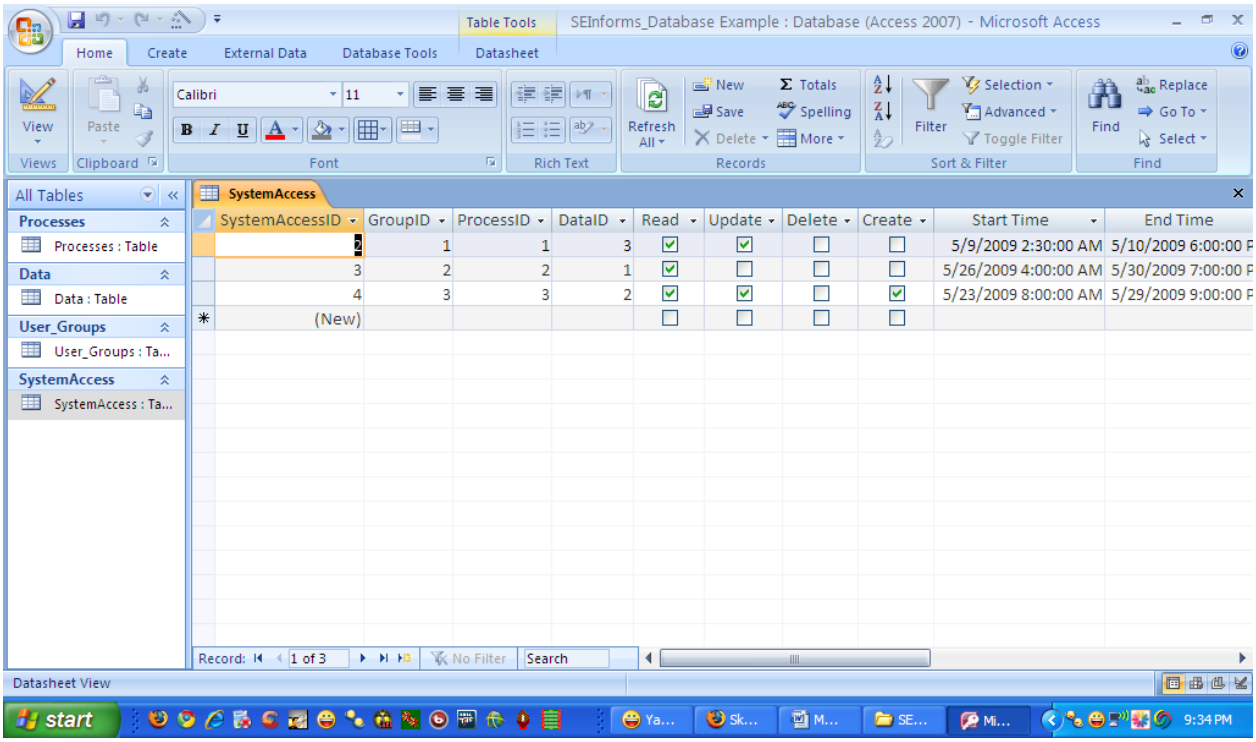
FIGURE 3: CRUD SECURITY CUBE WITH TIME DIMENSION



As you can see from the cube representation in Figure 3, the cube allows a database administrator to break down individual access rights by group, within a process, for specific data over time. This information can then be entered into a database and updated as needed. Once the database is updated with the information a program can be written to pull the data and settings from the

database and update the security and access rights for groups and users automatically. A snapshot of the system access table would look similar to Figure 4.

FIGURE 4: MICROSOFT ACCESS IMPLEMENTATION



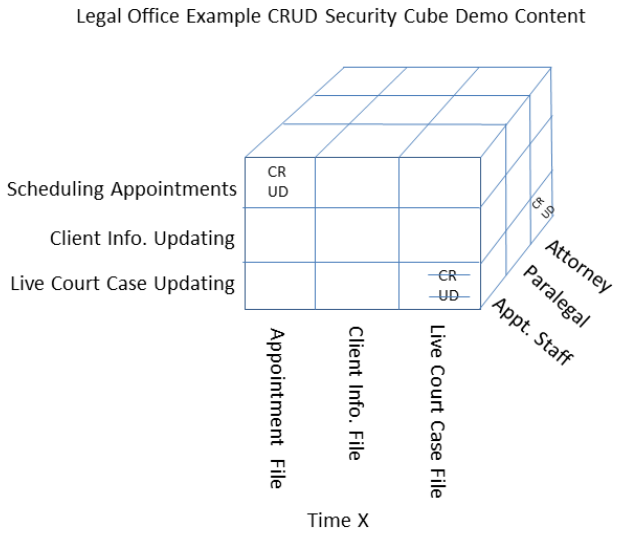
Using this system access table presented in figure 4, the groups or users documented access and security privileges could be extracted and updated in a separate database using Oracle, SQLSever, MySQL, or just about any other SQL-based DBMS on the market today.

In addition to enabling the specification of a time-based access constraint, the addition of the time dimension also enables the security manager or auditor to view a historical record of the access privileges at any point in time. This could prove valuable when investigating suspected inappropriate access to information or programs.

Prototype Implementation of the CRUD Security Cube Incorporating Time

A prototype implementation of this research was created using Microsoft Visual Basic.Net to illustrate how the CRUD security cube could be operationalized. The prototype uses a legal office proof-of-case scenario at two different time points to demonstrate how the proposed CRUD security cube could be implemented to document and enforce database/file privileges for individuals or groups over time with respect to data and processes. The prototype scenario includes three legal office employees who are responsible for various processes within the legal office scenario. While the prototype isn't a full production implementation of a CRUD security cube system, it does provide a working perspective on how the proposed system could be employed. Figure 4 illustrates the specific details of how the CRUD security cube was implemented within the demo program.

FIGURE 4: CRUD SECURITY CUBE—A PROOF-OF-CASE SCENARIO



Extensions to this research

Extensions to this research could include additional proof-of-case scenarios that show the versatility of this approach to apply to any type of information system access rights' settings. In this paper we have developed a demo application to illustrate how the CRUD security cube, incorporating a time component, could be implemented within a medical office scenario. The approach proposed in this paper could be used to automate the setting of security and accessibility settings for objects with respect to data within individual processes and with respect to groups or individuals of an organization over any period of time decided upon.

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DEVELOPMENT OF A PROTOTYPE WEB BASED DECISION SUPPORT TOOL FOR INVENTORY CONTROL IN A COMPUTER REPAIR FACILITY

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ABSTRACT

The focus of this paper is to describe the development of a web-based prototype decision support tool to assist managers and technicians in formalizing a procedure and priority protocol for scheduling computer repairs in a more efficient manner. It was designed for a local branch of a national retailer of personal computers (PC's) and other consumer electronics. The tool was developed in a manner to assist stakeholders determine work flow schedules reflective of the type of repair(s) and customer requests. Among other variables, formalization of an initial scheduling process took into account current PC repair inventory, technician's work schedules, the number of open workstations permitted by the company at a given time, and time estimates for specific repairs. The prototype application produced an increase in technician efficiency and level of throughput. It reduced repair expenditures and included back end code that would allow for its integration into a more comprehensive future application.

INTRODUCTION

In the current dearth of business resources, many retail businesses and mid level managers are finding themselves increasingly accountable to upper management and the customers they serve. They are expected to produce results and deliver finished products in a timely manner while being held accountable for identifiable levels of quality and adherence to production schedules. In addition, their accountability is increasingly being defined as their ability to produce and maintain a specific level of profitability in proportion to resource utilization. Clearly, profitability can be directly affected by a manager's ability to optimize internal resources.

The validity and importance of process management has been identified extensively in the literature as a critical component in managing and maintaining a successful business (Anupindi, Chopra, Deshmukh, Van Mieghem & Zemel, 2006). Accordingly, development and implementation of the prototype in this project was designed to support the tenets of process management. The design took into account the needs of management and technicians to have access to current data, be able to update data, produce on-demand reports, and incorporate new data into a dynamic database. Creation of the application took into account the existing scheduling structure while identifying critical variables that seemed lacking. Ultimately, implementation of the application and allowing input of computer repair scheduling transactions should improve flow time process.

PURPOSE

Therefore, the purpose of this project was to create an online scheduling prototype to assist managers and technicians at a local branch of a major electronics retailer to more efficiently manage PC repairs. The application should do the following: provide an end user friendly graphical interface, be intuitive, allow users to leave notations for colleagues, and allow for easy access to future platform maintenance. Later, access to back end code should allow expansion of the application to include prioritizing potential repair jobs reflective of each one's time requirements and profitability.

NEED

The need for this project was evident to management and technicians who were feeling pressure from each other and from customers to meet projected repair schedules. Tension increased as management and technicians had to explain to customers why jobs were not completed as promised. It was a situation that needed to change.

Lack of communication among technicians as well as with management greatly reduced throughput. Technicians work two separate shifts, and their informal way of communicating the progress of repairs between shifts meant repair tasks were often delayed and sometimes repeated. Because of that, tasks such as virus scanning, reformatting, or even hard disk defragmentation could take hours to complete. Additionally, not properly identifying tasks, a common problem among this type of retailer, created an inability to prioritize the current workflow of inventory. A common online application allowing technicians to post information concerning work in progress was necessary, one that is accessible by management to respond to customer inquiries and apprise technicians of any work order changes.

Evidence of need became even clearer after review of a typical monthly repair schedule. Table 1 indicates representative monthly services, the number of times each service was performed (count), and the average number of days required for each service job to be completed. Two six hour shifts, each with two to three technicians employed, make up a twelve hour technical repair work day. As indicated in the table, nine installations (typically installing software purchased from the retailer, RAM, or hard drives) were performed with each taking an average of one half technical repair work day or six hours per installation. Fifteen diagnostic applications were run and averaged almost nine days each to complete. The remaining data in the table presents over extended time requirements for most typical jobs performed. Company policy states that there should be a maximum of a three day turnaround for repair and return of customers PC's.

Service	Count	Avg (Days)
Installs	9	0.56
Diagnostic	15	8.87
Restore	3	4.67
Setup	6	0.67
Other	3	5.33
Virus Removal	16	6.60
Tuneups	25	2.16
Total AVG		4.121

Table 1

Of all repair jobs performed during the sample month, Diagnostics, Restoration, Other Repair, and Virus Removals accounted for almost half of the total repairs performed with the average repair time almost seven days. This is clearly below an acceptable level of minimum performance as prescribed by the parent company. Because of advertising and media exposure, customers have grown to expect a turnaround time of three days or less, so improving repair times will lead to improved customer relations. Figure 1 indicates the number of jobs performed in each category.

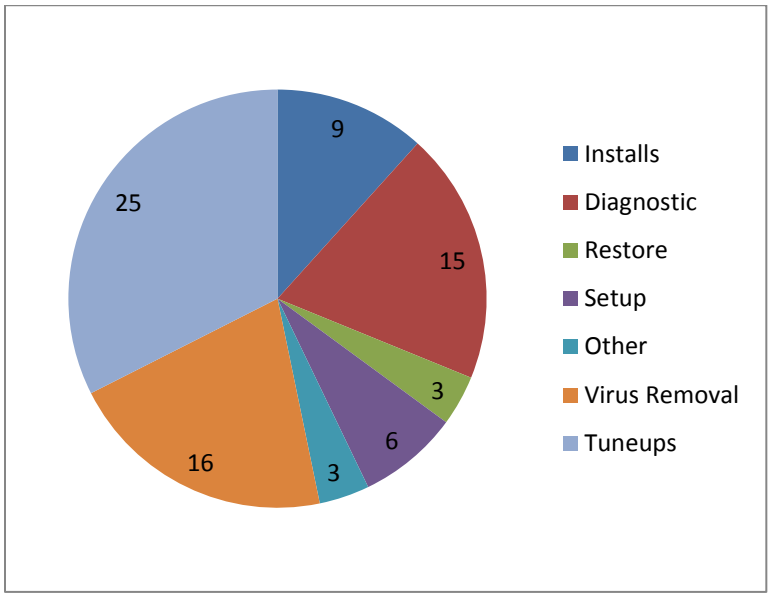

Figure 1

Further data review of technician's performance per job indicated job repair time exceeded company policy. There were a total of 77 repair jobs completed in the sample month. On the chart below, the x-axis represents individual work orders, the y-axis represents the amount of days in service, and the horizontal line at tick mark three represents the upper control limit of three days. Any individual repair job shown above the three day limit indicates a failure to adhere to the desired specifications. Approximately 42% of repair jobs extended beyond the acceptable limit.

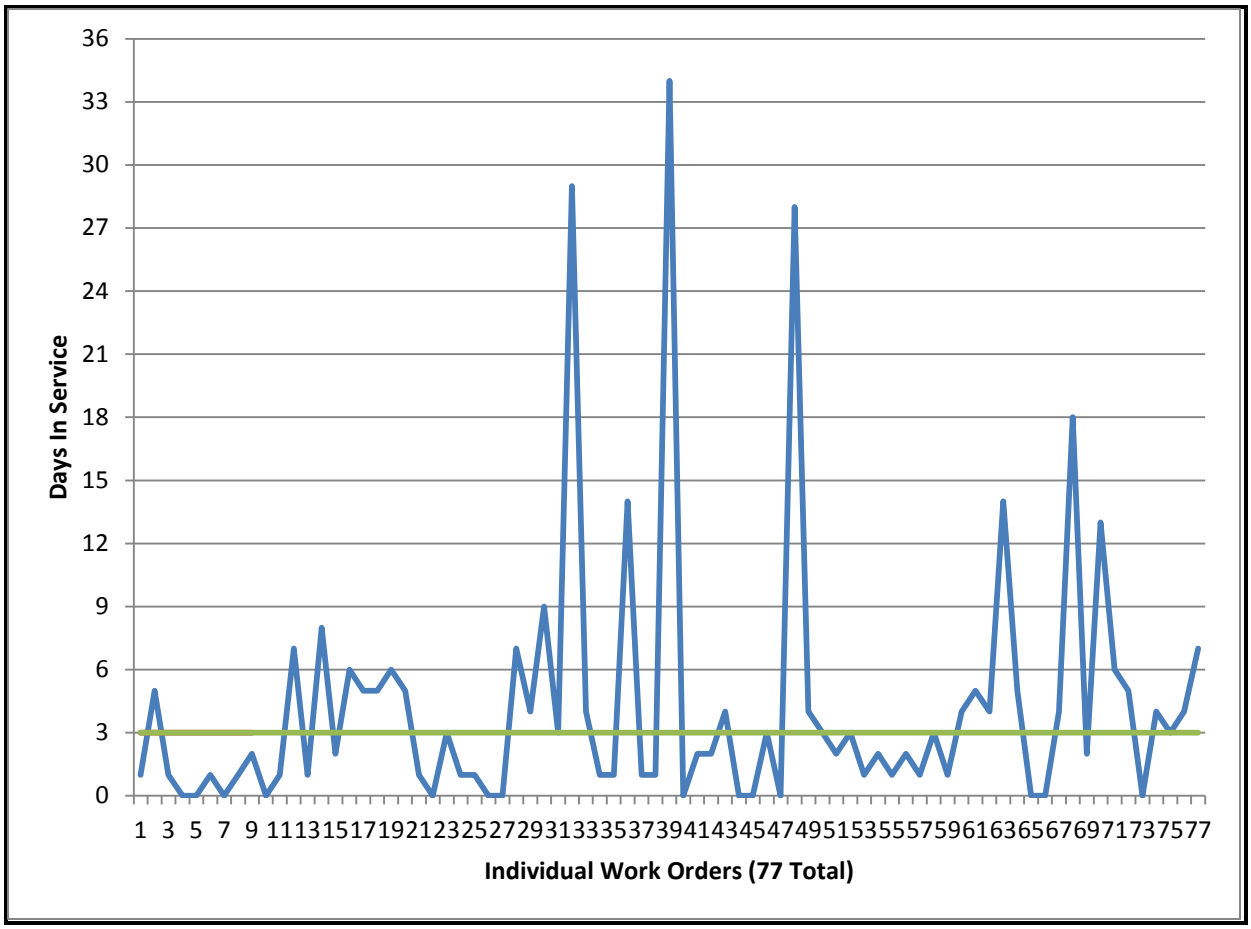

Figure 2

THEORETICAL FRAMEWORK

An adaptation of the Software Engineering Research Methodology (SERM) framework (Gregg et al., 2001) was used in the development of this application. SERM combines traditional software development lifecycles and new technologies resulting in tangible, well-documented, software (Gregg, Kulkarni, & Vinse, 2001, pg. 169). For example, SERM adheres to three tenets of software engineering: a conceptual overview, formal specifications, and the development process itself. Overall, software engineering is a function of all three tenets, but understanding and documenting system requirements is the focal point of the SERM framework. The conceptual overview is followed by mathematical, logical, graphical, and structured natural language requirements and then by the development of the system. For more information on the SERM framework please review (Gregg, et al).

The waterfall software development lifecycle was utilized to provide operational boundaries within the SERM framework and seemed appropriate for three reasons: (1) it provides a structured approach; (2) it progresses linearly through discrete, easily understandable and explainable phases (e.g. planning, requirements and analysis, design, development, and testing); and, (3) it provides easily "visible" milestones in the development process (Sommerville, 2008).

PROJECT DOCUMENTATION

The developers followed the waterfall software development lifecycle to document and develop the project. This approach provided a framework within which the developers could proceed in a systematic manner. To begin the project development process, an initial Project Planning Document was created, developed, and revised. In the document, project resources, key stakeholders, major risks, and solutions to minimizing risks were identified. This led to an initial prototype. Operational scenarios were examined to include "best", "normal", and "worst" case performances (Turban, 2009). These included scenarios for both managers and technicians. These were developed as pragmatically as possible given identified project constraints.

PR0JECT DEVELOPMENT

When a customer brings in a PC for repair, the first step at computer "check in" by a technician is to place a bar code on the PC for proper identification. We chose to use this system because it produces a unique customer order number, allows easier identification of the PC in the database, and minimizes data error entry when compared to the current paper based system. An open source freeware program was used to produce typical barcode structures which are read by a USB LED barcode scanner. To create a work order, in conjunction with the barcode number, the technician then obtains additional relevant customer information including the following:

- Order Number (This is captured from the barcode number)
- Customer Information (Name, Address, Contact Information, etc.)
- Customer Comments
- Initial Cost Estimate
- Technicians' Comments – anticipated problem, expected completion

With this type of data entry, users can simply scan the barcode placed on a PC and instantly all notations that have been created by other technicians will be displayed. This will assist in identifying the next steps and should minimize repeating tasks that have been previously performed.

There was a need to develop a workable manager's section to provide options for them to access critical data such as: average technician work time, work in progress, current inventory repair levels, and technician's notations. Managers should be able to add, delete, and update information related to computer repair jobs as well as update human resource data.

Graphical User Interface Development

An important dimension of this project was to create a system that would be intuitive to users. Training future users should be simple and straightforward. With that in mind, a basic layout was created to separate main on-screen user areas. Figure 3 illustrates the initial user login screen for mangers or technicians.

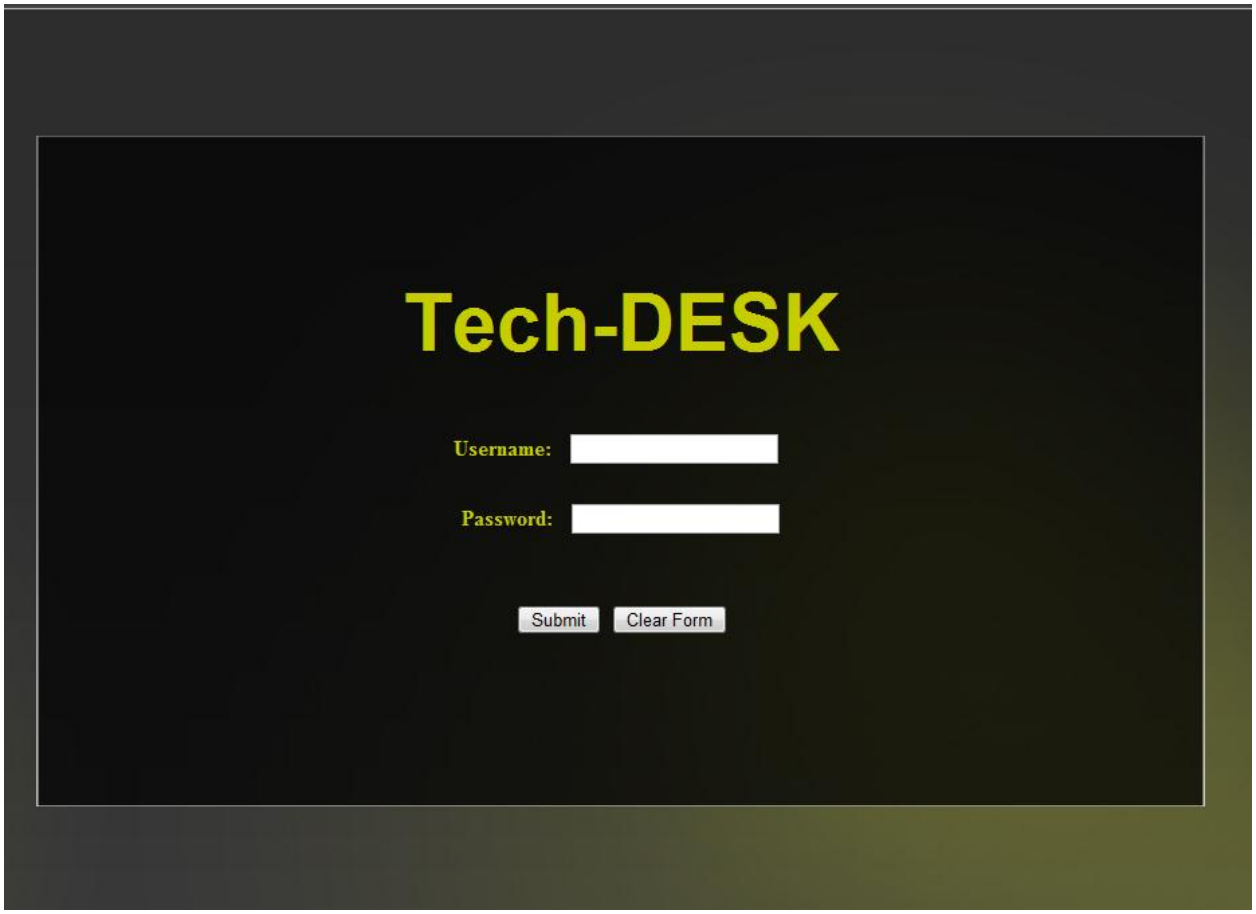

Figure 3

After successful login, technicians move to a second screen as shown in Figure 4 allowing them to input data onto a "Notes" page. This open window is separated into three main parts: barcode input, active computers, and the notation area. Users can search for work orders by entering a barcode number into the search window dialog box. In the notation area, they can post comments or instructions for other technicians. The "Active Computers" area provides users with constant visibility of PC repair priority.

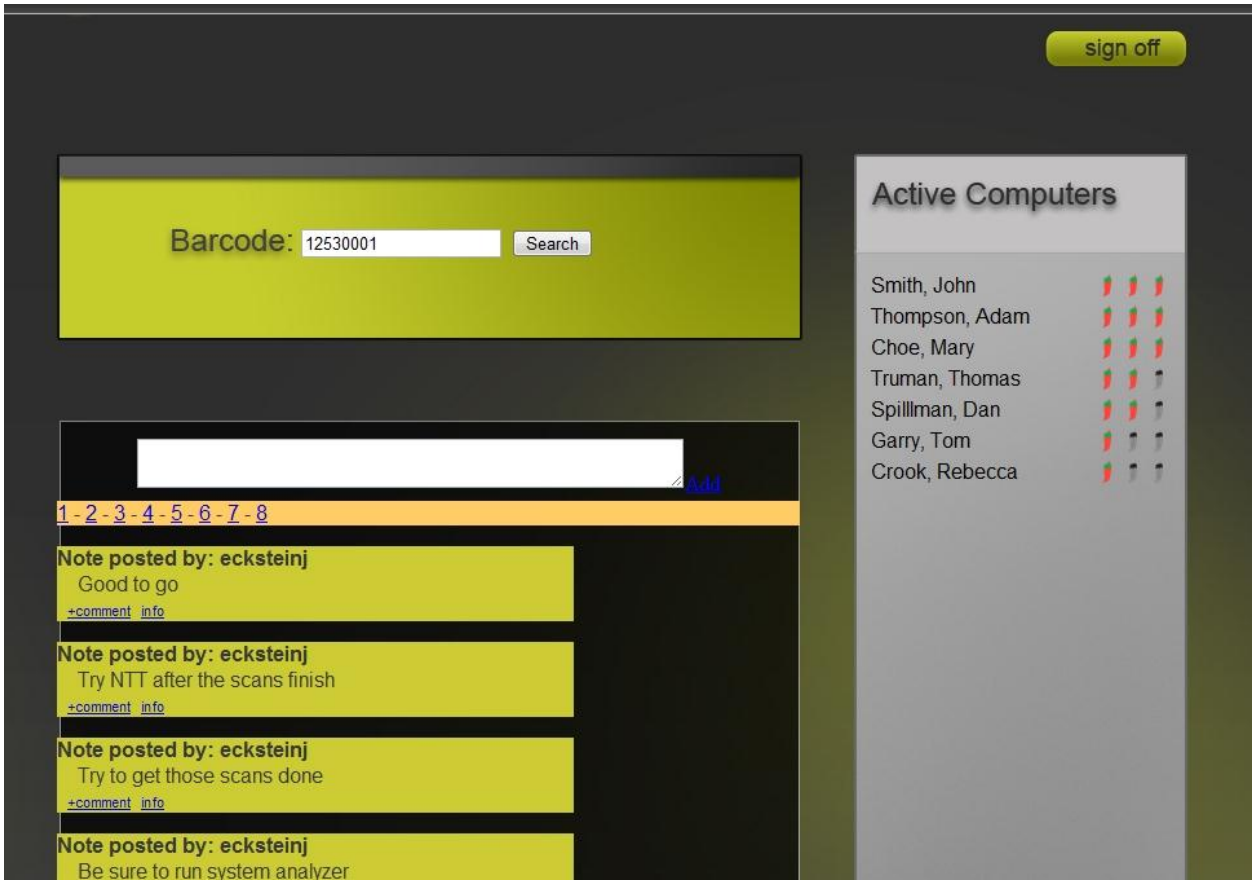

Figure 4

Currently, priority is a subjective assessment assigned by technicians. It is indicated by the number of "peppers" associated with each work order to indicate urgency of job completion. Coding in AJAX allows a technician to simply click on the desired priority level and the account will be automatically updated.

Administrator login produces a slightly different opening screen as shown in Figure 5. Their screen is subdivided into three main navigation tabs: Notes, Reports, and Manage Users.

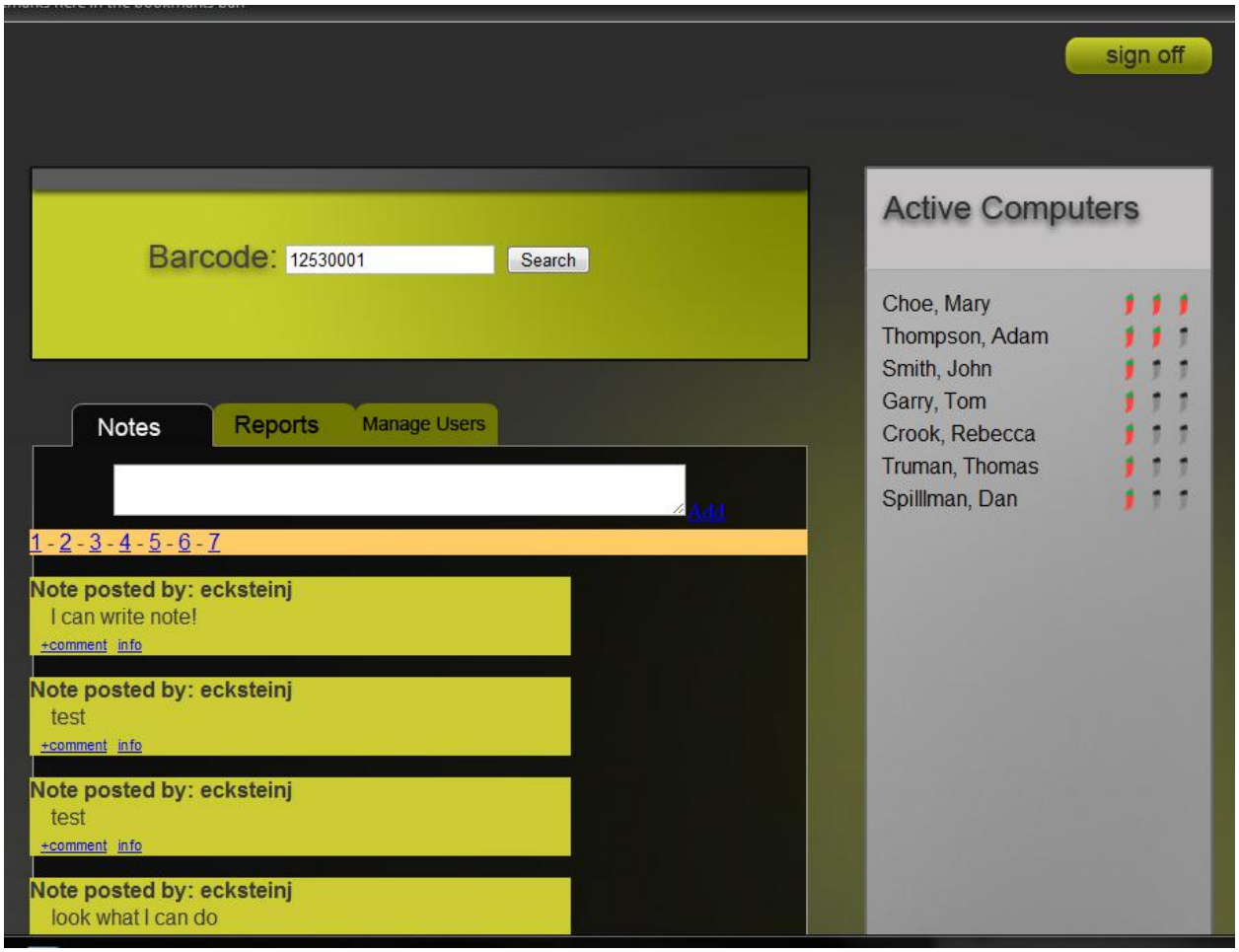

Figure 5

They have access to data linked to all three tabs. Selection of the "Reports" tab reveals the screen shown in Figure 6.

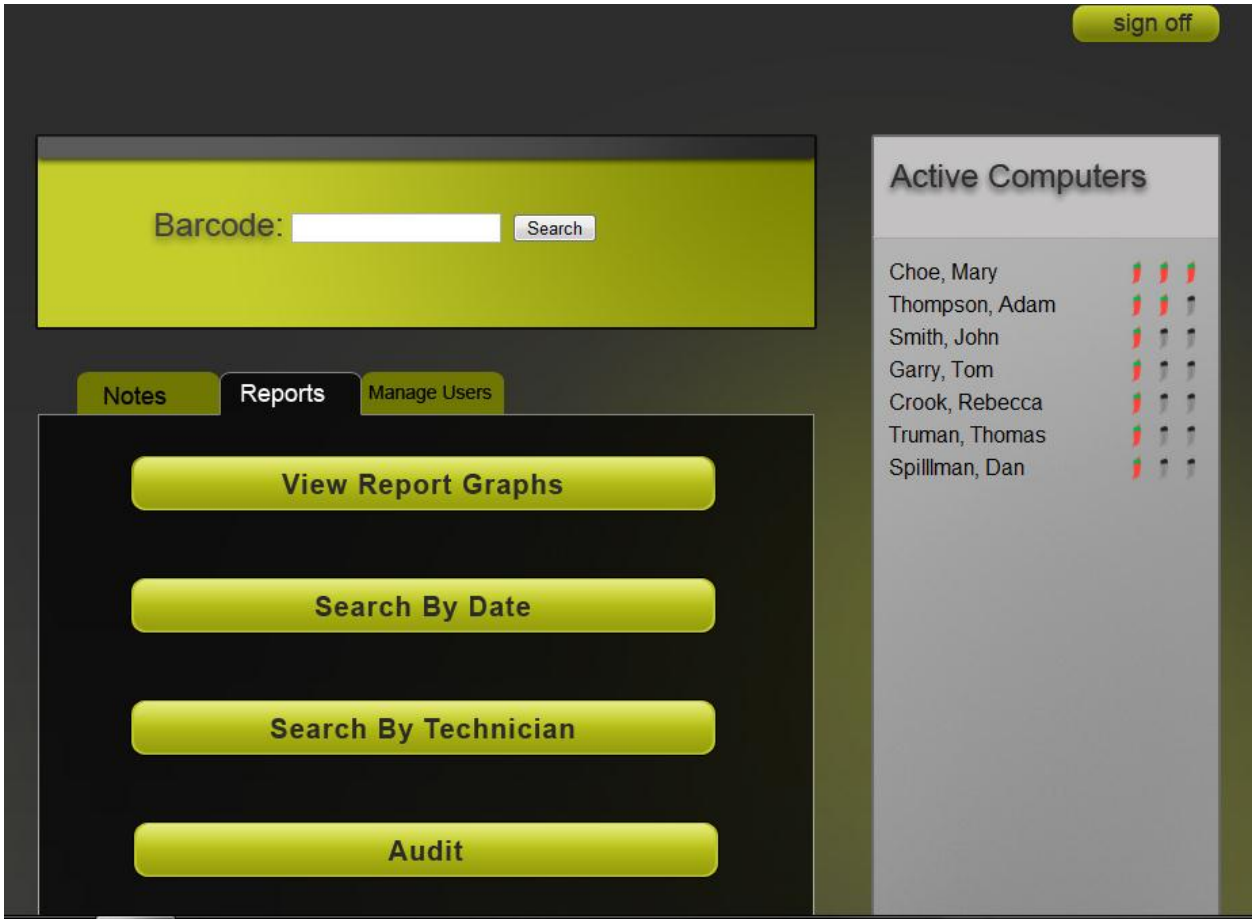

Figure 6

This selection allows access to various data views. The "View Report Graphs" option displays a dynamic chart of the current upper control limits per job in progress. "Search by Date" displays notations for a specific date. "Search by Technician" displays notations generated by individual technicians and "Audit" displays an overview of current job repair inventory and work in progress.

The "Manage Users" tab provides managers with access to edit data created by employees using the system. Links within that tab are shown in Figure 7.

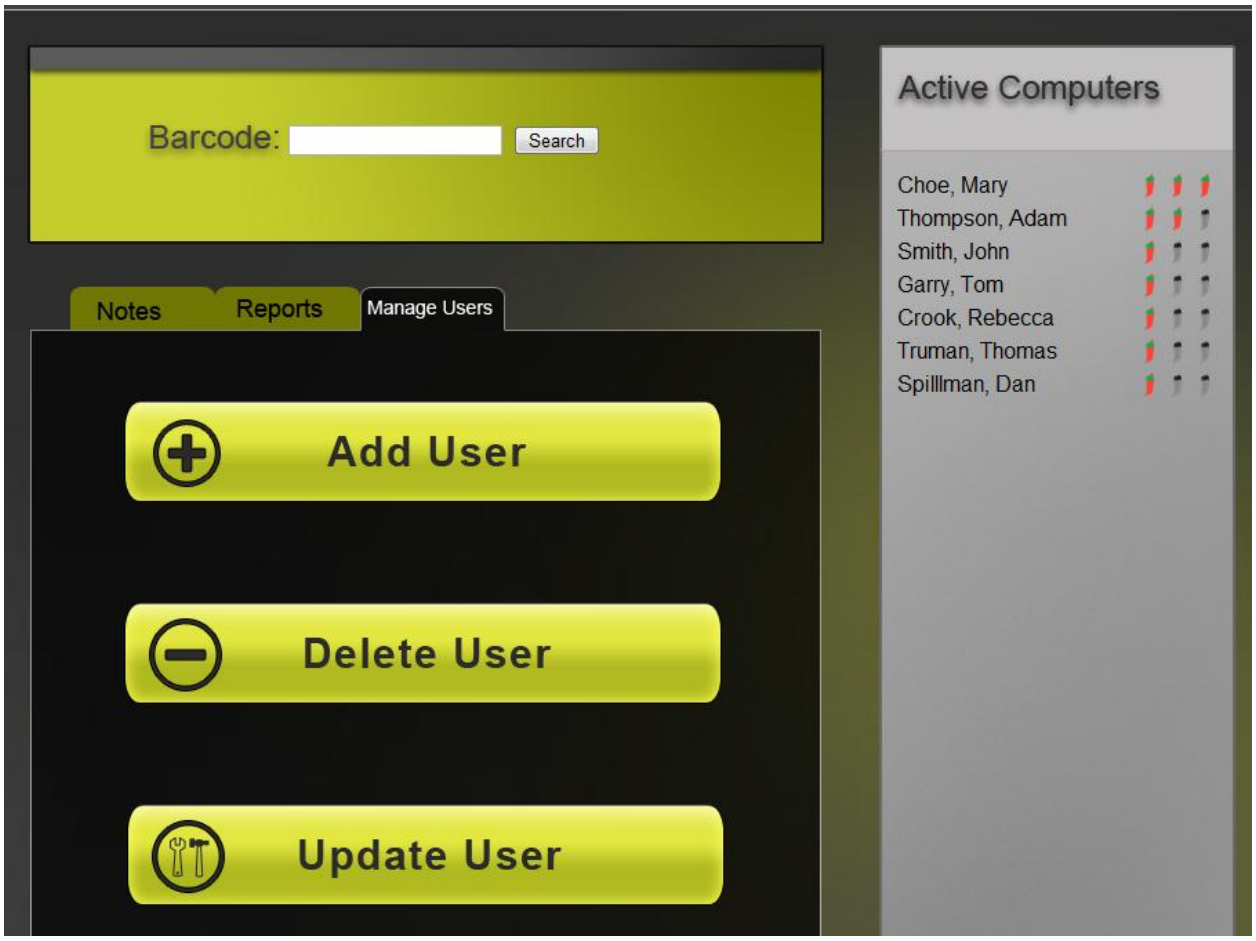

Figure 7

To make the GUI more natural to navigate, a "fancy box feature" was added for all buttons selected in the administrator option. This feature creates an open window that appears over top of the current page and displays an area for selected data input. An example follows in Figure 8:

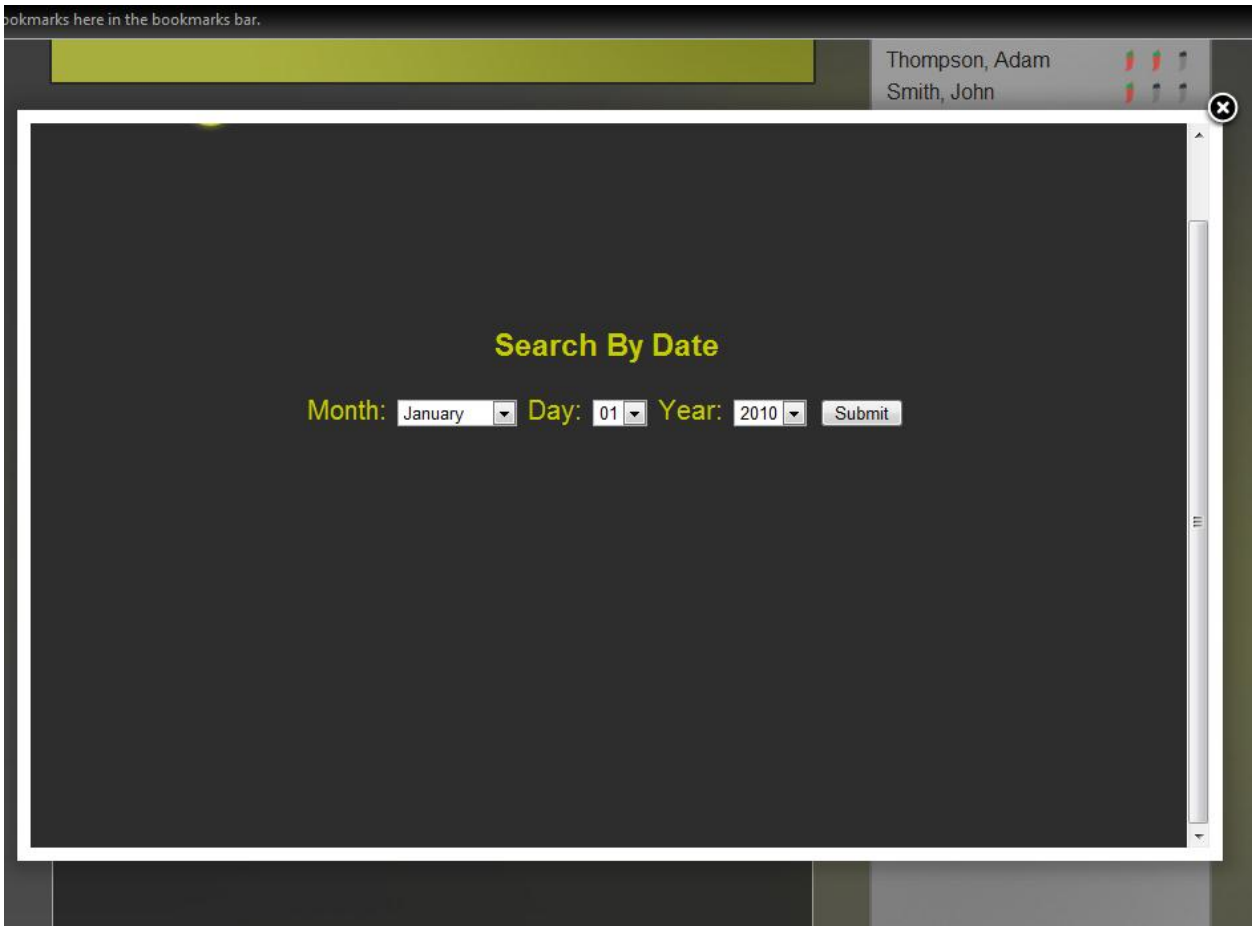

Figure 8

Use of the "fancy box" decreases end user confusion while navigating the site. Users are allowed to enter only specified data and can close the box by selecting the 'X' button which will return them to the underlying window.

SUMMARY

The project was developed to be a prototype for a future system that will maintain a schedule for determining the necessary flow of inventory for a computer repair facility. Upon implementation of the prototype, several concerns have been identified. Some relevant concerns include:

- AJAX allows the website to be dynamic permitting users to click links or other items of interest without having their browser load a new page. This appeared feasible on paper, but when using the application within the administrator options, if the user clicked 'back' or 'refresh' everything would reset. This clearly decreased the functionality of this part of the application. This part of the prototype will need to be recoded to be more in line with other parts of the application which were coded in HTML, CSS, and PHP.

- Originally, the plan was to store completed work orders for 60 days and then back up the data off site. However, within the constraints of management, a feasible way has not been determined to accomplish this task. Currently, completed works are being deleted after 120 days or every quarter. The web files and SQL database is still on a daily backup schedule.

- A code cleanup process has been initiated making the code much more maintainable. Some of the code has been reworked allowing the application to flow better. Variables have been given more meaningful names to facilitate maintenance. Considerable nonessential comment code was also deleted.

As with any prototype, maintenance is essential in correcting deficiencies to create an application that provides a minimal level of acceptable performance. Addressing the concerns above and additional issues as they present themselves should allow for a final application that will allow users to see the long-term effects of shortening flow times and maintaining a more controlled environment.

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SOFTWARE SUPPORT OF THE BLENDED CREATIVITY PROCESS

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ABSTRACT

This exploratory paper summarizes creativity from numerous perspectives derived from the creativity literature. The paper also presents a relationship on how software could enable more people to be creative more of the time. A framework called Meta-creativity is used to convey the idea that millions of people could benefit from creativity support tools. On the basis of the literature review and the Meta-creativity framework, a hypothesis that visualizing processes (collect activity) increases creativity emerged.

INTRODUCTION

Creativity is a process that has long been seen as a mysterious (Shneiderman 2000; Boden 2004). Indeed, creative ideas are unpredictable and sometimes they even seem to be impossible. Yet they happen and are important to individuals and organizations. Shneiderman (2002) offers us a vision on how software could enable more people to be creative more of the time. The term meta-creativity is used in this vision to convey the idea that millions of people could benefit from creativity support tools.

The vast amount of creativity literature offers numerous diverse perspectives (Gardner 1993; Couger 1996; Boden 2004) on what creativity is and how to get it. Three perspectives are identified by Ben Shneiderman (2002), as inspirationalism, structuralism, and situationalism. They offer us a frame of reference to understand the perspectives in a coherent and useful way.

THREE PERSPECTIVES ON CREATIVITY

Inspirationalists, emphasize the intuitive aspects of creativity; those remarkable "Aha!" moments in which preparation and incubation lead to moments of elucidation. Creative work starts with problem formulation and ends with evaluation plus refinement. It is thought of as a creativity-inducing process that can be taught. Some examples of techniques that support this model are brainstorming, free association, lateral thinking (De Bono 1992), and divergence. These techniques are meant to unfreeze the existing mindset, which frees the mind to perceive the problem with fresh eyes. Free association needs software support that emphasizes ways to generate novel ideas and is often oriented to visual techniques for presenting relationships and for perceiving solutions. Software such as IdeaFisher or MindMapper are examples of brainstorming tools. The method of organization is patterned after the way we naturally store information in the human brain. It explains the common experience of "one idea leading to another." Templates exist as starting points, but are coupled with ways to explore fresh combinations.

Structuralists, emphasizes more orderly approaches (Mayer 1991). Methodical techniques combined with studying previous work are used to thoroughly explore the solutions. Orderly methods are used to problem solve. When a promising solution is identified: (1) strengths and weaknesses are evaluated; (2) existing solutions are compared to it; (3) refinement takes place, with the goal of implementation. Software support in the form of digital libraries and websites of previous work are important. Key software support comes in the form of spreadsheets, programmable simulations, and domain-specific scientific models that support "what if" processes. The goal is to try out assumptions to assess their impact on the outcomes, often using visual animations and tools that draw flow charts, decision trees, and structured diagrams. Methodical techniques

should have step-by-step software support, but should allow an iterative type exploration that allows you to make changes, whenever and however you need too.

***Situationalists*,** emphasizes that the creative processes key component is its social and intellectual context. It is a social process embedded in a community of practice. Scientific journal editors, museum curators, etc. set the changing standards. For example, in the research literature there are three components to creativity: (1) a set of symbols, rules and procedures, (2) gatekeepers to the domain, (3) individual person whose creativity is manifest (Csikszentmihalyi 1996). Software tools should support access to a domain of previous work, collaboration, and dissemination of results to interested people.

Inspirationalism, structuralism, and situationalism perspectives are all useful in designing user interfaces. These perspectives' can be used individually are combined to shape the development of tools that look at previous work, as inspiration, links to associated ideas, provide templates for action, structured tools for exhaustive exploration, and collaboration software, which is now commonly used in most organizations.

Shniederman (2002) defines ***three levels of creativity***. First, everyday creativity is impromptu or personal. Second, revolutionary creativity is the great breakthroughs and paradigm shifting innovations. Third, evolutionary creativity are contributions that refine and apply existing paradigms or methods of research. Shniederman (2002) does not concentrate on revolutionary or impromptu creativity, but it does concentrate on evolutionary creativity and how to develop the software support tools according to the three perspectives identified in this paper - inspirationalism, structuralism, and situationalism.

A FRAMEWORK FOR MEGA-CREATIVITY

After several years of exploration, the genex framework (Shneiderman 2000; Carroll 2002; Shneiderman 2002) evolved into the framework for mega-creativity which has four activities:

- **Collect:** Learn from previous works stored in libraries, the Web, and other sources.
- **Relate:** Consult with peers and mentors at early, middle, and late stages.
- **Create:** Explore, compose, and evaluate possible solutions.
- **Donate:** Disseminate the results and contribute to libraries, the Web, and other sources.

It builds primarily on the situationalists' perspective by using the potential offered by the World-Wide Web. The mega-creativity frameworks goal is to suggest improvements for web-based services, personal computer software tools and calls for integrating creativity support tools. Improvements include reducing the distraction caused by poorly-designed user interfaces, users' attention can be devoted to the task. Some creativity tools already exist, but could be enhanced to ensure smooth integration across novel tools or word processors, presentation graphics, email, databases, spreadsheets, and web browsers. In an effective design, available functions would be in agreement with problem-solving strategies, leaving the users to concentrate on creativity (Shneiderman 2002).

The three perspectives (inspirationalism, structuralism, and situationalism) each generate useful suggestions for tasks. Figure 1 indicates how the eight tasks are primarily related to the four activities, but these tasks could take place during any phase.

<u>The eight tasks described below are supported by integrated creativity support tools.</u>
(1) Searching and browsing digital libraries, the Web, and other resources
(2) Visualizing data and processes to understand and discover relationships
(3) Consulting with peers and mentors for intellectual and emotional support
(4) Thinking by free associations to make new combinations of ideas

(5) Exploring solutions—What-if tools and simulation models
(6) Composing artifacts and performances step-by-step
(7) Reviewing and replaying session histories to support reflection
(8) Disseminating results to gain recognition and add to the searchable resources

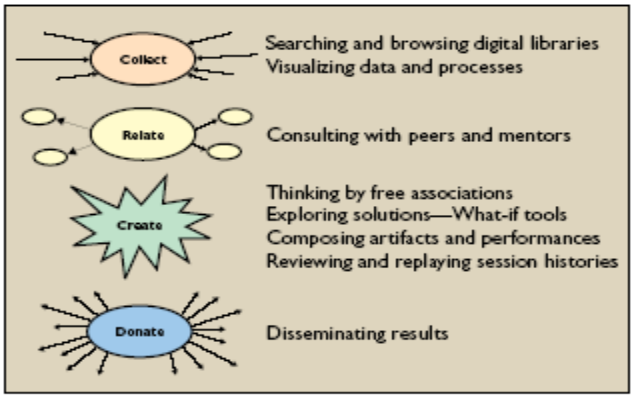

Figure 1. Primary relationships of four activities and eight tasks.
(Shneiderman 2000; Carroll 2002; Shneiderman 2002)

RELATED WORK

The mega-creativity (Genex) framework is based almost entirely on one theory (Theory of Flow, (Csikszentmihalyi 1996)). Numerous other authors (Terry and Mynatt 2002; Maiden, Gizikis et al. 2004; Farooq, Carroll et al. 2005; Warr and O'Neill 2005; Farooq, Carroll et al. 2007) offer research based on a broader range of creativity literature. Farooq, Carroll et al., 2005 present and justify "three requirements for supporting creativity:

- Divergent thinking is the ability to generate a set of possible responses, ideas, options, or alternatives in response to an open ended question, task, or challenge. Convergent thinking involves narrowing this set to one alternative, and then implementing this alternative by empirically testing and communicating it to the related community.
- Shared objectives imply a group vision of the goals of its work that members wish to achieve.
- Reflexivity is the extent to which members collectively reflect on the group's objectives, strategies, and processes as well as their wider organizations and environments, and adapt them accordingly".

Shneiderman (2007) offers a slight shift in focus and terminology, when compared to Shneiderman (2002), but the goal still remains the same; to enable more people to be more creative more often. The three perspectives described above are offered as diverse perspectives in the literature on creativity. In Shneiderman (2007) the same groups are presented, but are described as "The large amount of literature on creativity, discovery, design, innovation, and composition may be sorted into three intersecting schools" (Shneiderman 2007) The schools have the same definition, but the examples of the creativity tools have been updated and the focus shifts to important lessons being offered to designers of creativity support tools. For example, structuralist thinking encourages systematic tools (same) that include progress indicators with reminders of what is still needed (new).

The inspirationalist view supports development of image libraries, thesauri, sketching interfaces (new), and concept-mapping tools. Situationalists broaden the designer's view to include email and collaboration tools, as well as the e-science notebooks that guide users and coordinate groups through scientific processes over

weeks, months, and years (new). The mega-creativity framework is used in Shneiderman (2002) to facilitate creative work by building on four activities and eight tasks that are presented. Shneiderman (2007) shifts its focus to changing mindsets and developing design guidelines (principles) and appropriate research methods. More recent works by Shneiderman emphasize the need to study the creative process (Shneiderman, Gerhard Fischer et al. 2006; Shneiderman 2007).

Research frameworks are attempts to capture and explain the complex, interdependent, and dynamic factors and processes that exist in our world. Mackenzie (2000) presents a process approach for the organization sciences that views organizational behavior as fundamentally a physical process, thus it is a sustained phenomenon or one marked by gradual changes through a series of states. This supports Shneiderman (2007) conclusion that creativity is a process. It is important to note that variables are often a form of the outcomes (results) that come from a process and are inherently causal (Mackenzie 2000). However, a variable cannot capture the complexity of the creativity process that takes place because a process represents a developmental sequence of events. Interestingly enough, factor research models are the most commonly used models in creativity research (Shneiderman 2007), and although they are useful to researchers, a gap exists in the study of the actual processes that produce the factors. Current research (Shneiderman 2007) suggests that process and factor models complement each other, and when presented together, give a more informative and therefore more complete picture of what is being studied.

> "The emphasis on close study of domain experts as they make discoveries has led many researchers to adopt case study, observational, and interview methods with small numbers of users over weeks and months. Their goal is to capture the processes that precede breakthrough incidents and to collect evidence that supports hypotheses about how software design features promote creative moments." (Shneiderman 2007)

HYPOTHESIS

On the basis of the literature reviewed for this paper and after analyzing the Meta-creativity framework, I hypothesize that visualizing processes (collect activity) increases creativity.

CONCLUSION

In summary, creativity is a process that has long been seen as a mysterious (Shneiderman 2000; Boden 2004) Indeed, creative ideas are unpredictable and sometimes they even seem to be impossible. Yet they happen and are important to individuals and organizations. Shneiderman (2007) offers a slight shift in focus and terminology, when compared to Shneiderman (2002), but the goal still remains the same; to enable more people to be more creative more often. Consequentially, the term meta-creativity is used to convey the idea that millions of people could benefit from creativity support tools. Future research should expand this exploratory study by following Shneiderman (2007) and take into consideration the opportunity to enrich the research on creativity with methods that include process research, case studies, observational, and interviews with small numbers of users over weeks and months. As a researcher, my goal (as I move forward) is "…. to capture the processes that precede breakthrough incidents and to collect evidence that supports hypotheses about how software design features promote creative moments." (Shneiderman 2007)

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PUNISHMENT: THE NEW APPROACH TO SETTING HEALTHCARE INSURANCE PREMIUMS TO REFLECT THE INDIVIDUAL'S LIFESTYLE BEHAVIORS?

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ABSTRACT

Employers faced with the increasing cost of health care benefits have investigated and implemented a number of cost control efforts. All such efforts are limited by applicable federal laws such as ADA, ERISA, HIPAA, and GINA. However, certain self-insured nonfederal governmental programs are exempt from aspects of HIPAA's requirement that all employees be charged the same premiums. As a result some states are implementing premium programs that, in effect, punish employees for unhealthy behaviors by charging them higher premiums or deductibles and co-payments. If such programs are successful, there may be efforts for similar exemptions for other self-insured private and public organizations. The question of punishment for poor health behavior, as it relates to 12 recognized health behaviors, will be investigated in the present paper.

INTRODUCTION

The increasing cost of providing healthcare insurance appears to have been first observed in the 1970s and 1980s [17]. Not only are these increasing cost observed today, but it is anticipated that these costs will continue into the foreseeable future [2]. In response to these increased costs, employers pursued two cost control strategies, direct and indirect.

Direct cost control focus on shifting some or all of the increased cost to the employee (e.g., increased premiums, higher deductibles, limited choices of health care provider, or, in the extreme, discontinuation of benefits) and are limited by the employee's ability or willingness to pay. As a result, employers began to pursue indirect cost control strategies (e.g., pricing premiums to recognize individual health risk or programs directed at improving employee health behavior, etc.), which focuses on reducing costs by controlling the intensity and frequency of medical benefit usage.

A differential premium based on the employee's individual risk factors is the most obvious indirect cost control strategy. Regulatory issues, however, limit this approach to organizations that self-insure. Self-insurance has the advantage of removing the organization's health benefit program from state jurisdiction and places it under federal regulation (ERISA, Employee Retirement Income Security Act).

ERISA allowed organizations to implement some form of individual pricing that charged employees higher premiums or deductibles for recognized unhealthy behaviors or risk factors that do not fall under regulations of the ADA (American with Disabilities Act, 1990). However, charging premiums based on the employee's was ended by HIPAA's (Health Insurance Portability and Accountability Act of 1996) nondiscrimination clause.

The nondiscrimination clause requires that all covered employees be charged the same premium regardless of health or pre-existing conditions. In 2007, employers received some relief from this prohibition when HIPAA rules were modified to allow financial incentives for wellness programs. These incentives or rewards can be as large as 20% of the cost of coverage for the employee [13]. Such rewards are scheduled to increase to 30-50 percent in the Patient Protection and Affordable Care Act [5].

Without the ability to charge differential premiums, the use of incentives or rewards to encourage participation in wellness programs has been the general approach use by private businesses and state governments [7] [11] [18]. While there is sufficient data to suggest that such incentives have a positive impact on participation in wellness programs and the reduction of health care costs, the impact is limited [2] [4] [9] [19] [23].

The limited impact of such incentive programs may be the result of the participation rate in wellness programs, which can vary from approximately 75% for intensive intervention programs (e.g., coaches, activity enrollment, etc.) to not more than 20% for less intensive programs [23]. Similar participation rates (intensive as compared to less intensive) are observed for visits to employer provided health clinics [6].

Recent actions by several states have focused considerable attention on the use of penalties (e.g., higher premiums, deductibles, and co-payments for those who smoke or exceed a specified body mass index) or as a method of coercing improved health behavior [12] [16]. These actions are allowed under a special rule that allows self-insured nonfederal governmental plans to opt-out of the nondiscrimination requirements of HIPPA [1] [3].

The shift from incentive to penalty may be the result, noted above, of the observed low participation rates for voluntary incentivized wellness programs. It is necessary to recognize, however, that the participation rate may be influenced by any number of factors. For instance such influence has been reported for race and ethnic background [24], outcome risk [22], and genetic testing [8]. However, none of these or similar studies provide an adequate explanation for the observed low participation rates.

One possible explanation for low participation rates is that potential participants in such programs do not agree with the unhealthy behaviors that serve as the focus of wellness programs. It is reasonable to expect that organizations will select those unhealthy behaviors that represent the highest healthcare cost or frequency of occurrence. However, low participation rates can be anticipated if potential participants believe that the health behaviors eligible for such incentives are a matter of private behavior. Consequently, while states that are introducing programs based on coerced participation may believe this approach will lead to higher participation; such efforts may be frustrated by the attitudes of its employees.

Punishment

The low participation for incentivized wellness programs suggest that employees are not sufficiently motivated to participate. However, is it realistic to assume that punishment will yield a better participation rate?

The literature provides mixed results as to the effectiveness of punishment, but it appears that punishment may be best utilized to suppress or eliminate a nonproductive behavior [10]. Ryan and Deci [20] suggest that an individual's level of internalization of a goal or punishment is influenced by the person's perception of locus of causality and, consequently, feelings of autonomy.

Punishment, because it is applied by another person or entity, leads, by definition, to perceptions of an external locus of causality and the lack of autonomy. As such, the value of the goals of the punishment cannot be internalized because the individual lacks the right to make a choice. With greater autonomy and higher levels of goal internalization, Ryan and Deci [20] report studies that show higher levels of maintenance of self-medication, better weight loss, improved glucose control, and better participation in addiction-treatment. In addition, they report that increased autonomy helps individuals identify self-endorsed goals that support internal need gratification [21].

Mulder [15] reports that by converting a desirable behavior to a moral obligation, punishment related to maintain the behavior will be an effective. This conversion to a moral obligation is enhanced when there is general knowledge and identity of the behavior:punishment relation. With such information, other members of the social unit will begin to express disapproval of the behavior, resulting in a specific norm of acceptable or unacceptable behavior.

The moral obligation approach suggested by Mulder [15] may have the greatest potential for changing unhealthy behavior. This can be observed by the success of anti-smoking campaigns that focus not only on the health consequences to the individual, but the effect smoking has those who are exposed to the person's smoking. As a result, the choice of not smoking appears to have become a social norm.

Mulder [15] suggests that for a behavior to become a social norm, the behavior:punishment relation must be well known and accepted among those in the social unit. It is reasonable to assume that most insurance plans provide adequate information to inform the population of the social unit of the behavior:punishment relation. But acceptance of the behavior:punishement relation depends on the attitudes of the members regarding the underlying behavior. The question of acceptance is the focus of the present paper and may provide useful information as to whether punishment has the potential to change unhealthy behaviors.

METHOD

Undergraduate and graduate business students enrolled in business classes at a southeastern state-supported university provided data for the present study by completing

a questionnaire that described 12 lifestyle behaviors (Appendix A). The lifestyle behaviors **(**1. Smoking; 2. Other Uses of Tobacco; 3. Drinking (liquor, wine, etc.); 4. Unsafe Sex; 5. Not Following Doctor's Orders; 6. Unhealthy Eating Habits; 7. Unsafe Driving; 8. Not Using Seat Belts; 9. Lack of Exercise; 10.Risky Recreational Behavior (e.g., skydiving, auto racing); 11. Not Maintaining a Healthy Weight; 12.Not Getting Annual a Physical Exam**)** are similar to factors for which health risk has been established by epidemiology [14].

The questionnaire contained a brief description of how premiums for group health are determined. The instructions then asked respondents to evaluate each of the 12 lifestyle behaviors on the basis of the rationality of charging differential rates based on the individual's health behavior. One question then asked respondents to evaluate the rationality of increasing the price of health insurance based on individual's unhealthy or risky behavior. This question is considered to provide a measure of the willingness of respondents to punish unhealthy behavior by increasing health insurance premiums based on the individual's unhealthy behavior.

Data were collected from 216 respondents, but eight provided incomplete information resulting in an analysis sample of 208 consisting of 83 undergraduates and 125 graduate students. Data were collected reflecting respondents' gender (104 males; 104 females), age ($\bar{x}_{age}$=25.2), marital status (married=45; single=163), management experience ($\bar{x}_{mgmt.\ exp.}$=1.4, and degree program (undergraduate=83; graduate=125). Three scales developed through factor analysis, discussed below, are used for analysis purposes and no overall effect of the personal information items on these factor scales was detected (MANOVA: Factor 1: F=1.126, *p*=.277; Factor 2: F=1.116, *p*=.293; Factor 3: F=.906, *p*=.693). The sample, as a result, is treated for analysis purposes as homogeneous.

RESULTS AND DISCUSSION

The means and standard deviations for the 12 lifestyle behaviors are shown in Table 1. Table 2 shows the results of factor analysis (principal components, varimax rotation), which identified three underlying dimensions (eigenvalues ≥ 1.0). One factor is defined by three lifestyle behaviors (bold) and the other two factors are each defined by two lifestyle behaviors. The remaining lifestyle behaviors exhibited cross-loadings (≥.300) that prevent their inclusion in any one of the three factors. Lifestyle scales were named based on the lifestyle behaviors that compose each of the three factors (I. Risk; II. Prevention; and III. Tobacco Usage) and scale values were computed (average response for lifestyle behaviors included in the factor).

Table 1

Means and Standard Deviations Measuring the Rationality of Recognizing Individual Behavior in Setting Health Insurance Premiums for 12 Lifestyle Behaviors

Lifestyle Behavior	$\bar{x}$	*s.d*
Smoking	2.10	1.37
Other Uses of Tobacco	2.39	1.33
Drinking (Liquor, Wine, etc.)	3.25	1.41
Unsafe Sex	3.20	1.58
Not Following Doctor's Orders	3.62	1.51
Unhealthy Eating Habits	3.83	1.42
Unsafe Driving	3.64	1.58
Not Using Seat Belts	3.41	1.71
Lack of Exercise	3.79	1.50
Risky Recreational Behavior (skydiving, auto racing, etc.)	3.88	1.63
Not Maintaining Healthy Weight	3.50	1.30
Not Getting Annual Physical Exam	3.38	1.55

Table 2

Factor Analysis of the Rationality of Recognizing Individual Behavior in Setting Health Insurance Premiums for 12 Lifestyle Behaviors

	Factors		
Lifestyle Behavior	I	II	III
Smoking	.070	.066	**.945**
Other Uses of Tobacco	.121	.134	**.921**
Drinking (Liquor, Wine, etc.)	.452	.241	.558
Unsafe Sex	.656	.159	.423
Not Following Doctor's Orders	**.627**	.133	.253
Unhealthy Eating Habits	.436	.730	.089
Unsafe Driving	.789	.309	.131
Not Using Seat Belts	**.745**	.277	.090
Lack of Exercise	.480	.719	-.020
Risky Recreational Behavior (skydiving, auto racing, etc.)	**.772**	.236	-.039
Not Maintaining Healthy Weight	.144	**.846**	.185
Not Getting Annual Physical Exam	.145	**.678**	.144

The means, standard deviations, and reliabilities for the Risk, Prevention, and Tobacco Usage factors are shown in Table 3. Based simply on the question anchors, the means of the Risk and Prevention factors falls near midpoint of the range. On a preliminary basis, it can be suggest that respondents would not be receptive to the inclusion of these lifestyle behaviors in the rate setting process. However, respondents appear willing to include those lifestyle behaviors represented by the Tobacco Usage factor scale.

Table 3

Means, Standard Deviations, and Reliabilities for Three Factor Scales Representing the Rationality of Recognizing Individual Behavior in Setting Health Insurance Premiums

Factor Scale	$\bar{x}$	*s.d.*	Alpha
I. Risk	3.64	1.30	.724
II. Prevention	3.44	1.22	.620
III. Tobacco Usage	2.24	1.31	.932

The focus of the present paper is to investigate the extent to which punishment should be used to recognize unhealthy behavior in setting rates for health insurance. For analysis purpose the punish question was recoded to: 1=responses 1, 2; 2=responses 3, 4; and 3=responses 5, 6. The recoded punish question can be interpreted as 1=Strong Support; 2=Undecided, and 3=No Support for increasing healthcare insurance premiums for those individuals who exhibit unhealthy behaviors. As shown in Table 4, the largest group (N=108) supports increased premiums in response to the individual's unhealthy behavior; the smallest group (N=22) offers no support for this approach; and 78 respondents were undecided.

Analysis results, MANOVA, show a significant overall effect for the punish question with a significant effect on each factor (Risk: F=8.525, p=.000; Prevention: F=8.960, p=.000; Usage: F=1.3125, p=.000). Comparison based on the Punish variable, Table 4, show homogeneous subsets that are significantly different (Duncan, alpha=.05) for the each of three factor scales. Groupings for the Risk Factor are almost evenly split, but a large majority is reflected for the Prevention and Usage Factors.

Interpretation of these results, as noted above, must be made with some caution. This is especially true for the Risk and Prevention factors because the three mean values for each factor (Table 4) are within ±1 point of midpoint (3.5) of the response scale. Such caution may not be necessary for the Tobacco Usage factor because the mean values are closer to the Very Rational scale anchor.

Table 4

Homogeneous Subsets[*1] for Three Factors

Based on Support for Punish by Increasing Healthcare Insurance

to Recognize Lifestyle Behaviors

	Punish		
Factor Scale	Strong Support[*2]	Un-decided	No Support
I. Risk	3.31	3.89	4.33
II. Prevention	3.18	3.45	4.32
III. Tobacco Usage	1.93	2.35	3.39

[1]Duncan, alpha=.05

[*2]N=Strong Support (108); Undecided (78); No Support (22)

CONCLUSIONS

In response to increased cost associated with employee healthcare insurance, many organizations incentivized participation in wellness programs. Low participation rates in such programs [23] may cause some organizations to consider alternative approaches. Several states have recently initiated a punishment approach (increased premiums, co-payments, deductibles, etc.) in response to unhealthy employee behaviors.

As discussed above, the effectiveness of punishment is not a settled issue. The effectiveness of punishment may, however, depend on support for that approach as the unhealthy behavior is considered to be a violation some social norm. To investigate the possibility of developing a social norm critical of some unhealthy behaviors, respondents were asked to evaluate the rationality of charging higher premiums for those individuals who engaged in twelve unhealthy behaviors. To establish a depth of feelings regarding these unhealthy behaviors, respondents were asked their opinion of whether unhealthy behavior should be punished by increasing the healthcare insurance premiums. Based on the Punish data, respondents were placed into three groups, Strong Support, Undecided, and No Support

Three factor scales, Prevention, Risk, and Tobacco Usage, were developed from the evaluation of the twelve unhealthy behaviors. Analysis of these data (MANOVA) by the Punish grouping provides support for using higher healthcare premiums for those employees who use tobacco (Table 4). However, the results for the Risk and Prevention scales must be view as neutral because the mean values are so near the midpoint of the response scales.

Support for punishment in response to the use of tobacco may reflect the years of prevention education that appears to have resulted in a norm of non-usage. This suggests that if a punishment approach is to be successful for those behaviors described in the Risk and Prevention factors, employers should be willing to engage in a long-term educational effort directed at the consequences of the unhealthy behaviors.

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APPENDIX A

PRICING HEALTH INSURANCE

In general, if you are a member of a group health insurance plan, everyone in the group is charged the same price for the insurance. When members of the group engage in unhealthy or risky behavior that results in medical costs, all members of the group share in any increase in the cost of the insurance. One might ask why all members of the group must pay for the unhealthy or risky behaviors of a few members.

The following questions ask you whether **you think** it would be RATIONAL to consider an individual's unhealthy or risky behavior in pricing group health insurance for that person. In answering the following questions, **consider only the listed behavior, do not be concerned either about the intensity or "how much" of the behavior would be required to initiate an additional cost or how the behavior would be detected.**

	Very Rational					Very Irrational
SMOKING	1	2	3	4	5	6
OTHER USES OF TOBACCO	1	2	3	4	5	6
DRINKING (Liquor, Wine,etc.)	1	2	3	4	5	6
UNSAFE SEX	1	2	3	4	5	6
NOT FOLLOWING DOCTOR'S ORDERS	1	2	3	4	5	6
UNHEALTH EATING HABITS	1	2	3	4	5	6
UNSAFE DRIVING	1	2	3	4	5	6
NOT USING SEAT BELTS	1	2	3	4	5	6
LACK OF EXERCISE	1	2	3	4	5	6
RISKY RECREATIONAL BEHAVIOR (e.g., skydiving, auto racing)	1	2	3	4	5	6

NOT MAINTAINING A HEALTHY WEIGHT	1	2	3	4	5	6
NOT GETTING ANNUAL PHSYCIAL EXAM	1	2	3	4	5	6

Please evaluate the rationality of the following approach in dealing with the question of pricing healthcare insurance.

The price of the insurance should increase for employees who exhibit unhealthy or risky behavior.	1	2	3	4	5	6

Emotional Intelligence and Positive Organizational Leadership

A Paper for the SEInforms Conference 2011

Full Paper

Tracks for Consideration:

Management
Educational Innovation

By

Jeffrey L. McClellan

Gary DiClementi

Abstract

While the relevance of emotional intelligence to leadership and management has been studied and written about for over a decade, most practical models of emotional intelligence still focus primarily on the personal management of negative emotions within the leader. While valuable, this approach delimits the utility of emotional intelligence in relational leadership. Furthermore, it does not take into consideration the significance of positive emotions in leadership This article provides a review of the literature related to emotional intelligence, leadership, and positive psychology/leadership. It also presents an alternative model for engaging in emotionally intelligent leadership that focuses on the relational nature of emotion and the role of positive emotional influence.

Introduction

Emotional intelligence (EI) and effective organizational leadership are integrally intertwined. Over the past few years, numerous researchers and practitioners have verified this relationship and elaborated on the means whereby leaders can take advantage of the power of emotions in influencing others (Boyatzis & McKee, 2005; Feldman & Mulle, 2007; Goleman *et al.*, 2002; Walter *et al.*, 2011; Winston & Hartsfield, 2004). Consequently, numerous books, articles, and training programs have been developing to promote increased emotional intelligence among leaders.

Unfortunately, many of these books, articles, and programs suffer from a deficit based approach to the topic. This is because many of the models for emotional intelligence are focused primarily on recognizing and managing negative emotions in the leader when they occur. In contrast, the authors of this article believe that emotional intelligence has much more to offer

leaders when approached from a positive psychology perspective that focuses on the interpersonal, relational aspect of emotional intelligence. As a result, in this article we will discuss the literature related to emotional intelligence and leadership as well as positive psychology, leadership, and organizational scholarship. Based on this review we will outline a theory-based model for engaging in emotionally intelligent leadership from a positive psychological and relational perspective.

The traditional approach to EI

Emotional intelligence has been an intensely debated topic since it's rise to public awareness with Goleman's (1995) popular work by the same name. The intensity with which this topic is discussed is evident by the inability of top researchers and minds to agree on a definition for emotional intelligence. Thus, for the purpose of defining EI, we will begin with a definition that is perhaps most shared among the different schools of thought. At its most fundamental level, emotional intelligence relates to the use of the components of mind associated with emotion as opposed to purely rational thought in the application of intelligence. That said, the division emerges relative to whether scholars argue for purely emotional ability based models of EI or whether they promote mixed models that integrate emotional and rational components of intelligence and personaloty (Walter et al., 2011). These mixed model approaches include any models which measure traits or broader competencies. Thus they are also sometimes referred to as trait models.

Supporters of ability-based models define emotional intelligence as an ability or set of abilities which determines ones effectiveness in dealing with emotion. Mayer and Salovey (1993), the primary advocates of this school of thought, defined emotional intelligence as, "a

type of social intelligence that involves the ability to monitor one's own and others' emotions, to discriminate among them, and to use the information to guide one's thinking and actions. The scope of emotional intelligence includes the verbal and nonverbal appraisal and expression of emotion, the regulation of emotion in the self and others, and the utilization of emotional content in problem solving" (p. 433). This model was later expanded to include four key behavioral components 'reflectively regulating emotions," "understanding emotions," "assimilating emotion in thought," and "perceiving and expressing emotion" (Mayer *et al.*, 2000, p. 269).

These models suggest that emotional intelligence should focus primarily, if not solely, on the purely emotional components of mind as a subcomponent of the broader concept of emotional intelligence. They argue that their perspective is grounded in sturdy scientific research and careful operationalization of the concept. Furthermore, they argue that "definitions of Emotional Intelligence should in some way connect emotions with intelligence if the meanings of the two terms are to be preserved" (Mayer & Salovey, 1997). Thus they suggest a close relation between emotional intelligence and Gardner's intrapersonal intelligence and have sought to establish EI as an intelligence (Gardner, 1983, 1999, 2004; Mayer et al., 2000; Mayer & Salovey, 1993). Walter et al. (2011) summarized many similar definitions from the ability-based perspective, offering that those who take this perspective hold a literal view of the term emotional intelligence. Thus they are concerned when emotional intelligence is "conceptualized (particularly in popular literature) as involving much more than ability at perceiving, assimilating, understanding, and managing emotions" (Mayer et al., 2000).

The mixed-model perspective argues that there is something missing from the definition offered by the ability-based models. They suggest that it is incomplete, or possibly lacking in depth. The mixed-model definition of emotional intelligence does not discriminate between

emotional intelligence and the broader concept of social intelligence, but combines them as one, Emotional-Social Intelligence (Bar-On, 2006; Bar-On *et al.*, 2007). As Bar-on (2007) explained, "People who are emotionally and socially intelligent are able to understand and express themselves, to understand and relate well to others, and to successfully cope with the demands of daily life. . . . to do this effectively, they need to manage emotions and be sufficiently optimistic, positive, and self-motivated" (p. 2-3). While Bar-On cites extensive research supporting the undeniable similarity of SI, and EI, .not all Mixed-model perspective enthusiasts endorse the same list of broader components of social intelligence, Nonetheless, these scholars extend the construct of emotional intelligence to include many of the human capacities and traits that draw heavily on emotional components of mind, as opposed to purely rational intelligence (Goleman, 1995, 2006; Goleman et al., 2002). Furthermore, Bar-On (2006) points out that even Mayor & Salovey (1990) initially saw EI as part of a greater social intelligence discussing the inclusion of "socially relevant attributes," and "personality styles" within the construct of a social intelligence, and called these conceptualizations "exciting and usefully" (p. 189).

Regardless of one's perspective regarding the appropriate definition of EI each approach of EI suggests that there are levels or steps to effectively understanding and using emotional intelligence. Furthermore, while there is stark disagreement about the process of achieving mastery in EI, there is a general consensus that the process begins with intrapersonal emotional understanding and ends with effective interpersonal emotional conceptualization and application. (Bar-On, 2006; Goleman, 1995; Goleman et al., 2002; Low & Nelson, 2006; Mayer et al., 2000; Mayer *et al.*, 2008). The following table summarizes the approaches of some of the more popular EI conceptual models.

Goleman (2002) Mixed-Model	Bar-On (2006) Mixed-Model	Low & Nelson (2006) Mixed-Model	Mayer & Salovey(1997) Ability-Model
Personal Skills (how we manage ourselves) • Self-awareness • Emotional awareness • Accurate self-assessment • Self-confidence 1) Self-regulation Managing one's internal impulses and resources • Self-Control • Trustworthiness • Conscientiousness • Adaptability • Innovation 2) Motivation: Emotional tendencies that guide or facilitate reaching goals • Achievement drive • Commitment • Initiative • Optimism Social skills (how we manage relationships) • Empathy • Understanding others • Developing others • Service orientation • Leveraging diversity • Political awareness 1) Social Skills Adeptness and inducing desirable responses in others • Influence • Communication • Conflict management • Leadership • Change catalyst • Building bonds • Collaboration & cooperation • Team capabilities	Intrapersonal: Self Awareness and expression • Self-regard • Emotional self-awareness • Assertiveness • Independence • Self-Actualization Interpersonal: Social awareness and interpersonal relationships • Empathy • Social Responsibility • Interpersonal Relationship Stress Management: Emotional management and regulation • Stress tolerance • Impulse control Adaptability: Change management • Reality testing • Flexibility • Problem solving General Mood: Self motivation • Optimism • Happiness	Relationship and Interpersonal • Assertion • Anger Management. • Anxiety Management Personal Leadership • Comfort/Social Awareness. • Empathy • Decision Making • Leadership/Positive Influence Self Management • Drive Strength • Time Management • Commitment Ethic • Positive Change Intrapersonal • Self Esteem: View self in positive, accurate, and successful ways.. • Stress Management: Manage stress and daily pressures of life/work.	Reflective regulation of emotions to promote emotional and intellectual growth • Stay open to feelings • Reflectively engage or detach from emotion • Reflectively monitor one's own and others emotions • Manage one's own emotions and others Understanding and analyzing emotions; employing emotional knowledge (self and other) • Label emotions • Interpret meaning • Understand complex feelings • Recognize transitions among emotions Emotional facilitation of thinking • Emotions prioritize thinking • Use emotion as aids to judgment and memory • Understand mood and perspectives relationship and manage mood and encourage multiple points of view • Use emotion states to manage problem solving approaches Perception, Appraisal, and expression of emotion • Identify one's emotions • Identify emotions in others • Express emotions accurately • Discriminate between accurate and inaccurate emotional expression

Emotional intelligence and leadership

Despite the contentious debates surrounding almost every aspect of Emotional Intelligence, an in-depth review of the literature suggests a strong relationship between EI and leadership. In Walter et. al's (2011) recent article discussing the relevance of EI to aspects of leadership, they discussed the existing research in three categories: leadership emergence, leadership behavior, and leadership effectiveness.

The first of these categories, leadership emergence, "represents the degree to which a person is perceived as a leader" (Walter et al, 2011). Bar-On (2004; 2006) used his EQ-i to study this on several different occasions, examining the correlation between peer nomination for leadership positions, criterion group membership into a leadership program, and multi-rater evaluations on leadership criteria. These studies indicated "that there is a moderate to high relationship between [EI] and leadership" emergence (Bar-On, 2006). In their more comprehensive review of the literature, Walter et. al, suggested that, "existing evidence has provided a rather consistent picture... all published articles support the notion that emotionally intelligent individuals are more likely to emerge as leaders" (2011).

The discussion of emotional intelligence in relation to leadership behavior has largely centered on transformational leadership behaviors (Walter et al., 2011). On the whole, Walter et al. found that most studies supported the positive correlation between EI and leadership behavior. Although, there were some studies which were inconclusive, and still others which had some reservations about necessary mitigating factors. They did go on to note though, that there were no studies in which there is not a link between EI and leadership behavior (Walter et al., 2011). Furthermore, the relationship appears particularly consistent in relation to

transformational leadership. This is likely a result of the important role charisma plays in the expression of transformational leadership (K. P. Anderson, 2005; Lussier & Achua, 2007; Northouse, 2004). In addition to transformational leadership behaviors, contingent reward behavior and passive leadership styles have also been examined for their correlation with emotional intelligence. Walter et al. concluded that, in contrast to the agreed positive relationship between EI and transformational leadership behaviors, there exist only mixed reports and inconclusive studies with respect to EI and other leadership behaviors (2011).

With regard to the relationship between emotional intelligence and leader effectiveness, there has been more obvious agreement and positive correlation (Mayer et al., 2004, 2008; Walter et al., 2011). Walter et al. explains that studies investigating this relationship have shown promising results. Both, ability-based EI tests, and mixed models tests have shown EI to maintain a positive relationship with managerial behavior, or in other words, leadership behavior (2011).

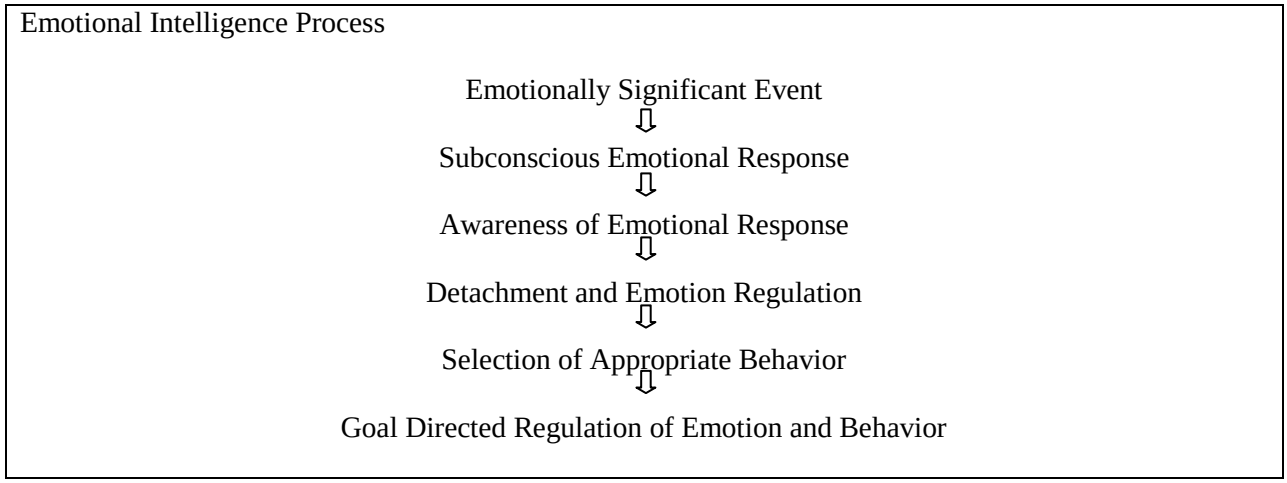
Application of EI in Leadership

As the research suggests, regardless of the approach one takes to studying and understanding leadership, many of the basic components of emotional intelligence are consistent across different models and appear to correlate significantly with various aspects of leadership emergence, behavior, and effectiveness. What is of most value in all of this, in relation to this article, is how these concepts are applied to the day to day practice of emotional intelligence.

Application of EI in Management and leadership

While the academic approach to the construct demonstrates a focus on the interpersonal and intrapersonal components of EI, as well as the positive and negative aspects of emotion, the emphasis of emotional intelligence practice and training tends to focus on the ability of the

individual to manage negative emotions (Feldman & Mulle, 2007; Goleman, 1995; Reynolds, 2004). In fact, in a reviewing multiple educational programs directed at promoting emotional-social intelligence, all of them place a significant emphasis on managing negative emotions or negative social-emotional behavior(Haynes, 2007; Zin *et al.*, 2007). Very few focus primarily on promoting positive emotionality. This emphasis likely stems from the focus in early studies of emotion on understanding fear and anger (LeDoux, 1996, 2002). Consequently, the typical process for engaging in and teaching emotional intelligence involves, first, recognizing that emotion begins to emerge within us prior to our conscious awareness of the emotion. Once we become aware of these emotions, typically referring to anger or fear, we have to relax and distance ourselves from these. It is suggested that we should then reflect on options for how to best act in relation to the situation by managing and redirecting our emotions to accomplish the ideal outcome (Feldman & Mulle, 2007; Goleman, 1995; Reynolds, 2004). Thus the process looks something like the following:



While this approach is both conceptually accurate and practically useful, it is our contention that it suffers from an overemphasis on the individual/intrapersonal elements of emotional intelligence and demonstrates a limited perspective of the utility of emotional intelligence due to

its emphasis on EI as a means of responding to negative emotions. Consequently, we argue that this practical model of EI and leadership suffers from the same bias that many traditional psychological models and processes have suffered from and that it would benefit from an injection of positive psychology.

Traditional vs. Positive Psychology

Psychology, as a formal discipline, is relatively young. Unlike its philosophical, medical, or legal counterparts who have centuries of disciplinary development, Psychology emerged and developed primarily within the last 200 years. Among the core drivers of its emergence was the need to discover and explain problematic behaviors of human beings. Thus psychologists from Freud, to Skinner, to Marx, and beyond were largely focused on correcting human flaws, though some research was admittedly conducted to explore human exceptionality (Rich, 2001; Seligman & Csikszentmihalyi, 2000). The need to respond to psychological abnormalities required the careful establishment of a means of identifying disorders and developing effective procedures for responding to them. As a result of these efforts, great strides have been made with regards to managing psychological disorders and helping people to overcome these. However, the best that these methods have to offer society is the ability to promote human normalcy, to liberate people from the realms of abnormal psychological disorder to a state of normal human functioning. This vision has not been sufficient for many psychologists who want to be able to accomplish more than helping people reach the statistical mean of psychological functioning.

In the post war years, much of psychological research became even more focused on addressing psychological deficits (Seligman & Csikszentmihalyi, 2000). However, some psychologists became involved in studying performance processes in business and in human society. Out of these efforts emerged the now famous Hawthorne studies, which proved that by

paying attention to performance and performers, these could be improved (Roethlisberger, 2001). Abraham Maslow followed suite with his work in the area of self-actualization in the workforce, as did other humanist scholars (Jorgensen & Nafstad, 2004; Maslow *et al.*, 1998; Rich, 2001). However, much of these early efforts to examine human excellence were not grounded in the same level of rigor as were their counterparts' deficit-based approaches. Unfortunately, less qualified scholars and practitioners took up the banner of humanistic psychology and established much of what is labeled self-help psychology.

Consequently, it was not until Martin Seligman published his work on learned optimism (an interesting counterpoint to his previous work on learned helplessness) and co-authored an article with Csikszentmihalyi (Seligman, 1990; Seligman & Csikszentmihalyi, 2000), that the field of positive psychology began to emerge. In this article, they laid the foundation for shifting the focus of psychological scholarship away from a primarily deficit-based approach to a more balanced approach. They also argued for the need to reclaim positive psychological scholarship from the self-help authors. As a framework for this new approach, they suggested the following:

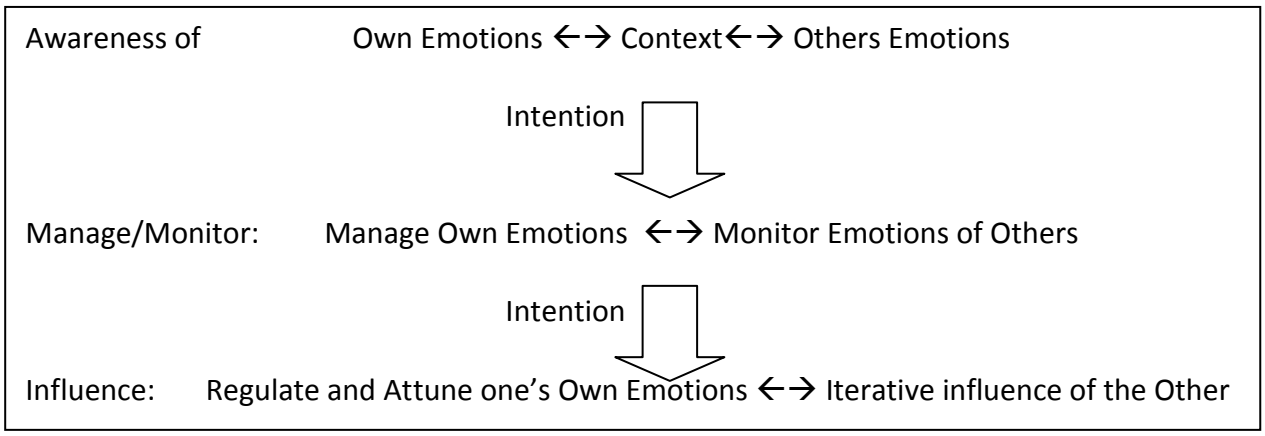
> The field of positive psychology at the subjective level is about valued subjective experiences: well being, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present). At the individual level, it is abut positive individual traits: the capacity for love and vocation, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, spirituality, high talent, and wisdom. At the group level, it is about the civic virtues and the institutions that move individuals toward better citizenship: responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic (p. 5)

As a result of Seligman, Csikszentmihalyi and other scholars interests in exploring, in a more rigorous and scientific way, the phenomenon of human excellence, countless studies and texts have been conducted and written addressing such topics as happiness, human strengths, flow, forgiveness, hardiness, optimism, love, and creativity, etc. (Bissonnette, 1998; Clifton & Anderson, 2001; Csikszentmihalyi, 1990, 1997; Ferch, 1998; Seligman, 1990, 1993, 2002, 2011; Seligman & Csikszentmihalyi, 2000; Sternberg & Weis, 2006; Woodward, 2004). As the body of positive psychology literature expanded, the world of organizational leadership and management took notice. As a result, publications on positive leadership and positive organizational scholarship have blossomed over the past few years (H. Anderson *et al.*, 2001; Boyatzis & McKee, 2005; Cameron, 2008; Cameron *et al.*, 2003; Cooperrider & Whitney, 2001; Cooperrider *et al.*, 2003; Goleman et al., 2002; Johnson & Leavitt, 2001; Luthans & Avolio, 2003; McClellan, 2007; Orem *et al.*, 2007; Quinn, 2004; Schiller *et al.*, 2002; Zenger & Folkman, 2002).

Included among the works of these scholars is a recognition that emotional intelligence and positive psychology and organizational leadership are interrelated (Salovey *et al.*, 2009). Multiple authors have recognized the importance of the power that positive emotions have, when used intentionally by leaders, to create a positive climate that leads to performance (Cameron, 2008; Goleman et al., 2002).Nonetheless, a formal model of how leaders can draw upon emotional intelligence to facilitate the relational contagion of positive emotionality is lacking. Consequently, we feel it is necessary to develop a theoretically grounded, practice oriented model for engaging in emotional intelligence that is positive in nature and relational as opposed to individual focused and deficit based.

Theoretical Model of Emotional Intelligence

Based on our review of the literature, we suggest that a practical model of emotional intelligence and management/leadership should be founded upon the recognition that emotional intelligence requires (1) awareness of one's own emotions, those of one's followers, and of the potential for emotion within a given context, (2) management of one's own emotions while simultaneously monitoring the emotions of others, and (3) influencing the emotions of others through synchronized, mutual emotional change to increase positive emotion and motivation (Bar-On, 2006; Goleman, 1995, 2011; Goleman et al., 2002; Mayer et al., 2000; Mayer et al., 2008; Shankman & Allen, 2008). The following diagram depicts this process:



The first component of the model, awareness of one's own emotions, those of one's followers, and of the potential for emotion within a given context, represents the neurological starting points for engaging in influence based on emotion. This is because all emotions begin with the awareness of and subconscious direction of attention towards a stimulus or emotionally significant event (as indicated in the earlier model) (Goleman, 2011). As LeDoux (2002) explained, "a feeling emerges as we become aware that our brain has determined that something important is present and we are reacting to it" (p. 206).

This process begins with sensory stimuli directed towards sub cortical areas of the brain. The traditional anger and fear oriented process then involves the channeling of this information from the sensory organs to the sensory thalamus which determines if the stimulus is threatening. If it is, the information is processed via a shortcut directly to the amygdale, which is later confirmed or overridden once the stimulus is fully processed via the sensory cortex. All of this neurological transfer of information occurs subconsciously. Thus it is only after emotion has impacted us physiologically, that we become aware of it consciously (Goleman, 1995; LeDoux, 1996, 2002).

This pathway explains the traditional, model of practical emotional intelligence, which involves recognizing these emotional responses and correcting them so as to avoid the negative impact of an errant emotional hijacking, which often occurs in leadership situations. It does not, however, accurately convey the more complex neuro-pathways associated with positive emotions.

> Suppose you unexpectedly see a person you care about. Suddenly you feel the love you have for that person. . . . First of all the stimulus will flow from the visual system through the brain to the point of the experience of love as best we can. First of all the stimulus will flow from the visual system to the prefrontal cortex (putting an image of the loved one in working memory). The stimulus also reaches the explicit memory system of the temporal lobe and activates memories about that person. Working memory then retrieves relevant memories and integrates them with the image of the person. Simultaneously with these processes, the sub-cortical areas presumed to be involved in attachment will be activated . . . Activation of attachment circuits then impacts on working memory in several ways. One involves direct connections from the attachment areas to the prefrontal

> cortex. . . . Activation of attachment circuits also leads to activation of brainstem arousal networks, which then participate in the focusing of attention on the loved one by working memory. Bodily responses will also be initiated as outputs of attachment circuits, and contrast with the alarm responses initiated by fear and stress circuits. We approach rather than try to escape from or avoid the person, and these behavioral differences are accompanied by different physiological conditions within the body. This pattern of inputs from within the brain and from the body biases us more towards an open and accepting mode of processing than toward tension and vigilance. The net result in working memory is the feeling of love. (p. 233-4)

Again, much of this occurs subconsciously. Just as negative emotions begin within us prior to our awareness of them, so too do positive emotions. Via the insula and the right somato-sensory insular cortex, the brain facilitates awareness of the emotional experiences. In this way one becomes aware of one's own emotions (Goleman, 2011). Once awareness occurs, the recognition of emotion leads to either reinforcement or restriction under the influence of the anterior cingulated and prefrontal cortex(Goleman, 2011). However, one can also become aware of emotion vicariously through others or as a result of cognitively recognizing the potential for emotion in a context, thereby triggering the experience of emotion.

In relation to the first vicarious process, our own emotion occurs not as a result of contact with the original stimulus but rather via the emotional responses and conscious and subconscious behaviors of others. These behaviors become the source of stimulus and foster empathic emotional responsiveness, which "may be processed via two pathways. The sub cortical route is believed to be quick and reflexive and to encompass contagious forms of empathy, whereas the cortical route is likely slower and probably corresponds to cognitive forms of empathy"

(Eisenberg & Eggum, 2009, p. 73). The sub cortical route recognizes and reflects the emotion of others through mimicry, feedback, and mirror neurons (Hatfield *et al.*, 2009) and pheromones (Buck & Ginsburg, 1997).

Regarding mimicry and feedback, Hatfield (2009) explained," people's emotional experience is affected, moment to moment, by the activation of and/or feedback from facial, vocal, postural, and movement mimicry" (p. 22). Thus, "people tend to automatically mimic the facial expressions, vocal expressions, posture, and instrumental behaviors of those around them, and thereby feel a pale reflection of others' emotions as a consequence of such feedback. The result is that such people tend to catch one another's emotions" (p. 26).

Mirror neurons represent a second means of fostering emotional contagion. These neurons allow an individual to experiences similar neuronal firing within the brain to that of a person who is actually involved in some behavior, even when the subject is not so engaged. Consequently, the observer vicariously experiences the emotions, movements, and intentions of the other. (Goleman, 2011; Hatfield et al., 2009; van Baaren *et al.*, 2009; Watson & Greenberg, 2009). When complemented by conscious reflection on the emotional state of the other, emotional contagion and empathy are amplified (Batson, 2009; Nickerson *et al.*, 2009)

Pheromones also trigger emotion in others as a subconscious source of emotional stimuli (Buck & Ginsburg, 1997). By fostering emotional responses in an observer, these, in company with the other vicarious neuro-processes, contribute to emotional awareness. It is worth reiterating, however, that these process are subconscious and concurrent. Furthermore, the means whereby one becomes aware of these emotional signals is via the same neuro-pathways as one becomes aware of one's own emotions. Therefore, without use of conscious imaginative processes and feedback, error can occur in empathic accuracy (Goleman, 2011).

The final method of achieving emotional awareness occurs when an individual uses conscious imagination, as opposed to subconscious primal, processes to identify emotional potential in a given context. Thus a supervisor can recognize the potential for emotional arousal in an upcoming meeting by reflecting on the people involved, the topics to be addressed, and the history of the group. Note that this imaginative process does not involve interaction with the actual stimuli or another person, but rather involves purely cognitive creation of a stimulus.

Any or all of these forms of awareness represent a significant procedural, neurological starting point for engaging emotions in relation to leadership. Regardless of the form of emotional awareness one draws upon first, it opens ones potential awareness to the other areas via emotional contagion, intrapersonal awareness, and innate empathic processes (Bechara *et al.*, 2007; Buck & Ginsburg, 1997; Decety & Ickes, 2009; Ekman, 2007; Goleman et al., 2002; Hatfield *et al.*, 2009; LeDoux, 1996; van Baaren *et al.*, 2009; Watson & Greenberg, 2009). Thus, for example, recognizing a situation as potentially emotional in nature opens ones awareness to one's own and other's emotions.

When this awareness occurs as part of an intentional leadership effort, this leads one to manage one's own emotions, while maintaining openness to and awareness of any changes that altering ones emotions might have on those being led (Goleman et al., 2002). This is the second stage of the model. Leaders, due to their position of power, naturally draw the attention of followers and thus have disproportionate influence on the emotions of followers via the processes discussed previously (Goleman, 2011; Goleman et al., 2002). Furthermore, the emotional climate created by leaders significantly impacts follower performance (Bagozzi, 2003; Cameron, 2008; Goleman et al., 2002; Seligman, 2011). Consequently, leaders, once they become aware of their emotional state, whether positive or negative, need to reflect on the

impact that state will have on followers and intentionally alter their own mood so as to appropriately influence their followers. Positive emotions associated with mindfulness, hope, and compassion are particularly relevant in leadership (Boyatzis & McKee, 2005). Thus even when the emotion experienced is negative, such as fear or anxiety, the leader can temper these with hope and compassion.

As leaders alter their mood to fit the needs of the situation, they should simultaneously monitor their own and others emotions as a means of determining how their efforts to manage their own emotions are impacting those they lead. If leaders become too self oriented at this stage, they may alter their own mood but lose their influence capacity. This is likely to occur if their own increased positivity does not resonate with followers. As Gardner (1995) taught, leaders influence others by telling stories that resonate with followers. Such stories are similar enough to the stories followers already espouse in order to promote mutual identification, but different enough to inspire change without dissonance. Stories include not only the linguistic, but also the nonlinguistic resources, such as emotion, that leaders use "to communicate, and to convince others, of a particular view, a clear vision of life" (p. 43) Furthermore, "The argument that carries the day may well be the one that exerts the strongest affective appeal, rather than the one that triumphs in debating points" (p. 48). Thus, leaders must be careful to monitor the emotions of others as they manage their own emotional responses via the traditional emotional management process.

The final stage in the model builds on and extends the second level. This process of self-management combined with intentional planning for leadership leads one to engage in a process of attuning ones emotions to those of the follower. The leader does so to create resonance without causing transference, which would cause the leader to become overpowered by the

emotions of others (Decety & Ickes, 2009). This is followed by an iterative process of increasing one's own positive emotionality in such a way that it influences the other in order to facilitate the leadership process (Goleman, 2011; Goleman et al., 2002). This iterative relational process involves incremental shifts in one's own emotion and the communication of that emotion to the other as a means of amplify the others positive state through emotional contagion and other verbal and nonverbal forms of communication (Buck & Ginsburg, 1997; Ekman, 2007; Hatfield et al., 2009; Watson & Greenberg, 2009). It is essential that such emotional intercommunication is managed carefully so as to continue to resonate and not alienate followers (Gardner & Laskin, 1995), as sometimes occurs when one's positive emotion annoys as opposed to inspires the other. Through this iterative, relational process leaders use emotion to increase their ability to motivate, inspire, and influence followers in an interpersonal manner that takes into consideration both the need to overcome negative emotions as well as the power associated with promoting positive emotions.

Conclusion

Emotional intelligence and leadership represent two ideas whose value in our modern society is both tremendously significant and deeply interconnected. Consequently, it is imperative that theorists and educators have access to working models of how emotional intelligence and leadership can be practiced within relational contexts with a focus not only on managing negative emotions, but also on promoting positive emotional/organizational climates. In this paper proposal we summarized just such a model (the discussion of this model and the underlying theory is more in-depth in the full paper as is the literature review). It is hoped that it will be useful to scholars, educators, and practitioners of management and leadership alike.

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LEADERSHIP STYLES AND ORGANIZATIONAL COMMITMENT TYPES

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ABSTRACT

This paper reports the results of an examination of the relationship between two basic leadership styles and three forms of organizational commitment for a sample of 246 non-managerial employees. The research question examined in this study asked if a "people friendly" (consideration) leadership style was positively related to increased levels of desirable forms of organizational commitment. The patterns of results from this analysis suggest that contrary to the popular myth, consideration type leader behaviors are not more strongly correlated with moral commitment than are initiating structure type behaviors. However, the difference is relatively small.

INTRODUCTION

The purpose of this paper is to report the results of an examination of the relationship between basic leadership styles and organizational commitment for a sample of 246 non-managerial employees. Over the past several decades, public interest and a stream of management literature focused on quality of work life programs, team work and team building, along with high commitment human resource management practices. Society generally holds the belief that more "people friendly" leadership is required to maximize not only organizational commitment but also other job attitudes as well. The question for researchers is whether or not the social perceptions are accurate. In this study, we examine relationships between two leadership styles-- initiating structure leadership and consideration leadership and three forms of organizational commitment-- moral commitment, alienative commitment, and calculative commitment. The research question addressed in this research project is whether the leadership style makes a difference in organizational commitment. Does a "people friendly" leadership style result in subordinates who are more committed to the organization?

BACKGROUND

Leadership Styles

One definition of leadership is the exercise of influence by one member over other members to help in the accomplishment of group or organizational goals. There is a commonly held belief that leaders "make a difference" and that they can have an effect on individuals, groups, or entire organizations. When things go right, the leader gets the credit; when things go wrong, the leader gets the blame. Leader effectiveness is measurement of the extent to which a leader helps the group or organization achieve its goals.

Researchers have tried to answer the question of why some leaders are more effective than others. The leader behavior approach focuses on what leaders actually do; that is, the specific behaviors performed by effective leaders as opposed to ineffective leaders. The behavior approach sought to identify the leader behaviors that aid individuals, groups, or organizations in the achievement of their goals. From multiple research studies, two categories of the leader behaviors were identified-- consideration and initiating structure. Consideration behaviors show that the leader trusts, respects, and values good relationships

with the subordinates. Examples of a leader's consideration behavior include being friendly, treating subordinates as equals, and providing an explanation for his or her actions. Initiating structure behavior are those behaviors done to make sure the work gets performed and that subordinates do their jobs adequately. Setting goals, determining a strategy to reach those goals, delegating tasks to subordinates, and urging subordinates to do those tasks would be initiating structure behavior. Consideration behaviors and initiating structure behaviors are not mutually exclusive, but rather are complementary because leaders engage in both types and are also independent of each other. Consideration behaviors would be the "people friendly" style of leadership; whereas initiating structure leadership would be more concerned with getting the job done.

Organizational Commitment

Most researchers accept that organizational commitment represents both an attitude that describes an individual's linkage to the organization and a set of behaviors by which individuals manifest that link. Several studies have used the model of commitment developed by Meyer and Allen (1997) that identifies three components of commitment – affective, continuance, and normative.

According to Meyer and Allen, affective commitment "…refers to the employee's attachment to, identification with, and involvement in the organization." Continuance commitment "…refers to an awareness of the costs associated with leaving the organization." Normative commitment "…reflects a feeling of obligation to continue employment (p. 11)." "Employees with a strong affective commitment continue employment with an organization because they want to do so. Employees whose primary link to the organization is based on continuance commitment remain because they need to do so. Employees with a high level of normative commitment feel that they ought to remain with the organization (p. 11)."

The model of commitment chosen for this study was developed by Penley and Gould (1988) and takes a slightly different approach from the Meyer and Allen model. Based on Etzioni's (1961) multiform conceptualization of organizational involvement, Penley and Gould endorse that an individual's commitment to an organization exists in both affective and instrumental forms. One can be morally committed, calculatively committed, or alienatively committed to an organization.

Moral commitment is described as a highly positive affective form characterized by acceptance of and identification with organizational goals. Calculative commitment is an instrumental form essentially focused on one's satisfaction with the exchange relationship**.** Calculative commitment may best be described as "supporting the organization to the extent that it supports you" (Hatton, C., Rivers, M., Mason, H., Mason, L., Emerson, E., Kiernan, C., Reeves, D. & Alborz, A., 1999). Alienative commitment is described as a highly negative affective form that is a consequence of a lack of control over the internal organizational environment and of a perceived absence of alternatives. Employees who express alienative commitment continue to engage in work behaviors that indicate a desire to continue their membership in the organization. In essence, they ensure their work performance meets at least the minimal standards, and their interaction with managers and co-workers communicates that they do not want to leave.

Conceptually, Penley and Gould's (1988) moral and calculative commitment appear similar to affective and continuance commitment as defined by Meyer and Allen (1997). However, alienative commitment does not appear to be conceptually similar to any of the forms of commitment described by Meyer and Allen. As defined by Penley and Gould, alienative commitment suggests an external locus of control, a sense of powerlessness on the part of the employee, and a lower level of engagement in the work role. The Penley and Gould model seems to measure both positive and negative forms of affective organizational commitment that does not appear possible with other models. This allowance for

variability in the nature (positive or negative) of a person's commitment could provide a richer understanding of organizational commitment.

Alienative commitment could be considered similar to work alienation. Kanungo (1992) defined work alienation as "a cognitive separation from one's job and other related contexts, a sense of frustration and the accompanying negative affect, resulting from the perceived failure to achieve one's objectives through job and organization related behaviors, and a manifest state of apathy (p. 2)." Kanungo (1992) reports that work alienation "is associated with job dissatisfaction, job stress, anxiety, and depression . . . and is manifested by low productivity, low morale, high absenteeism, and turnover (p. 2)." Hirschfeld, Feild, and Bedeian (2000) provide support for the value of considering work alienation as an individual difference construct worthy of testing. These authors report that work alienation explained a relatively small but significant additional variance in job involvement, affective organizational commitment, affective occupational commitment, overall job satisfaction, and volitional absence. This result is in line with the suggestion by Aube, Rousseau, and Morin (2007) that continuance (alienative) commitment is less desirable from a manager's standpoint that affective (moral) and normative commitment (p. 481).

Organizational commitment may be considered one of the most critical of employee workplace attitudes. Commitment has been linked to several important organizational outcomes including performance, absenteeism, turnover, and satisfaction, as well other outcomes such as felt job stress, and perceptions of management's commitment to safety (e.g., Hunter & Thatcher, 2007). Organizational commitment has been found to be positively related to effort (DeClercq & Ruis, 2007). Moss, McFarland, Ngu, and Kijowska (2007) report that openness to experience reduced perceived obligation to remain loyal (moral commitment), but the association was reduced as resources became more accessible.

Leadership and commitment have been linked in the research literature previously. Hulpia and Devos (2010) found that secondary school teachers "reported being more strongly committed to the school if the leaders were highly accessible, tackled problems efficiently or empowered teachers to participate, and frequently monitored teachers' daily practices." Leach's study (2005) of nurse executives, nurse managers, and staff nurses found an inverse relationship between nurse executive transformational and transactional leadership and alienative commitment.

METHOD

The sample for this study consisted of employees working in a large southern city. Respondents included the following groups: employees of the headquarters staff of a division of a multinational company, employees of regional production plants from two national consumer products corporations, employees of a multinational chemical firm, and employees of a regional financial services company. Questionnaires along with cover letters and addressed, postage-paid return envelopes were distributed through company mail to 640 potential study participants. Completed questionnaires were mailed directly to the researchers. Usable responses were received from 354 individuals for a response rate of 55 percent. The mean age for the sample was 36 years, with 66 percent being male, 77 percent being white, and 22 percent being non-white. The education levels were as follows: (40 percent) college graduates, (11 percent) graduate degrees, (29 percent) completed some college, and (19 percent) high school graduates or less. The mean tenure with the current employer was 8 years, in the current job was 4.5 years, and with the supervisor was 2.3 years. For this study, only the 246 non-managerial respondents were included in the analysis.

Leadership style was measured using a short form of the Leader Behavior Description Questionnaire XII (LBDQ XII) Stogdill, 1963 (Cook, Hepworth, Wall, & Warr 1981). Two subscales were selected for measurement: Initiating Structure (10 items), and Consideration (10 items). The original scale used a five-point response format. For this study, a seven-point scale (1 strongly disagree to 7 strongly agree)

was used. A sample initiating structure item is: "Maintains definite standards of performance." A sample consideration item is: "Looks out for the personal welfare of group members."

Organizational commitment was measured using the Organizational Commitment Scale developed by Penley and Gould (1988). The Penley and Gould scale is a 15-item seven-point scale (the anchors ranged from 1 strongly disagree to 7 strongly agree) that measures organizational commitment on three dimensions: moral, calculative, and alienative. All three dimensions of commitment are measured using subscales consisting of five items. Scores for moral, alienative, and calculative commitment are calculated as the average rating across the five items for each of the three dimensions of organizational commitment. An item for moral commitment is: "I feel it is my duty to support this organization." A calculative commitment item is: "I will give my best when I know it will be seen by the 'right' people in this organization." An alienative commitment item is: "I feel trapped here." Coefficient alphas for the three sub-scales were moral commitment, .85; alienative commitment, .84; and calculative commitment, .65. Penley and Gould (1988) reported coefficient alphas of .80 (moral), .82 (alienative), and .67 (calculative).

The research question asked by this study (Does a "people friendly" leadership style result in subordinates who are more committed to the organization?) was examined using correlation analysis.

RESULTS AND DISCUSSION

The results of our correlation analysis are reported in Table 1. To a large extent, the results are consistent with what one might expect given that leadership behaviors are not mutually exclusive, are complementary, and independent. Both initiating structure and consideration leadership behaviors are positively correlated with moral commitment ($r = .40$, $p = .000$ for initiating structure; and $r = .36$, $p = .000$ for consideration). Both types of leader behaviors were also negatively correlated with alienative commitment ($r = -.323$, $p = .000$ for initiating structure; and $r = -.337$, $p = .000$ for consideration). Neither initiating structure nor consideration was correlated with calculative commitment. However, calculative commitment was positively correlated with moral commitment ($r = .144$, $p = .024$). Finally for this sample, initiating structure and consideration leadership were positively correlated ($r = .619$, $p = .000$).

The patterns of results from this data analysis suggest some interesting possibilities. Contrary to the popular myth, consideration type leader behaviors are not more strongly correlated with moral commitment than are initiating structure type behaviors. However, the difference is relatively small (.04). It may be that non-managerial employees value leadership behavior that contributes to environmental certainty and clarity concerning standards and expectations more highly than the engagement which is the heart of consideration type leadership and is inherent in today's high commitment human resource practices.

The strong negative correlations between both types of leadership and alienative commitment are also interesting. The larger impact for consideration type leadership may be an indicator of the importance of leadership designed to encourage or enhance interpersonal engagement. Alienative commitment may indicate not only feelings of frustration and lack of control as suggested by Penley and Gould, but also a sense of emotional detachment on the part of the employee. By providing leadership intended to provide clarity of expectations and leadership intended to encourage interpersonal engagement, leaders may be filling gaps in expectations for alienatively committed followers.

The positive relationship between calculative commitment and moral commitment is an unexpected outcome. From a leadership perspective, this result may point to the importance of met expectations in developing and in sustaining positive emotional forms of commitment. Past research suggested that the

extent to which individual's expectations about the nature of their relationship with the organization were met were important precursors for affective forms of organizational commitment.

Taken as a whole, the results of this study support the importance of leadership in developing important employee attitudes. Our results point out the value of both broad types of leader behavior to the development of organizational commitment. To a small extent, our results raise a question regarding the primacy of consideration type leadership embodied by "high commitment" human resource practices. It may be that what rank and file employees are seeking is a good combination of both direction and clarity and the social-relationship components of leadership. Managers should recognize that more than one form of leadership may be required to achieve success.

Table 1
Correlations

		Initiating Structure	Consideration	Moral Commitment	Alienative Commitment	Calculative Commitment
LBDQ: Initiating Structure	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	243				
LBDQ: Consideration	Pearson Correlation	.619**	1			
	Sig. (2-tailed)	.000				
	N	239	245			
Moral Commitment	Pearson Correlation	.400**	.359**	1		
	Sig. (2-tailed)	.000	.000			
	N	242	244	250		
Alienative Commitment	Pearson Correlation	-.323**	-.337**	-.581**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	239	241	246	247	
Calculative Commitment	Pearson Correlation	.112	.045	.144*	.014	1
	Sig. (2-tailed)	.085	.484	.024	.832	
	N	238	239	244	242	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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LEADERS' SKILL OF INNOVATION AND RELATIONSHIP TO PREFERENCES FOR HANDLING RISK & UNCERTAINTY

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ABSTRACT

Intrapreneurship, or entrepreneurship inside of an organization, has had a rich history in literature (Pinchot, 1984). The qualities (Honig, 2001; Seshadri & Tripathy, 2006; Amo & Kolvereid, 2005,) and context (Feyzbakhsh, Sadeghi & Shoraka, 2008; Willison, 2006; Amo, & Kolvereid, 2005; Koen, 2000) supporting intrapreneurs in an organization have been well studied. A goal of intrapreneurship is to increase the innovativeness of organizations (Luchsinger & Bagby, 1987). Given that this research and call for intrapreneurs began in the 1980s, and the high amount of innovation that has been incorporated into organizations (especially technological innovation, Howell & Higgins, 1990), it seems that acting entrepreneurially within an organization is useful for organizations. This paper examines the relationship among a leader's style with regard to innovation, risk, and product innovation. The questions and provides an answer based on several organizations found in the southwestern part of the United States.

INTRODUCTION

Entrepreneurship inside of an organization or intrapreneurship has been around for over a quarter of a century (Pinchot, 1984). Several scholars have looked at the qualities of a successful entrepreneur (Honig, 2001; Seshadri & Tripathy, 2006; Amo & Kolvereid, 2005,) and the context that supports having intrapreneurs in an organization (Feyzbakhsh, Sadeghi & Shoraka, 2008; Willison, 2006; Amo, & Kolvereid, 2005; Koen, 2000). The general goal of implementing intrapreneurship was to increase the innovativeness of organizations enabling them to be successful (Luchsinger & Bagby, 1987). Given that this research and call for intrapreneurs began in the 1980s, and the high amount of innovation that has been incorporated into organizations (especially technological innovation, Howell & Higgins, 1990), it seems that acting entrepreneurially within an organization is useful for organizations. Indeed, one model of leadership and managerial behaviors, the competing values framework, has being innovative as a descriptor of a master manager (Quinn, Faerman, Thompson, & McGrath, 2003).

Have the behaviors of the intrapreneur migrated into our expectations of what it means to be a leader within an organization? If the answer to this question is yes, then there are a number of interesting questions to ask. Are there any differences between a leader's skill set with regard to innovation and, say, a professional's approach to innovation? Intrapreneurs are risk takers. When we look at leaders with a skill set related to innovation, are they also risk takers? Are there any differences between the risk taking preferences of a leader with high innovation and those with low innovation? This paper examines these questions and provides an answer based on several organizations found in the southwestern part of the United States.

We begin by detailing the qualities of innovation as a skill of a master manager as proposed by the competing values framework. We follow this by reviewing some of the qualities of an intrapreneur especially those related to risk and innovativeness. A framework for risk orientation called entrepreneurial conation is summarized from the literature. After detailing our hypotheses, we present our methods and results. We conclude with a discussion about our findings and their implications for our understanding of leaders, organizations, and intrapreneurs.

LEADERS & INNOVATION

We choose to use the term "leaders" to refer to those organizational employees that are in formal positions of leadership or management no matter the level in the hierarchy that they are populating. While we acknowledge that there are those who will argue that managers and leaders are not the same thing (beginning with Zalenik, 1977), we are taking the balanced perspective that argue they are at least complementary (Bass, 1985, Kotter, 1990, Black, Oliver, Howell & King, 2005). As a reflection of this perspective and explicitly building on existing literature, we will base our summary of leaders and innovation on the competing values framework (CVF) (Quinn et al., 2003). We chose this framework because it explicitly includes elements that may traditionally be associated more with one or the other between leader behaviors and managerial behaviors.

CVF assembles eight managerial roles that a master manager can successfully handle even when they may cause cognitive dissonance. The four roles are: Mentor, Facilitator, Producer, Director, Coordinator, Monitor, Broker & Innovator (Quinn et al., 2003). Subsequent scholars have demonstrated the validity of the operationalization (Denison, et al., 1995) and found that effective leaders are associated with higher skill levels in the behaviors associated with each of the roles (Hart & Quinn, 1993; Hooijberg, 1996). Thus, part of being one of the best managers is being innovative which is also integral to being an intrapreneur.

Other common attributes between managers and intrapreneurs include having effective communication skills (presentation, oral and written), good organizing skills, sound interpersonal skills, quick responses but being goal oriented and resourceful (Davis, 1999). Personally, both manages and intrapreneurs are smart high achievers who are approachable optimistic and resourceful (Davis, 1999). An interesting attribute in the light of more recent corporate scandals is that both are ethical (Davis, 1999). Perhaps not so surprising given the most recent recession is that both can handle stress and are willing to take well-calculated risks (Davis, 1999).

INTRAPRENEURS

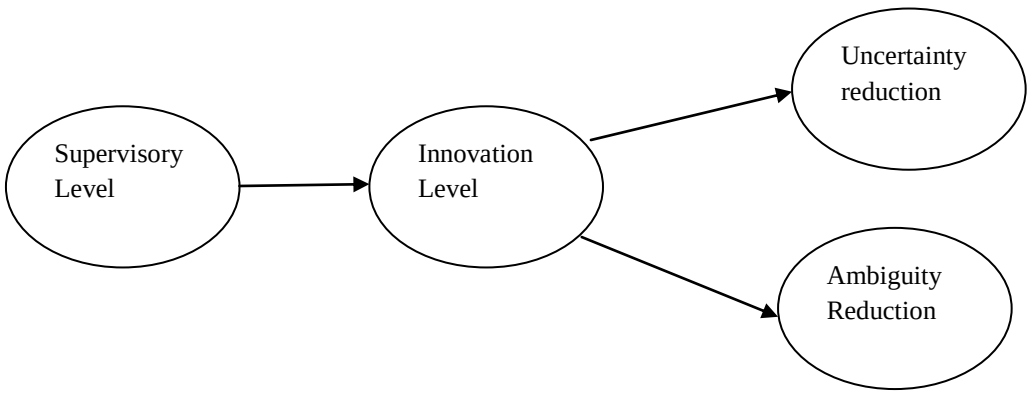
While in 1999 there was a lot in common between leaders and intrapreneurs, at that time some scholars also found differences. Unlike administrative managers, intrapreneurs tend to be visionary with a sense of urgency and unconventional innovative with creativity and resilience (Davis, 1999). Added to the previous list was being sensitive to the current corporate culture with respect to starting new ventures and establishing a supportive network within the corporation (Koen, 2000, Honig2001). Because of the focus on innovation within a corporation, the intrapreneur is expected to have creativity, as mentioned above, but to also bring the project to a successful conclusion (Luchsinger & Bagby, 1987). The intrapreneur tends to problem solve

to effect change and innovation (Luchsinger & Bagby, 1987) in a social environment and thus also has the potential for high levels of ambiguity (Czernich, 2003).

Even more recently, this idea of intrapreneurs being idea generators and nurturers to successful implementation is confirmed (Seshadri & Tripathy, 2006). When we realize that contrary to most risk adverse perspectives of established organizations, the intrapreneur is expected to promote risky ideas that may only tangentially relate to the firm's established base, it is evident that the intrapreneur must be not only persuasive but dedicated and persistent. This persuasive aspect is linked to the intrapreneurs' ability to frame the entrepreneurial idea so that is can be accepted by the corporation (Czernich, 2003). This does not mean that the ideas being promoted or the proposed new venture is certain to succeed; on the contrary, they are highly risky and often fail (Czernich, 2003). Thus, the ability to take action in the face of risk is important and integral to the intrapreneurial focus.

Intrapreneurs were, then, organizational members who arise from the general population of employees in response to corporate innovation initiatives (Amo & Kolvereid, 2005). They are given a corporate culture in which they engage in relatively low risk entrepreneurial activity since they have room to fail but still remain employed (Seshadri &Tripathy, 2006). Since the conditions which sparked the interest in intrapreneurship have not dissipated but rather intensified (global competition, ongoing technology innovation and so forth), innovation behaviors found in both intrapreneurs and leaders remain an important area of research.

Model



INNOVATION AND LEADERS

Some have found that managers in the United States of America have been shown to be a laggard in innovation (Latta & Twigg, 2008). This lag suggests either markets are not as receptive to U.S. innovations as business leaders might think, transformational leaders are not as effective as thought in fostering successful innovation, or the leaders just don't have innovation skills. A leader tends to engage in coaching, mentoring, and facilitating the work of others; whereas, a manager engages in planning, directing, organizing, and controlling (Bass & Riggio, 2006; Twigg, 2008). Neither of these styles of leadership explicitly includes a focus on innovation.

In the classical view, organizational innovativeness includes two sources; innovation (Baker & Sinkula, 2009) and product innovativeness (Wang & Ahmed, 2004) as strategies to improve an organization's effectiveness. Intrapreneurs, on the other hand, are responsible for much larger scale innovation (Czernich, 2003). Innovation requires a break with in status quo of the culture, processes, developments, and delivery of products and services (Baker & Sinkula, 2009) to have any success in the innovative initiative. Leaders thus need to be supportive of divergent thinking. Supporting change and innovation thus becomes an important part of the leadership's tool set when striving for increased innovation within a firm.

Therefore, if we expect that the innovative expectations embodied by an intrapreneur have become embedding in the general construct of what it is to be a leader; then we anticipate that it is found in this dimension of innovation as posited by the competing values framework. By definition, a top performing manager will have high levels of innovation behaviors; however, we would anticipate that in general, given the current conditions faced by U. S. businesses that a transactional leader (one with skills high in planning, directing, organizing and controlling) will also have relatively high levels of innovation skills.

H1) *Individuals in a leadership position with high transactional skills will have higher innovation skills than those with high transformational skills.*

RISK TAKING AND LEADERS

Innovation can be defined as an idea, practice, or object viewed by a market, a business, or an individual as new. Innovation implies risk. A transformational leader challenges followers through intellectual stimulation to challenge assumptions and take risks (Bass & Riggio, 2006; Judge & Piccolo, 2004). Questioning the status quo is a basic prerequisite for creativity and innovation. Being willing to put something out for the market to judge is an example of risk taking. Addressing a problem in a new way is another example.

Rogers (2003) postulated that there are individual members of a social system who are predisposed to be innovative and will adopt an innovation sooner than those who are not. The tendency of members of a social system to adopt innovations was classified into five categories according to the amount of time passing from innovation availability to adoption: 1) Innovators (2.5%), 2) Early Adopters (13.5%), 3) Early Majority (34.0%), 4) Late Majority (34.0%), 5) Traditionalists (16.0%). The proportion of members of a social system falling into each of these categories appears in parentheses above. Note that Rogers' label for the fifth category is actually Laggards, but Traditionalists has been used in prior research at the behest of research participants (Latta & Twigg, 2008). At one end are the risk takers or pioneers who adopt innovations early; while, at the other end are those who resist adopting innovations for a long time, if they ever adopt.

These categories of market adoption have a mirrored side with the entrepreneurial endeavor offerer (typically an entrepreneur but in this instance the intrapreneur and by extension the leader) willingness to proffer market innovations called entrepreneurial conation (Berry, 1996; Black & Farias, 2005). Conation means the volition to take action (Berry, 1996). Entrepreneurial conation means the volition to take entrepreneurial action. This latter category is based on each entrepreneurial entity's action taking preferences with regard to ambiguity and uncertainty (Black & Farias, 2000). At the market level, an investigation of new businesses reported in popular entrepreneurial magazines like *Inc. and Entrepreneur* showed that the

majority reported at this national level were oriented to preferring to deal with high levels of uncertainty across all levels of ambiguity.

Ambiguity and uncertainty were conceived of as separate dimensions. One dimension had ambiguity reduction as a preference and the other had uncertainty reduction as a preference (Black & Farias, 2000). Those with high levels of ambiguity reduction preferences are those that respond favorable to the idea of "defining the problem or market structure". Moderate levels are those that respond to "modify or redefine the problem or market structure". Those with low preference levels of ambiguity reduction prefer to "adopt the existing problem or market structure". Those three levels with uncertainty reduction have the corresponding orientations of "proactively seek ways to solve the problem", "react to other's attempt to solve problem", "maintain the status quo". These in combination fit nicely with Roger's five categories but are at the individual level. At the market level, an investigation of new businesses reported in popular entrepreneurial magazines like *Inc. and Entrepreneur* showed that the majority reported at this national level were oriented to preferring to deal with high levels of uncertainty across all levels of ambiguity (Black & Farias, 2005). Local organizations found from examining local newspapers were found in all levels of uncertainty reduction preferences and low to moderate levels of ambiguity reduction but rarely found in high levels of ambiguity reduction (Black & Farias, 2005).

Recognizing that many organizations that supported intrapreneurship were also larger national and international organizations, we expect that our expectations of leaders would more closely reflect those found in these larger organizations. Thus, we believe that leaders with higher levels of innovation will have high levels of uncertainty reduction but a variety of ambiguity reduction levels.

> **H2A)** *Leaders with high innovation scores will also prefer taking action in conditions of high uncertainty (high uncertainty reduction scores of 5 or greater).*

Alternatively, those new ventures reported in national magazines may have been chosen for their "radical" nature. In which case, there may be a pattern that more closely resembles those found in local publications. In this case, we expect that the main pattern would be a lack of high ambiguity reduction preferences.

> **H2B)** *Leaders with high innovation scores will have a pattern of preferring to take action in conditions of low to moderate levels of need for ambiguity reduction (average of low and moderate ambiguity reduction preference scores that are 5 or higher).*

METHODS & RESULTS

Sample

Leaders from a county government, the nursing division of a hospital, and from privately owned utilities in the southwestern part of the United States were surveyed from 1999 through 2001. There was a response rate of 84.69% with 83 of 98 solicited questionnaires returned.

Procedure

A pencil and paper questionnaire was given to selected participants to complete during work hours or an emailed link to the site where the questions are be located was used to distribute the questionnaires. Completed questionnaires and paper versions of declined to participate were gathered in a locked submission box located in the staff cafeteria areas of the larger organizations. The leaders of smaller organizations were emailed the link to the online questionnaire. Submissions were dropped directly into the database upon completion of a section of the questionnaire.

Variables

The main variables included in the model were measured with well established multi-item scales that exhibited good psychometric properties (Dennison, Hoojberg & Quinn, 1995; Black & Boal, 1997; Black & Farias, 2005). Responses to all items were made on 7-point Likert scales (1=strongly disagree to 7=strongly agree) or converted to a 1 to 7 scoring. This means that a neutral response was possible.

Leadership position. This questionnaire was only administered to those the organization had identified as being supervisors, managers or administrators.

Transformational Leaders. These leaders are defined as those with high leadership skills in the competing values framework of Mentoring and Facilitating (which include coaching behaviors). This will include all leaders with a score of 5 or better on either mentoring or facilitating scales.

Transactional Leaders. These leaders are defined as those with high leadership skills in the competing values framework of producer, director, coordinator and monitor. Again, given the tendency to award one's self with credit, the average score was above 5 so we used those who scored 1 standard deviation above the mean for each area. This resulted in 10 transactional leaders identified.

Innovation. This variable was measured by the innovation scale from the competing values framework. The scale has three subscales: leading change, leading innovation and implementing change.

Uncertainty reduction. This variable was measured by the entrepreneurial conation preference scale. It consists of the identification of the preference to handle three business issues with respect to simply solving well-understood issues at a project, strategic business unit, or company level.

Ambiguity Reduction. This variable was measured by the entrepreneurial conation preference scale. It consists of the identification of the preference to handle three business issues with respect to making sense of or engaging in business activities in spite of a lack of full specifications at a project, strategic business unit, or company level.

Descriptive Statistics

Table 1 shows basic statistical information about the variables. This particular sample has more people scoring high on transformational leadership skills than on transactional leadership skills either in

an absolute sense or in a relative sense. There appears to be sufficient variation to support additional analyses.

Table 1: Statistical Profile of Variables			
Variable	**Number of Responses**	**Mean**	**Std Dev**
Transformational Leadership Scores	87	5.44	0.86
Transactional Leaders Scores	87	5.07	1.11
Relative Transformational Leaders	75	5.47	1.05
Relative Transactional Leaders	12	5.33	1.87
Innovation	87	5.26	0.89
Uncertainty Reduction Preference	87	4.59	1.74
Ambiguity Reduction Preference	87	4.59	1.73

Hypothesis Testing

There will be more than one testing method used for the hypotheses. Each hypothesis and its testing method are presented next.

HYPOTHESIS 1. This hypothesis calls for looking at transactional leaders and transformational leaders and comparing their associated innovation scores. The innovation score for transactional leaders is proposed to be higher than the innovation score for transactional leaders. This will be tested in 2 ways. Those leaders with transactional scores above a 5 will be groups and the average of their innovation scores will be taken. This average will be compared to those leaders with transformational scores above a 5. These two innovation averages will then be compared using a t-test.

HYPOTHESIS 2A. In HYPOTHESIS 2A, we are looking to see if those with a high innovation scores also have high scores for high uncertainty reduction preferences. We begin by identifying all those with high innovation scores (i.e. a score 5 or higher) and look to see if the average score for high uncertainty reduction preference is also 5 or higher. We then look at the block of individuals with innovation scores less than 5 and determine if their uncertainty reduction preference score is also less than 5.

HYPOTHESIS 2B. In HYPOTHESIS 2B, we are looking to see if those with a high innovation scores also have high scores for high ambiguity reduction preferences. We begin by identifying all those with high innovation scores (i.e. a score 5 or higher) and look to see if the average score for high uncertainty reduction preference is also 5 or higher. We confirm this by then looking at the block of individuals with innovation scores less than 5 and determine if their uncertainty reduction preference score is also less than 5.

Results

HYPOTHESIS 1. The block of leaders with ability scores above 5 on transactional leader skill sets have mean score of 5.7 with a standard deviation of .49. There were 46 of these leaders. Their mean on innovation skills was 5.78 with a standard deviation of .5.

The block of leaders with ability scores above 5 on transformation leader skills have a mean score of 5.79 with a standard deviation of .55. There were sixty-three of these leaders. Their mean on innovation skills was 5.61 with a standard deviation of .57.

When a t-test is done that is single tailed and comparing two samples with unequal variance, we get a 0.11. This is just shy of the traditional cut off of .10. Thus there is an 89% chance that the two means are indeed different. We find weak support for Hypothesis 1.

HYPOTHESIS 2A. The results for the second set of hypothesis testing are found in Table 2. LIL stands for low innovation leaders and is information from the block of leaders with innovation scores less than 5. HIL stands for high innovation leaders and is from the block of leaders with innovation scores of 5 or greater. Note that for low innovation leaders conditions needing a moderate level of either uncertainty reduction or ambiguity reduction are preferred.

Table 2: Means and Standard Deviations by Block

	Conation								Leader Skill
	Average Low & Moderate	**ARLow**	**AR Mod**	**ARHigh**		**URLow**	**URMod**	**URHigh**	**Innovator**
LIL: Mean	5.08	4.77	5.25	4.66		4.75	5.32	4.70	4.01
LIL: S- Dev	1.38	1.79	1.49	1.76		1.99	1.44	1.79	1.17
HIL: Mean	4.39	4.03	4.74	4.74		4.22	4.01	5.29	5.71
HIL: S-Dev	1.16	1.82	1.29	1.61		1.77	1.46	1.59	0.50

For high innovation leaders, a high level of uncertainty reduction is preferred but either a high or moderate level of ambiguity reduction is desired over low levels. The preference for the moderate levels of ambiguity versus low levels is statistically different (t-test = .007 for single-tailed paired test). The preference for high levels of ambiguity versus low levels is also statistically different (t-test = .02 for single-tailed paired test). Now, we turn to the hypothesis testing.

The block of leaders with high innovation scores (those 5 or higher) have a mean innovation skill score of 5.71 with a standard deviation of .5. Their preference score for high levels of uncertainty reduction is 5.29. This provides partial support for HYPOTHESIS 2A.

Next, we examine the high level of uncertainty reduction preferences for those with low innovation scores. This block of leaders has a mean innovation skill score of 4.31 with a standard deviation of .75. Their average preference score for taking action in conditions requiring high levels of uncertainty reduction is 4.78. This also provides support for Hypothesis 2a.

We now look at the single-tailed t-test for these two means and get a t-test of .11. Again this is just shy of the .10 strong confidence of difference cutoff. This measure provides weak support for there being a difference in the means between the two groups. However, given this weak support for differences and because both groups of leaders provide support for HYPOTHESIS

2A, support is found for HYPOTHESIS 2A. Next, we look at HYPOTHESIS 2B which focuses on a leaders' orientation towards ambiguity.

HYPOTHESIS 2B. The same two blocks of leaders are used for this hypothesis test as for HYPOTHESIS 2A test. The average score for preferring the two preferences for using lower levels of ambiguity reduction skills is 4.39. This is below the 5 cut off point for high levels of preferences. The preference for using high levels of ambiguity reduction skills is 4.74 which is also below the 5 cut off for high preferences. This does not provide support for a choice among ambiguity preferences for those with high innovation skills. The other block of leaders must also be assessed.

For the block of leaders with lower innovation scores, the average score for preferring the two preferences for using lower levels of ambiguity reduction skills is 4.77. This is below the 5 cut off point for high levels of preferences. The preference for using high levels of ambiguity reduction skills is 4.62 which is also below the 5 cut off for high preferences. This does not provide support for a choice among ambiguity preferences for those with low innovation skills.

Since neither the high innovation skill leaders nor the low innovation skill leaders had a high preference for using ambiguity reduction skills in contexts that only need it at a low or moderate level and also did not show a strong preference for contexts where high levels of ambiguity reduction skills would be needed, HYPOTHESIS 2B is not supported. There doesn't appear to be any pattern of preference in dealing with ambiguity reduction based on innovation skill levels of leaders.

DISCUSSION & CONCLUSION

We began this paper by noting that some have found that innovation is lacking in US firms. We explored the link between innovation and transactional or transformation leadership behaviors. We found that those with high skill levels in transactional leadership behaviors were slightly more likely to have high levels of innovation leadership skills as suggested initially by Latta and Twigg, 2008. We also found that those with high innovation skill sets no matter if they were from a transactional perspective or a transformational perspective preferred taking action in high uncertainty conditions but really had no preference with respect to ambiguity reduction conditions.

When conditions for a firm are relatively known or knowable, leaders with high innovation skill sets are comfortable taking action. However, when those conditions become hypercompetitive or in startup conditions of a new industry, the managers with higher innovation levels in this study were not so eager to take action.

LIMITATIONS

This study reports on leaders from the southwestern part of the United State from industries either highly regulated or governmental in nature. It may be that this set of leaders are those that have these particular relationships between transaction and transformational leadership skills and innovation skills. It may also be that they are the only ones with relationships between the innovation skills and uncertainty reduction or ambiguity reduction preferences. Further research is needed to examine these current boundaries.

CONCLUSION

We found weak support for our first hypothesis that transactional leaders might have stronger innovation skills than transformational leaders. We found support for our hypothesis that leaders with strong innovation skills will also have high preferences to use uncertainty reduction in conditions of high uncertainty. We did not find support for a link between preference for ambiguity reduction use and high innovation skill levels.

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Exploring Students' View of Sales Profession in Lebanon

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Abstract

An understanding of the perceptions of students towards personal selling is an important area of study. Personal selling is a critical marketing activity that accounts for a major portion of the revenue generation for any company. Those who sell the products are the life blood of the organization. The sales profession is the major source of revenue and stability for any organization. Absent the ability to sell products and services, a company is in serious jeopardy of losing its competitive edge and its worth as a company. Personal selling is represented at many levels in a company and in various business dealings. Recruiting future sales professionals is vital to the continued success and sustainability of business entities. The purpose of this study is investigates students' perceptions of personal selling as a career in the developing nations – Case of Lebanon. Studies in United States highlighting the negative perception of sales profession by people are numerous, especially when it comes to issues of ethics and honesty (Futrell 2007). Lee et al (2007) argued that students generally try to avoid salespeople as best as they can; in the addition, the lack of information about the profession perpetrates the negative image in their minds. Research methodology used in this study is made of factor analysis, chi square, interval estimate of sample means, and Marketing Lens Model (MLM). Research output showed that Lebanese students have a biased perception about sales as career; however, interestingly few dimensions showed significant effect.

Introduction

Building a strong sales force requires talented salespeople and the university is one source for this potential talent (Terpstra and Sarathy 1997). There are many business students who, at the start of their career entered the workforce through the sales field. Because this field has been a major source of sales talent there has been a continued interest in measuring students' perceptions of the sales field as a career direction. Stevens and Macintosh (2002-2003, 23), indicate that "interest is fueled by the fact that college students make up a large and attractive pool of job candidates," recruiting companies "would like to know the reasons why students are or are not attracted to sales" and professors want to "know what role education plays in students' attitudes and perceptions of sales as a career." Competing in the global marketplace requires companies to have well-trained sales forces that include diversity training as a major component.

Companies need to recruit salespeople from different ethnic/racial backgrounds. In particular, what are the attitudes of African-American students toward personal selling? Are these "minority" students interested in sales careers at all?

Most people view sales people as pushy, dishonest, aggressive and annoying. In fact, according to a study done by Gallup (as cited by Futrell 2007), it was found that insurance salespeople, advertising practitioners and used car salespeople ranked among the lowest in terms of ethics and honesty, with car salespeople placed at the lowest rung. The roots of this 'negative' attitude towards salespeople can perhaps be traced back to the Industrial Revolution, when factories developed tremendous manufacturing capabilities, leading to a huge surplus of inventories that posed problems to manufacturers (Lamb et al. 2007). As a consequence, salespeople were hired to sell as much of the products as possible as well as quickly as possible.

To achieve their sales 'target' these salespeople had to adopt an extremely aggressive approach, which is often referred to as 'sales (as opposed to 'market') orientation in marketing theory (Bristow et al. 2006). It is this contradictory attitude towards the sales profession in general and the salesperson that motivated our current research. Specifically, what we are interested in finding out is whether students brought up and educated in vastly different cultures and education systems also harbor different feelings towards the salespersons and choosing the sales profession as a career. The following section provides a review of the relevant literature. In the next section, we develop the conceptual framework for our analysis, which is based on the Marketing Lens Model (MLM henceforth) (Bristow 1998, Bristow et al. 2006, Licatta et al. 1995).The penultimate section of this study describes the implications for the study. At a minimum, the findings can be used by sales managers, salespersons and marketing educators to make a conscious effort in eliminating the misguided notions that students have about the role of salespersons in our society. The concluding section acknowledges the limitations and provides suggestions for advancing the current line of research.

Literature Review

Salespeople have been traditionally considered to be money-hungry, aggressive, eager-to-sell, hardworking, ambitious people. Such stereotypes and preconceived notions of salespeople are further fuelled by statistics. A 1995 Gallup poll, for example, found that car sales was considered the least ethical occupation among 26 careers considered, with insurance salespeople voted 23rd (as quoted in Butler 1996). And such perceptions are prevalent not just in the US but in other countries as well. In some cultures, as a matter of fact, evidence suggests that the profession of 'selling' is used as an insult or to designate a show off (Butler 1996).

Research shows that students' negative opinion about salespeople is also engendered by the negative experience many of them have had with salespeople (Jolson 1972). As Dubinsky (1981) notes, most customers consider salespeople as lowly-paid, monotonous, uneducated, high-pressure phony individuals who they would never want to meet again. Even for students who have actually not had any first-hand interaction with a salesperson tend to harbor and nurture such negative opinions. Such negative students' opinion of salespeople and the sales professions perhaps results from the low prestige status traditionally assigned to a sales job (Mason 1965, Ditz 1968). In other words, since salespeople come from diverse backgrounds and academic qualifications, as well the fact that the profession typically endows very little authority to the person, all these factors result in the sales profession as being considered as one of the lowliest of its kind among comparable professions, even within the same organization.

Finally, research suggests that recruiters fail to adequately articulate the qualifications for, demands, responsibilities and rewards of a sales profession in their recruitment efforts. Consequently, the ingrained negative perceptions in the students' mindset remain 'untouched' (Kurtz 1972, Dubinsky 1981). The repercussions of such a phenomenon are twofold: first, students shy away from applying for sales jobs and second, those who do accept sales jobs behave in a manner that conforms to such preconceived notions and hence, further perpetrates the negative perception towards sales (Lee et al. 2007).

Comparative Studies

The second category of studies in this field draws comparison between different sets of factors such as perceptions of male/female, business/non-business, enrolled/not-enrolled in selling course and student/salesperson. A series of studies conducted by the Sales Management

journal (1962 a, b, c) concluded that the underlying attitudes of males towards sales was "…forceful, deceitful, holding positions with low status and prestige, with little security (Swenson et al. 1993, p-53). Paul et al. (1970) on the other hand, found that comparing students across different college majors, there was universal negative feelings about sales careers. Dubinsky (1980) compared students' perceptions of sales careers with other vocational needs to conclude that majority of the respondents harbor a positive feeling toward sales positions. In another study, Dubinsky (1981) compared salespeople's perception with students' perception of selling and found that students had misconceptions about sales positions when compared with that of sales people. Dubinsky et al. (1983) found preferential differences also exist among students in terms of seven sales jobs. In terms of comparison of the sexes, conflicting findings exist. While Cook et al. (1986) found that females are more reluctant than their male counterparts to accept sales positions, Muehling et al. (1988) found college women to be more favorably opinionated towards personal selling than males. Bristow et al. (2006) significant perceptual differences between students who had completed personal selling courses and those also had not. Harmon (1999) used a randomized block design to conclude that depending on whether students were provided a general or a specific description of the sales job, attitude towards the sales job varied between the sexes. Based on the above review, therefore, we frame the following hypotheses:

Based on these findings, therefore, we frame the following hypothesis:

H1: Are knowledge, experience, and expectations significant factors in shaping Lebanese students' perception about sales career?

RESEARCH METHODOLOGY

The research methodology is made of two steps. In the first step, a modified version of the Marketing Lens Model (MLM) is used. The Lens Model was first used by Brunwik (1952) in psychological research, which was later adopted by Bristow (1998, 2006) in marketing research; the model investigates the influence of experience, expectations, and knowledge on perception. In this study, in an attempt to capture the effect of other influences 13 attitudinal statements of Kavas (2003) were added, in addition to the three other statements recommended by Lucas (1996). In the second step, t (student) tests is performed to check the significance of the statements that were identified by the factor analysis.

Data Collection

The data was collected from a sample of 156 students taken at random from Lebanese universities through a questionnaire. The instrument used a mix of statements and Likert scale rankings of attributes and was made of three parts. In the first part, students were asked to make three statements about their perception of sales profession (Weeks et al. 1987) and also to evaluate thought as being either "positive," "neutral" or "negative" by checking the appropriate cell. In the second part, students were asked to provide statements about answers in the form of agreement or disagreement to express their attitude (expectations) towards the sales profession. A Likert scale was used so that the respondent can select a numerical score ranging from 1 to 5 for each statement to indicate the degree of agreement or otherwise, where 1, 2, 3, 4, and 5 denote "Strongly Disagree", Disagree", "Neither Agree nor Disagree (Neutral)", "Agree", and "Strongly Agree", respectively. In the third part, students were asked to provide demographic information like age, gender and education.

Analysis of Data Reliability

In the first step, the factor analysis is used and the following tests were done.

Bartlett's Test of Sphericity

Factorability of the data is tested by using "Bartlett's test of sphericity", which calculates the determinate of the matrix of the sums of products and cross-products (S) from which the inter-correlation matrix is derived and then, converts the matrix S to a chi-square statistic and tested for significance. The null hypothesis is that the inter-correlation matrix comes from a population in which the variables are non-collinear (i.e. an identity matrix) and that the non-zero correlations in the sample matrix are due to sampling error.

The computed Chi-square of data is 822.77, which is highly significant (P value < .000000). The inter-correlation matrix of data is not an identity matrix and data is factorable.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)

The sampling adequacy is tested using the Kaiser-Meyer-Olkin measure, which measures the proportion of the observed correlation coefficients to the partial correlation coefficients. A KMO measure of 0.7 or greater indicates that the factor analysis of the variables is a good idea.

The computed KMO measure is 0.813, which supports the research concept.

Cronbach's Alpha Reliability Test

Cronbach's alpha determines the internal consistency or average correlation of items in a survey instrument to gauge its reliability. It is commonly used as a measure of the internal consistency or reliability of a psychometric test scores. Survey statements produced a Cronbach's alpha coefficient of 0.8450, which is highly significant. A study with a coefficient 0.65 or better is considered reliable (Girden, 2001).

A factor analysis of the modified MLM statements was conducted, the resultant factor matrix was rotated using Varimax rotations. The analysis produced three factors, which explained 33.28 percent of the total variance. Only those factors with an eigen value greater than 1.00 and more than variable were retained. Table 1 summarizes the factor loading and the three factors.

Table 1: Factor Analysis of Statements (Varimax Rotation)

Factors and Characteristics	***Factor Loading***	***% of Explained Variations***
Factor 01 - Experience		
Low Security	0.56	
Frustration	0.76	
Insincerity	0.70	
Forcing People to Buy	0.60	**14.95%**
Factor 02 - Knowledge		
Uninteresting Unchallenging	0.64	
No Need for Creativity	0.69	**9.63%**
Factor 03 - Expectations		
Job not a Career	0.55	
Difficult to Advance	0.75	**8.71%**
Total Explained Variations		**33.28%**

Table 1 includes only those statements that have a factor loading of greater than 0.5 on their respective factors. The first factor loadings show statements that reflect students' own experience about selling as a career. Factor explained 14.95% of the total variance. Factor included four statements, which are low security, frustration, insincerity, and forcing people to buy.

The second factor reflects students' knowledge of selling career. Factors explained 9.63% of the variance. Two statements were included, which are job is unchallenging and uninteresting.

The third factor explained highlights students' expectations. Factor explained 8.71% of the variance. Two statements were included, which are 1- Job is not a career and 2- it is difficult to advance.

What is really interesting was that general demographic variables didn't show any significant effect in any of the factors in the analysis.

In the second stage, the significance of the statements of the three factors was tested by constructing the confidence interval at a level of 5%. Statements are measured on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) with 3 standing for neutral perception. The following table output reflects the mean scores of the statements that were reported by all respondents compared to score 3 (neutral) and their confidence interval. If the lower limit and upper limit of mean difference are of different signs, it means that the average perception significantly neutral; if the lower limit and the upper limit of the difference have both negative signs, it means that the perception is significantly negative; and if the lower limit and the upper limit of the mean difference have both positive signs, it means that the perception is significantly positive.

Table 02: Testing the Significance of the Neutrality of the Statements

					CI 95% Confidence	
	T	**DF**	**Sig of 2 tails**	**Mean Diff**	**Lower**	**Upper**
Factor 01 - Experience						
Forcing People to Buy	2.05	154	0.04	0.19	0.01	0.38
Low Security	0.22	155	0.83	0.02	-0.15	0.19
Frustration	-1.92	152	0.06	-0.19	-0.38	0.01
Insincerity	-1.99	153	0.05	-0.17	-0.34	0.00
Factor 02 - Knowledge						

Uninteresting Unchallenging	-5.71	153	0.00	-0.54	-0.73	-0.35
No Need for Creativity	-6.64	155	0.00	-0.63	-0.82	-0.44
Factor 03 - Expectations						
Job not a Career	2.24	155	0.03	0.22	0.03	0.42
Difficult to Advance	2.49	153	0.01	0.25	0.05	0.44

Analyzing factor one "experience" statements showed that three statements out of four have different signs in the their lower and upper limit intervals, which means that have neutral perception at a level of significance of 5%; only one statement, which is "Forcing People to Buy" is significantly different from neutral. In checking the second factor "Knowledge", two statements which are "Uninteresting and Unchallenging" and "No Need for Creativity" both showed negative signs in their upper and lower limits; this means that they are both statistically different from neutrality. However, in checking factor three "Expectations", it showed that both statements have positive signs in there lower and upper limit intervals and they are statistically significant from being neutral.

Conclusions, Limitations, and Recommendations

Results showed significant evidence that Lebanese students' perception of the sales job and sales people is not neutral. However, their perception is driven by ideas / concepts that are different from what have been documented. Gender, major, and class were not significant. In the same direction of other research, our analysis supports the hypothesized relationships pertaining to cultural and sociological differences. From this perspective, the current study not only vindicates and strengthens existing research in this field but also provides substantial contribution to the literature, because Lebanon is a middle eastern country where culture and social values play a major role in individual's life.

Study has one limitation, which is the sample size; it was limited because of time and logistical requirements. As for recommendations for future research, it is recommended to conduct future studies on the same group to find whether the students' perception changes as they progress in their college education and to explore students' perception in other countries of the Middle East.

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Why Should We Recruit International Students?

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ABSTRACT

International students make up a significant number of the student body on most US colleges and universities (Institute of International Education (a), 2010). They come from many countries and represent many varied cultures. These students bring diversity to the universities and give their respective schools the opportunity to add diversity to the curricula of their chosen schools. This paper explores ways that a small public university has used their international business students to add diversity and breadth to their business program. It also compares the Major Field Assessment Test results of the international students to the US students in the School of Business to determine the impact of international experience to an overall understanding of global business.

INTRODUCTION

The number of foreign students attending American colleges hit an all-time high in 2008. According to the Chronicle of Higher Education (2009), 671,616 students attended US institutions in 2008-09, which is an increase of almost 8% from the year earlier. Though graduate schools tend to rely more on international students, enrollment grew far more strongly at the undergraduate level, where the number of students jumped 11%, compared to 2% at the graduate level. (Fisher, 2009)

The increase continued for the year 2009/10, as the number of foreign students grew to 690,923, for a 2.9% increase. This increase included both undergraduate and graduate students. The largest increase was a 29.9% increase from China, followed by a 24.9% increase from Saudi Arabia. However, there were some decreases, as Japan (-15.1%) and Mexico (-9.4%) saw a drop in their international students studying in the US. California and New York hosted the largest number of foreign students, 94,279 and 76,146 respectively. Business and Management (21%), Engineering (18%), Physical and Life Sciences, and Mathematics and Computer Science (9% each) lead the fields of study for international students. (Institute of International Education (b), 2010)

WHY DO THEY COME?

Why is studying in the US so attractive to students around the world? It is a lure for the adventurous and courageous, not to mention the perceived quality of US schools. Traveling

around the globe may be a dream that individuals can realize through US-based studies via exchange programs, colleges and universities and vocational schools. The quality, diversity, affordability, and flexibility offer students a broad scope of opportunities unlike anywhere else.

Quality is a big issue. The US system of national accreditation makes finding a quality educational program in the US a simple process. Most programs have a national accrediting body that assures quality in their areas. Schools that are accredited must meet rigorous standards to receive accreditation. Accrediting agencies must be recognized by the Council for Higher Education Accreditation (CHEA) or the US Department of Education. Accreditation helps insure that graduates of these programs receive an education that is consistent with other institutions.

The diversity of institutions make US study attractive to international students. There are public, private and vocational schools that offer many programs with varying levels of entry requirements, tuition and financial assistance. The depth and breadth of these choices mean that almost any international student can receive a quality education in their chosen field.

The flexibility of credits earned at a US institution generally are transferable to other institutions. This gives international students the flexibility to move from one school to another during their residence in the US. It allows them to complete the first two years at a less expensive college and then transfer to a four-year college or university to complete their degree. (Why International Students Come to Study at US Colleges and Universities, 2011).
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PROBLEMS INTERNATIONAL STUDENTS FACE

Even though international students face many problems when they choose to come the the US to study, many seem to handle the transition well. They face the same problems the US students face in addition to many others. One of the biggest problems international students face is a financial one. They must have the resources for not only tuition and living expenses, but also the funds to travel from their home countries to the US. International travel is expensive and it is not covered by financial aid. A US education is expensive and tuition, room and board at an undergraduate institution will cost from $15,000 to $40,000 per year. A graduate education can be even more expensive. There is very little aid available with the exception of citizens of Canada and Mexico. Most grants, scholarships, and loans from public and private sources are restricted to US citizen (eduPass, 2011).

Language can be a problem for some international students. However, many international students begin studying English in kindergarten and can speak and write English very well. Many have also been immersed in classes in their home country that are taught in English. In addition, some colleges require an English proficiency test before they are accepted.

Foreign students often experience homesickness and loneliness. One way they try to overcome this is to choose roommates from their country. They also make friends with international students from other countries who face the same problems they do. Attending a college that has a large body of international students makes this much easier. The students may form a support group for each other. Other foreign students choose to interact with US students to become acclimated to the culture change more quickly (Studying InThe US Is Not For Everyone, 2011).

International students can also be introduced to activities that are unfamiliar and may even be illegal. There may also be scam artists who prey on their vulnerability. Finding a US friend they can trust is imperative for those students. Foreign faculty members are often mentors to the international students because they understand the problems the students face. They can also participate in campus programs and become familiar with campus and local customs. International students should be able to explore freely, but must be able to make smart decisions that are in their best interest (Studying In The US Is Not For Everyone, 2011).

USING INTERNATIONAL STUDENTS TO ADD DIVERSITY TO CURRICULA

This influx of foreign students gives universities the opportunity to add diversity to the curricula by having the international students share their culture and practices with the body of American students. Many of our US students do not have the opportunity to go abroad for study. By using the international students, our US students can experience some of their culture by simply being in the same classroom with them and hearing of their experiences in their home country. It is up to the individual schools and professors who teach the classes to best determine they can take advantage of the opportunities provided by our international students.

A small public college in the southeast has used the expertise of their Slovakian students to improve the structure of a School of Business study abroad program to the Czech Republic and Slovakia. The Slovakian students have afforded opportunities to the study abroad group that would not have been available without their help. The study abroad group has had the opportunity to tour the facilities of US Steel and Whirlpool in Kosice, Slovakia. Not only were the students allowed to tour the facilities, but they also met with the CEO's of both companies. They were able to explore the differences in the two companies in Slovakia and their parent companies in the US. The group also met with the Prime Minister and Parliament. They toured the US Embassy in Bratislava and met with the US Ambassador. The group was also greeted in the hometown of the Slovak students, Stara Lubovna, by the Mayor and entertained with a traditional Slovak dinner with a band. These meetings and business visits arranged by the Slovak students or their parents greatly enhanced the study abroad experience to the Czech Republic and to Slovakia.

International students also share their culture and introduce their US peers to the food from their homeland by having a night when they cook and invite all the students to come and sample their local foods. They also share their customs and local dress. This has become an annual event and takes place in the Student Activities Center.

Another way the foreign students share the culture and customs with "Bag Lunch" seminars. They may form panels to answer questions or present a seminar on their home country. Foreign faculty members also take a big part in these seminars.

PERFORMANCE OF INTERNATIONAL BUSINESS STUDENTS

An important research question remains concerning the impact of the growing number of international students in the United States. This study examines the success of international business students as measured by the Major Field Test in Business and compares that success to US students. We also examined ways that international students added to the overall diversity of the university.

The school of business under study uses the Major Field Assessment Test (MFAT) as part of their assessment of the business curriculum. It is administered to all seniors in the capstone course, Strategic Management. The international students are tested the same as US students. The results of a two-tailed T test, $t(387) = 1.96$, $p < .01$) suggest that even though there is a significant difference in the scores, we believe that difference is explained by the high quality level of the international students (means are found in Table 1. The competition is fierce for the opportunity to come to the US to study and the top students are the ones that receive the student visas. Occasionally there is an exception to this with athletes. Some visas are granted to athletes who also receive athletic scholarships. However, while these students may not be the top students in their home country, they are usually still good students. They must meet the same entrance requirements as all other students.

Table 1

Students	N	Mean
US	360	150.9*
International	29	157.9*

(** p<.01)

The international students are often sponsored by a company that sends them to the US for study and expects them to return home and work for their sponsor. The university has had several accounting students from the Bahamas that had their expenses paid and in turn they knew they would return home to work for the company. They know they have to excel in their field to meet their commitment; therefore, they do all they can to prepare themselves to return home

Another interesting question concerning MFAT scores explores any difference in male and female students. The resulting output, $t(387) = 1.96$, $p < .10$), although marginally significant, does show a difference between the scores of male and female (means can be found in Table 2).

Table 2

Students	N	Mean
Male	196	152.5+
Female	191	150.4+

(+p< .10)

The issues of gender diversity are widely discussed and often rest on the attention given to male students at an early age. However, with such a negligible difference, we do not consider this an issue for analysis. .

CONCLUSION

International students bring much needed diversity to a university. They are excellent students, add value to classes, and share their customs and culture with their peers. Universities would do well to actively recruit international students. If the university provides support services and

orientation programs specifically for the international student, they should be successful in their efforts to increase the number of international students they enroll. A multicultural office can give them the support they need and encourage them to immerse themselves in the university by taking part in students activities, and making friends outside their comfort zone. The international student adds value to the university and to the programs they select for study.

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A MODEL OF FORMULARY APPORTIONMENT: THE IMPACTS OF A GLOBAL STRATEGY

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ABSTRACT

As the world comes to a critical juncture and the interdependence of the world economy becomes more apparent with the current debt crises around the world, the authors propose a theoretical model to re-examine the existing U. S. taxation structure and strategy on multinationals and global firms. The current taxation policies are described and flaws are summarized. The concepts of formulary apportionment are examined as a potential solution to the existing problems of the current taxation system. The advantages and disadvantages of the formulary apportionment strategy or flat tax are also shown. The factors which impact an integrated holistic global strategy are presented in the FA Model as a theoretical basis to the discussion.

INTRODUCTION

There are political, economic, technological and competitive factors which are in tremendous turmoil throughout the world in this economic downturn and debt crisis both in the US and throughout the world. Currently the United States has a complicated and somewhat counterproductive taxation system called "separate accounting" or SA. Many critics believe that it is time for a change in the tax system away from the "arm's length" type. The "arm's length" method focuses on the prices of individual transactions between a corporation and related corporations. Transfer prices are representative of true income so long as those prices are "comparable to the prices that would have been paid by unrelated corporations" dealing with one another at "arm's length" [Lepard, 1999: 49) The issues surrounding taxing foreign profit are becoming central and it is time for a reconsideration of other systems. What has happened to stimulate a change at this time? Several events have occurred. Many U. S. firms have become integrated and totally global in nature. Take General Electric, for example, more than half of the company's assets are abroad and nearly half of GE‟s profits are outside of the U.S. Foreign operations are growing rapidly and sometimes are more profitable than domestic operations.

There's also a "growing awareness that not all countries tax their corporations in the same way, and that American firms have to compete with firms that face very different tax regimes, many of which also feature a much lower tax rate" [Desai, 2008, 2). Another reason this topic is gaining in popularity has to do with corporate scandals and CEOs utilizing tax havens to decrease their tax liabilities [McKinnon & Drucker, 2009: A1). With the events of the implementation of the Sarbanes Oxley Act, the increased scrutiny of corporate executive behavior due to corporate fraud and in light of economic bailouts and economic stimulus packages under a newly elected President Obama, reconsideration of other tax systems is natural and compelling.

BACKGROUND - HISTORICAL CORPORATE TAXATION SYSTEM

The U.S. government taxes U.S. multinational firms on a residence basis and thus U. S. resident firms incur taxation on income earned abroad as well as income earned in the United States. This

system is sometimes referred to as a credit system, as U.S. Firms receive a tax credit for taxes paid to foreign governments. The tax credit is limited to the U. S. tax liability although firms may generally use excess credits from income earned in high-tax countries to offset U.S. tax due on income earned in low-tax countries, a process known as „cross-crediting" [Gordon & Wilson, 1986: 1357). Taxation only occurs when income is repatriated or brought back into the U.S. Thus, income can grow free of U.S. taxes prior to repatriation, a process known as deferral. Deferral and cross-crediting provide strong incentives to earn income in low-tax counties [Fuest et al, 2006: 1). There is also typically an incentive to avoid income in high tax countries due to the limited tax credit [Avi-Yonah, 2005).

Under the current U.S. system of international taxation, U.S. resident multinational firms must determine their profits separately in each tax jurisdiction in which they operate. The current tax rate in the U.S. is 35 percent. From their research, Gordon & Wilson [2006: 1359) found that U.S. Multinationals book a "disproportionate amount" of profit in "low-tax locations. Another study showed that corporate income tax revenues in the U.S. were 35% lower due to this type of income shifting [Radulescu, 2002, 1).

DISADVANTAGES TO SA SYSTEM

The current system of corporate taxation has both practical and conceptual flaws. First, the system is not suited to the global nature of business. The separate accounting (SA) approach of assigning profit to specific geographic locations is extremely arbitrary. In addition, global companies generate increased profit above what would naturally occur with a strictly "arms-length" or SA taxation rule. Flaws to the SA system include the following: 1) Provides artificial tax incentive to relocate real economic activity and report profits in low-tax countries; 2) undue complexity; 3) raises little revenue, despite the U.S. corporate tax rate exceeding most other industrialized countries rate and 4) there is a delay in getting the taxes due to the deferment rules surrounding repatriation.

According to McIntyre & McIntyre [1993: 851), the "complex and unworkable" "arm's length" method of allocating profits among countries (which hopelessly asks the IRS to scrutinize hundreds of millions of intercompany pricing transactions)" should be abandoned in "favor of a formula approach to that used by American states (and by Canadian provinces)".

Multinationals arise due to organizational and internationalization competitive advantages as compared to solely domestic firms. The theorists believe that the competitive advantages of going global are the ability of the firm to internalize transactions within a larger domain and find economies of scale. That is, with companies that have truly integrated beyond national borders, holding related entities to an "arms-length" standard for the pricing of intercompany transactions does not make sense, nor does country-by-country allocation of income and expenses.

It was the same logic that was originally used with formula apportionment (FA) for U.S. state governments [Lightner, 1999; Wilson, 2005). With an integrated U.S. economy, it does not seem feasible or sensible to attribute expenses and profits to individual states, nor to regulate transfer prices between entities of different states [Buck & Mazerov, 2006: 386). Please see Table 1 for the summary of flaws in the Separate Accounting [SA) system.

RECOMMENDATIONS - FORMULARY APPORTIONMENT MODEL

The Formulary Apportionment Model shows how the environment impacts the recommended behavior of apportioning income or calculating a global fair tax system for businesses engaged in

the world marketplace. As mentioned in the background examination of the current taxation system used with multinationals, there are environmental factors that are catalysts to a formulary apportionment system. For example, in the political realm, Congress is presently debating closing of tax loopholes and making the tax system more transparent and more fair. The US does seem to have a high tax structure particularly for U.S. multinational firms which are extremely complex and implemented unequally. With a global structure of apportioning taxes globally, the US can simplify the existing tax code and make collecting taxes easier and more fair for US multinationals. For the economic environment, the world recession and global debt crises actually create a situation of global cooperation and awareness of our interdependence. This global interdependence economically is evident in the recent event where S& P downgraded the rating of the US from a triple A to double A plus rating. Not only did the stock markets for the US plunge but there were similar plunges in the EU and the Asian stock exchanges which consequently followed. In addition, market factors encouraging global business include globalization, technological advances to communicate worldwide, and competitiveness.

Cooperation has also increased through strategies of mergers and acquisitions, strategic alliances, and joint ventures. Global conferences on such topics as green environment, global health, and economic development are also pushing the envelope towards greater cooperation and risk sharing. In addition to the determinant factors of the political, economic and market areas, the model illustrates the positive performance factors of the formulary apportioning behavior. These performance outcomes fall into three general categories of Effectiveness, Efficiency and Financial. In the effectiveness area, firms can experience greater integration of global business, more standardization of accounting and ethical procedures, less paperwork, elimination of double taxation, more equal distribution of tax revenues, and simplification of processes. In the efficiency aspect, tax collection in a more timely manner (as IRS agents will not need to examine each transfer pricing agreement), increased cooperation across national borders and eliminate/minimize tax deferments, tax credits and transfer pricing calculations. Lastly, the financial arena is shown with more transparent tax revenues, decreases in overall tax costs to the firm and increases in tax revenue collection for the country. Please see Table 2 for the overall Model of Formulary Apportionment.

In the formula apportionment system (FA) system of taxation proposed, the U.S. is searching for a simpler, more effective and fairer system for taxing the income of global firms [Bradford, 1981; Christensen, 1997; Conrad, 2006; Eggert & Schjelderup, 2003; Franze, 2005; Gordon & Wilson, 1986). The U.S. tax base for global companies would be calculated on a portion of their total income (worldwide sales) that flow from the U.S. As recommended by Avi-Yonah & Clausing [2007: 7) propose a "unitary business" formula which treats the company as a single taxpayer and its income is calculated by "subtracting worldwide expenses from worldwide income, based on a global accounting system. The resulting net income is apportioned among taxing jurisdictions based on a formula that takes into account various factors.

Each jurisdiction then applies its tax rate to the income apportioned to it by the formula and collects the amount of tax resulting from this calculation [Hellerstein, 1993; Hines, 1999; McIntyre & McIntyre, 1993; Radulescu, 2007. Due to the current system inequities, often firms real share of economic activity typically exceed the shares of income they report which originate in these countries. That being said, the U.S. and other high-tax countries would benefit in increased revenues under formulary apportionment [Sorensen, 2004; Weiner, 2007; Wetzler, 2006; Wolfgang & Guttorm, 2003). However, the move to formulary apportionment could be made revenue neutral if each country wanted it, by simply reducing the overall corporate rate of taxes [Fuest et al., 2006: 67).

In order to avoid the double taxation problem, it would be imperative that other countries use the new formulary apportionment system as well. This actually might not be as much of a problem as it seems on the surface. For one thing, the European Union is already considering a move to formulary apportionment [Weiner, 2002) and with joint leadership by the U.S. and European Union, more countries will be encouraged to build on the cooperative spirit [Russo, 2005; Wetzler, 2006). Also, for multinationals operating in countries with and without formulation apportionment, there is an incentive to shift reported income to the country with formula apportionment due to the tax liability no longer being dependent on the income reported there. For governments, Gerard and Weiner, [2003: 3) describe the impact of formulary apportionment as a "risk-sharing or partial equalization mechanism". The "consequent loss of tax revenue in the no adopting countries would give them a strong incentive" to adopt formulary apportionment [Eggert & Schjelderup, 2003: 439).

ADVANTAGES TO FA SYSTEM

Moving to formulary apportionment addresses many of the problems in the current American taxation system of multinationals. These plusses include: 1) reduction of incentives to shift income or economic activity to low-tax countries; 2) eliminate administrative difficulties; 3) treat similar firms equally despite of where they are located; 4) it could contribute to global cooperation. It is recommended that this new system of Formulary Apportionment possess several characteristics: 1) establish a committee that sets up the formula guidelines and methodologies (should be representatives from many of the U.S. trading partners); 2) common basic assumptions set out; 3) detailed ethical standards agreed upon; 4) agree upon a definition of unitary business (i.e. a simple ownership test or use the FTC‟s SIC codes) and 4) create common accounting practices to implement the working system as well as to reconcile differences between countries‟ standards [Anand & Sansing, 2000; Christensen, 1997; Desai, 2008; Hall & Rabushka, 2003; Eggert & Schjelderup, 2003; Wolfgang & Guttorm, 2003).

The "flat tax" formula would reflect the distribution of the firm's worldwide economic activity, as measured by some combination of sales, payroll and capital stock or it could simply be the fraction of worldwide sales destined for U.S. customers. Under this new system, U.S. multinational companies would then pay U.S. taxes only on the share of world income that is allocated to the United States [Hayek, 2004; Hellerstein, 1993; Lepard, 2000; Meyers, 2009; Nielsen et al., 2003).

Just as mentioned before, based on the state system of formulary apportionment, it is increasingly more difficult to assign profits to individual countries in our global economy [Lightner, 1999; McLure, 1980; Sandmo, 1977; In fact any attempts to assign profits to individual countries are fraught with opportunities for tax avoidance. Basing tax liability on real economic activity in a particular country makes it more difficult to manipulate income than the previous method of looking at the location of income and creates a disincentive to move to low-tax countries.

Because FA would make an operation's tax liability independent of its legal form (i.e. subsidiary or branch) and residence, it would dissolve the incentive for corporate inversion. The administrative complexities of showing how income or expenses were allocated across countries, filing subpart F and foreign tax credits and using cumbersome transfer pricing schemes would be eliminated.

One potential problem of FA could be double taxation (or exemption of some income in both the U.S. and overseas) if other countries do not adopt FA type systems. But as mentioned previously with the EU being very interested in the FA system and wanting to create common systems throughout Europe, there is strong reason to be encouraged and incentives to "not be left behind" [Vincent, 2005; Russo, 2005). Please see Table 3 for the positive and negative aspects of Formulary Apportionment (FA) adoption.

CONCLUSIONS

Changes are afoot. Although Formulary Apportionment has been around for a number of years, perhaps the world was not yet ready for such cooperation and for such standardization of processes as needed in the FA system. Given the global cooperation that has been occurring around the economic crisis and the vision of the Obama administration to completely overhaul the entire corporate tax system [McKinnon & Drucker, 2009: A1), the debate of changing from the SA to FA system could propel government leaders to an implementation of a more global system in taxation that fits a truly interdependent world.

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TABLE 1.

Summary of Issues and Flaws in the Separate Accounting (SA) Taxation System of the U.S.

Issues	**Flaws**
Separate accounting by country	Not consistent with integrated, global companies
Different tax rates	Incentive to relocate to low-tax countries
Complexity	Deferments, tax credits, and transfer pricing are administration intensive
Revenues	Raises little revenue for U.S
Delay in Tax Revenue	Deferment until repatriation causes delays in tax collection
Global system	Arbitrary to regulate transfer prices between countries and profits to individual countries (similar to states in the U.S.). Not truly integrating transactions and advantages of multinational

TABLE 2.

Model of Formulary Apportionment

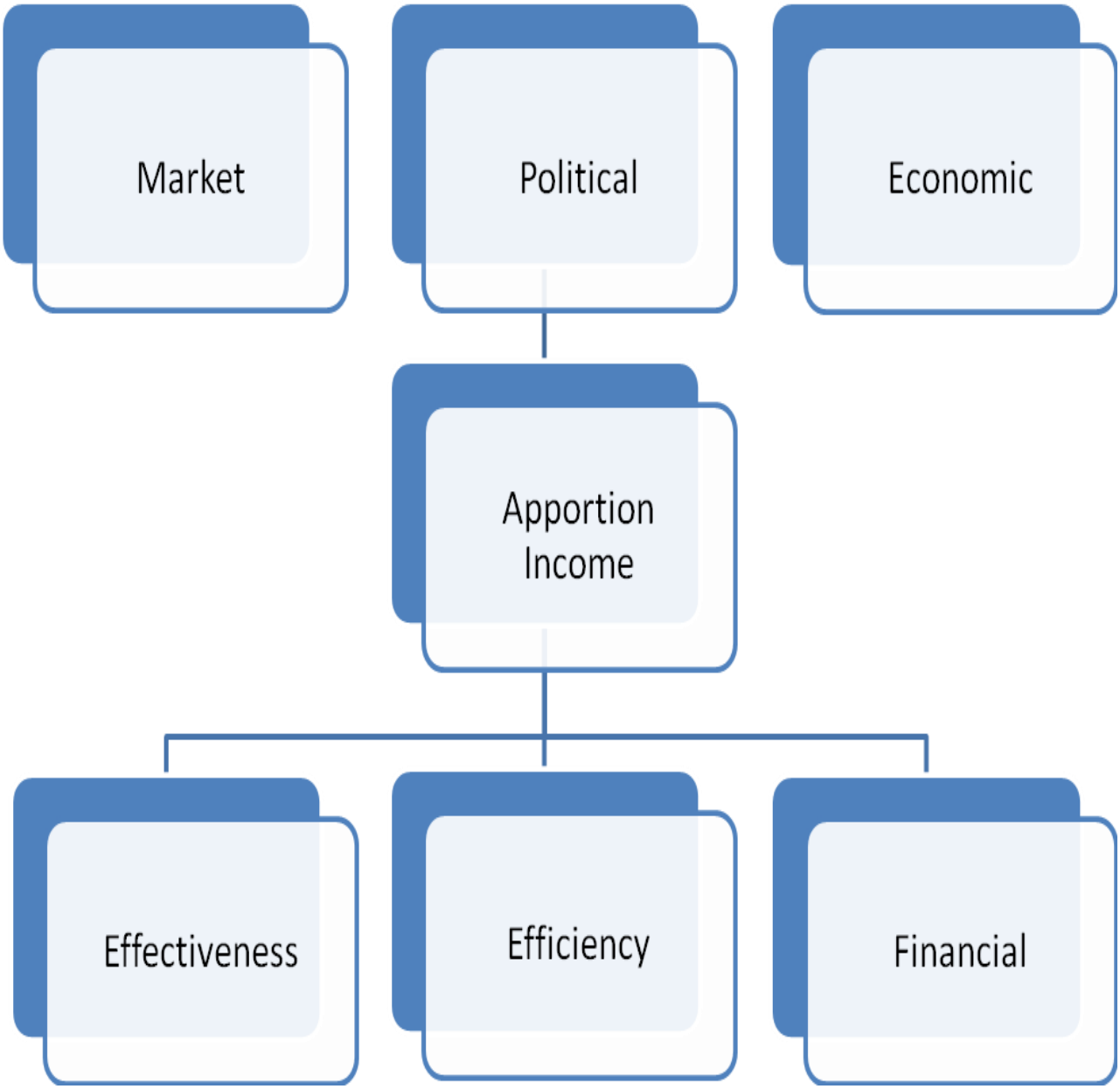

TABLE 3.

Advantages and Disadvantages of Formulary Apportionment (FA) Adoption

Advantages	**Disadvantages**
Simplify administrative red tape	Double taxation
Treat firms the same no matter their location	Difficult to agree on formulas (needs skillful negotiation)
Eliminate low-tax country incentives	
Create global cooperation	
Creation of common accounting standards, definition of business, ethical guidelines	

SUPERVISORS VERSUS PROCESSES: ATTENDING TO PERFORMANCE APPRAISALS AND EMPLOYEE PERCEPTIONS OF FAIRNESS

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ABSTRACT

Performance appraisals are an important part of human resource efforts to increase performance through employee motivation. Salaried employees often depend upon completed appraisals in order to achieve pay raises. This study examines the impact of late performance appraisals upon employee perceptions of supervisor fairness and the fairness of the appraisal process. Employees in a manufacturing firm were surveyed to determine the factors influencing their perception of supervisor fairness, appraisal process fairness, and their general view of late appraisals. The results indicate that supervisor fairness is perceived to be a function of the supervisor's engagement in the process and not whether appraisals are accomplished on time. When employees realize that supervisors must be reminded to do appraisals and that the only performance feedback they receive is during the appraisal process, then supervisors can be perceived as unfair. The appraisal process is generally perceived to be fair, unless the only performance feedback occurs during the appraisal. These conclusions suggest that late appraisals contribute to the perception of unfair supervisors and appraisal processes. Although most employees believe that conducting late appraisals is wrong, lateness is not the only factor impacting the perception of fairness.

INTRODUCTION

Performance appraisals are an important part of human resource efforts to increase job performance by providing the motivation to complete assigned tasks (Boswell & Boudreau, 2002). Although many employees are motivated to work because of an intrinsic desire to do their best (Brown & Huning, 2010), they are also motivated by hygiene factors (Herzberg, 1968) including pay. To the extent that pays is a reflection of performance appraisals, the appraisals become a significant factor in motivation. In the book *Why Work*, motivation is broken down into the following four areas: responsibilities, relationships, rewards and reason (Maccoby, 1995). Late appraisals touch at least three of these areas. The first of these areas is responsibilities, since employees are often motivated when job responsibilities are meaningful and test their abilities. How well the job is performed should be reflected in the appraisal and often the only direct feedback given. Depending upon how an employee receives and internalizes this feedback impacts the relationship between the supervisor and subordinate.

The communication that an appraisal should foster helps to build a relationship with the manager. Rewards, appreciation, and recognition are the types of things that strengthen motivating relationships. Many are motivated by money alone, but it has been proven that a simple pat on the back can motivate too (Duff, 2010). The continued success of any organization rests with the development of its human capital, and feedback is critical to facilitate that development. The importance of feedback cannot be overstated. People who receive recognition for a job well done during the appraisal process can make immeasurable contributions to organization. In many organizations the appraisal process and pay increases are related, thus making this process important to employees.

All employees need some type of feedback to keep them focused and engaged (Hammill, 2005). If conducted well, the appraisal and feedback session is a great opportunity to show the employee the value of their work to the organization. An attribute of a good leader is keeping subordinates aware of the job performance (Bartol & Martin, 1998). In contrast, a concern is that this task gets lost in the hustle and bustle of daily work and falls by the wayside.

The appraisal feedback process is an opportunity to identify both top performers and underachievers in relation to job performance (Brown, Hyatt, & Benson, 2009). Whether underperformers need training and accountability or top performers get recognition, the feedback session is the perfect time to address those issues. When the appraisal does not happen according to plan or is otherwise accomplished haphazardly, studies have shown that the organization suffers in terms of decreased job satisfaction and organizational commitment (Brown et al., 2009).

An applicable anecdote is that people do not leave companies, they leave managers. Managers who lack training and guidance on leadership, motivation, communication skills, and conflict resolution cannot be expected to intuitively know what to do. Not rewarding or failing to nurture the right behaviors sends the wrong message to employees. Managers need to be trained in motivation principles and not just theories to be effective (Locke & Latham, 2004). The implementation of an effective performance appraisal process executed by supervisors and managers plays a key role in employee motivation.

At a medium-size manufacturing firm one supervisor discovered that approximately 50% of managers did not complete employee appraisals within 30 days of the due date. The appraisal process in this organization consisted of both employee and supervisor comments on the employee's performance over the past 12 months. This raised concerns since employees were not receiving feedback through the appraisal process.

Managers and supervisors failed to understand the potential impact of late reviews on employees and in their subsequent motivation to work. Additionally, a late appraisal can send the message that the employee is not important or valued. If the employees feel that they are not valued, this feeling has a direct impact on their motivation to perform. Since motivation is what drives behavior to perform, performance appraisals can be the vehicle to provide that motivation (Bartol & Martin, 1998).

The practice of timely appraisals in the subject organization had become the exception and not the rule. In 2010, there were 93 late appraisals out of 180 in the subject pool. Thus, 52% of the employee appraisals were late. Several were found to be two years past the due date. Employee's performance improves as a result of receiving financial incentives and is viewed as an important factor for companies desiring to keep top employees (Kessler & Purcell, 1992). This is even more important for women who often feel they are paid less than their male counterparts (Adeogun, 2010). These considerations lead to a research project to examine the relationship between perceptions of late performance appraisals and the impact upon the appraisal factors that motivate employees.

LITERATURE REVIEW

Some of Herzberg's conclusions on motivation were that pay and rewards are sometimes used as a type of recognition, but it did not seem to significantly motivate people or contribute to job satisfaction (Herzberg, 1968). He recognized the limited usefulness of monetary rewards to get more from workers. He concluded that increased pay only motivated people for a short period of time, but decreased pay had the power to demotivate which is why pay is a hygiene factor (Herzberg et al., 1959). The two factor theory suggests that removing the hygiene factor does not guarantee the employees will be satisfied or motivated, but it can bring calm to the organization (Herzberg, 1968).

A variety of studies have examined the importance of pay to employees. Towers (2003) surveyed over 35,000 U.S. workers and found that base salary ranked second and pay increases based on performance ranked eighth in attracting employees. Base salary ranked sixth in keeping employees at a particular company, although pay did not make the top ten for motivating employees. Other studies have shown results that are in conflict with the Leete study. Jenkins, Mitra, Gupta, & Shaw (1998) found an average correlation of .32 between financial incentives and the quantity of production, but no relationship for incentives and product quality. Although it motivates only briefly, money is still an important factor (Rynes, Gerhart, & Minette (2004). Other studies have shown that intrinsic motivation seems to be impacted to a lesser degree by performance appraisals (Daley, 1991), thus implying that extrinsic factors, like pay, are more linked to appraisals.

Performance Evaluation

Performance appraisal or evaluation is the process used to determine employee performance using predetermined standards (Smither, 1998). According to the work of Brown et al., (2009), an employee's experience in relation to the performance appraisal process impacts the organization as far as job satisfaction and organizational commitment. Performance appraisals serve many functions, one of which is the documentation of job performance. Job performance is measured to the degree in which tasks are performed; on the higher side the work is said to be satisfactory and on the lower side work is described as unsatisfactory (Ejere, 2010). No matter what assessment is made, recent research indicates that informal feedback, even if unrelated specifically to performance, must happen in order for the performance feedback to result in a positive result (Kuvaas, 2011).

Employee performance evaluations can be very useful to ensure that the supervisor and subordinate are talking about expectations for successful job completion. The evaluations protect the company from the standpoint that they are the official record of performance and that the job standards and expectations were communicated to the employee (Heathfield, n.d.). The issue with performance evaluations is the extent to which the supervisor and subordinate take them seriously (Gorelick, 2005). If employees are expected to grasp the value of measuring their performance they first need to know how their efforts fit into the overall success of the organization (Duff, 2010). Employees need to know that the rating they receive is a true reflection of their work (Roch, McNall, & Caputo, 2011).

HYPOTHESES

As discussed in the literature review, a variety of factors impact the appraisal process. The two factors that are critical to this process are the actions of the supervisor and the perceptions of the employee (Gorelick, 2005). Thus the hypotheses are grouped into three categories. The first concerns whether the supervisor is perceived as fair in evaluating the employee's performance. The next is whether or not the employee believes that the appraisal process, as opposed to the supervisor's actual behavior, is fair. Finally, the employee's perception of late appraisals is assessed.

The Supervisor

H1. There is a positive relationship between perceptions of supervisor fairness in evaluating performance and:

a. On-time completion of performance appraisals
b. Adequate feedback on performance
c. Setting clear goals and objectives
d. Comfort in discussing appraisals
e. Awareness of performance factors

H2. There is a negative relationship between perceptions of supervisor fairness in evaluating performance and:

a. The need to remind the supervisor that the appraisals are due
b. The feeling that a supervisor doesn't care about one's work if the supervisor does not complete the appraisal
c. The only feedback received about performance is during the appraisal process

The Process

H3. There is a positive relationship between the perception that the appraisal process is fair and:

H3a. On-time completion of performance appraisals
H3b. Adequate feedback on performance
H3c. Setting clear goals and objectives
H3d. Comfort in discussing appraisals
H3e. Awareness of performance factors

H4. There is a negative relationship between the perception that the appraisal process is fair and:

H4a. The need to remind the supervisor that the appraisals are due
H4b. The feeling that a supervisor doesn't care about one's work if the supervisor does not complete the appraisal
H4c. The only feedback received about performance is during the appraisal process

Perception of Late Appraisals

H5. There is a positive relationship between believing late appraisals are OK and:

H5a. On-time completion of performance appraisals
H5b. Adequate feedback on performance
H5c. Setting clear goals and objectives
H5d. Comfort in discussing appraisals
H5e. Awareness of performance factors

H6. There is a negative relationship between believing late appraisals are OK and:

H6a. The need to remind the supervisor that the appraisals are due
H6b. The feeling that a supervisor doesn't care about one's work if the supervisor does not complete the appraisal
H6c. The only feedback received about performance is during the appraisal process

METHODOLOGY

The organization's electronic database was queried to determine the number of late appraisals in the prior 12 months. A late appraisal is one that is at least 30 days past the due date. Out of a total of 180 salaried employees, 93 had late performance appraisals for a rate of 52%.

A 20-question survey was developed to collect information on employee attitudes about the appraisal process and impact of late appraisals. The survey request was distributed to 154 available employees out

of the 180 employees in the database. This group included the senior managers, as well as lower-level salaried professionals.

A pre-test of the survey instrument was conducted using eight human resource professionals. They were given the opportunity to suggest improvements and offer alternative statements to improve the clarity of the survey. The survey was not quantitatively validated or checked for reliability since it was designed for one-time use in this organization.

All surveys were completed via internet using a website that would ensure anonymity. Participants were contacted by company e-mail, and presented with a brief outline of the purpose of the survey and why they were chosen. All individuals contacted were selected because they play some part in the performance review process. The body of the email explained the purpose of the survey, that participation was voluntary and anonymous, and the opportunity to obtain a summary of the survey findings. Participants were provided a link in the e-mail to click, which launched the survey.

The survey contained questions that addressed employee perceptions of motivation as it pertains to the appraisal process. Additionally there were questions about how clear the performance expectations have been communicated and whether feedback about performance was given. To address some specific attitudes about training and the employee's impression of the value that supervisor's place on the appraisal process, additional questions were added to the survey. Each question on the survey was designed to be answered using a Likert scale of 1 to 5, with 1 being strongly disagree and 5 being strongly agree.

The general hypothesis for this research was that late performance appraisals negatively impact employee motivation. The researchers wanted to determine if there was a negative relationship between employee motivation and an appraisal process characterized by late appraisals. The following statements appeared on the survey:

1. My supervisor appreciates people who do a good job.
2. My motivation is increased or decreased based on my appraisal rating.
3. My supervisor takes a supportive role in my professional growth and development.
4. My supervisor gives me adequate feedback on my performance.
5. I have to remind my supervisor that my appraisal is due.
6. My supervisor completes my appraisal within 30 days of its due date.
7. My supervisor is fair in evaluating my performance.
8. I feel comfortable talking to my supervisor about my appraisal.
9. My supervisor sets clear goals and objectives on my appraisal.
10. I am aware of the factors my supervisor will use to evaluate my performance.
11. I work harder knowing my supervisor monitors my work activities.
12. I believe the appraisal process is fair.
13. I believe that employees who perform their job to a high standard should be rated higher than those who don't.
14. I feel that I have received adequate training on the appraisal process.
15. I feel that my supervisor doesn't care about my work if he/she does not complete my appraisal.
16. The more money I make the more effort I give the company.
17. I believe the CEO thinks the appraisal process is important to the success of the company.
18. The only feedback I receive about my performance is during the appraisal process.
19. I believe my supervisor thinks the benefits of the appraisal process are worth the effort involved.
20. I believe it is okay to be late giving/getting employee appraisals.

RESULTS

The survey response rate was 47% for a sample size of 73. Table 1 shows the means, standard deviations, and correlation results.

TABLE 1
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

Variable	*Mean*	*sd*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*
1 Supervisor Appreciates	4.26	0.87																			
2 Motivation impacted	3.74	0.90	.14																		
3 Supervisor Supportive	3.63	1.06	.62	-.01																	
4 Adequate Feedback	3.55	1.08	.51	-.14	.70																
5 Must Remind Supervisor	3.12	1.34	-.23	.08	-.46	-.26															
6 Appraisal On Time	2.90	1.50	.24	.09	.38	.26	-.70														
7 Supervisor is Fair	3.73	1.02	.63	.09	.66	.58	-.46	.46													
8 Comfortable Talking	3.74	1.03	.45	-.21	.50	.44	-.22	.15	.61												
9 Clear goals & objectives	3.63	1.10	.45	.00	.68	.61	-.40	.31	.65	.58											
10 Aware of Factors	3.92	0.92	.34	.06	.41	.28	-.17	.09	.46	.39	.58										
11 Work harder with monitoring	2.90	0.96	.23	.16	.32	.35	.02	.05	.33	.28	.51	.40									
12 Process is Fair	3.22	0.93	.43	-.10	.42	.33	-.21	.03	.43	.41	.32	.23	.33								
13 Rated by Work	4.56	0.75	.07	.08	.04	-.06	.21	-.12	.04	.16	.07	.39	.15	.06							
14 Adequate Training	3.27	1.15	.17	-.17	.14	.18	-.27	.19	.28	.38	.29	.31	.14	.29	.03						
15 Supervisor doesn't care	2.73	1.18	-.35	.21	-.28	-.26	.14	-.02	-.19	-.20	-.21	-.06	-.07	-.21	.27	-.01					
16 Money = Effort	3.25	1.19	.26	.37	.15	.03	.00	.09	.08	.00	.04	.13	.33	-.11	.27	-.15	.19				
17 CEO sees importance	3.07	1.02	.23	-.13	.45	.36	-.34	.10	.13	.03	.30	.11	.26	.29	-.29	.08	-.35	.07			
18 Feedback Limited to Appraisal	2.73	1.16	-.45	-.08	-.56	-.51	.28	-.28	-.49	-.35	-.50	-.27	-.14	-.30	.02	-.27	.20	.08	-.17		
19 Benefits worth the Effort	3.15	1.00	.42	.04	.67	.61	-.42	.46	.51	.31	.50	.32	.32	.41	-.04	.19	-.15	.21	.39	-.49	
20 Late appraisals are OK	2.07	0.98	.08	-.06	.19	.14	-.09	.10	.08	.09	.14	.10	.08	.06	-.17	.09	-.19	.07	.22	-.06	.16

n=73
p<.05 for all r>=.232
p<.01 for all r>=. 303

The results offer support for hypothesis one, that there is a positive relationship between perceptions of supervisor fairness in evaluating performance and the on-time completion of performance appraisals (r=.46, p<.01), adequate feedback on performance (r=.58, p<.01), setting clear goals and objectives (r=.65, p<.01), comfort in discussing appraisals (r=.61, p<.01), and awareness of performance factors (r=.46, p<.01).

Parts a and c of hypothesis two are confirmed. There is a negative relationship between perceptions of supervisor fairness in evaluating performance and the need to remind the supervisor that the appraisals are due (r= -.46, p<.01) and the only feedback received about performance is during the appraisal process (r= -.49, p<.01). There is no significant relationship between perceptions of supervisor fairness and the feeling that a supervisor does not care about one's work if the supervisor does not complete the appraisal (r= -.19).

Except for part a, hypothesis three is supported. There is a positive relationship between the perception that the appraisal process is fair and adequate feedback on performance (r= .33, p<.01), setting clear goals and objectives (r= .32, p<.01), comfort in discussing appraisals (r=.41, p<.01), and awareness of performance factors (r= .23, p<.05). There is no support for a relationship between fairness of the process and the on-time completion of performance appraisals (r= .03).

Support for hypothesis four is limited to the negative relationship between the perception that the appraisal process is fair and that the only feedback received about performance is during the appraisal process (r= -.30, p<.01). The need to remind the supervisor that the appraisals are due (r= -.21) and the feeling that a supervisor does not care about one's work if the supervisor does not complete the appraisal (r= -.21) are unsupported in the context of hypothesis four.

The hypotheses proposing a relationship between performance appraisal factors and the perceptions about late performance appraisals are not confirmed.

CONCLUSION

The three categories of hypotheses included perceptions of supervisor fairness, perceptions of process fairness, and perceptions of late appraisals in general. Supervisors are perceived to be fair in evaluating performance when they complete appraisals on time, give adequate feedback, and set clear goals and objectives. In turn, employees feel that their supervisors are fair when the employee is aware of performance factors impacting appraisals and he or she feels comfortable discussing their appraisals. The delivery of an on-time appraisal appears to impact these two latter factors.

In contrast, supervisors are perceived to be unfair in evaluating performance when employees feel that they must remind the supervisor that appraisals are due and when the only feedback they receive about performance is during the appraisal process. In these cases, employees are likely to feel that supervisors are inattentive to their performance because they are not engaged in the appraisal process. Because employees do not receive feedback about their performance until the appraisal process eventually occurs, the employees, in turn, view the supervisors as unfair due to an inconsistent and ineffective appraisal effort.

In addition to the performance of the supervisor, the appraisal process is perceived to be fair when accompanied by adequate performance feedback, the setting of clear goals and objectives, comfort with discussing appraisals, and employees being aware of performance factors. Further, employees perceive the appraisal process to be less fair when the only feedback they receive about performance is during the appraisal process.

In their perception of the process, employees differentiated on-time completion of the appraisal from other factors, and likely attribute the timeliness of an appraisal to the supervisor and not the process. Employees generally disagree with the idea that late performance appraisals are okay, but there is no evidence to suggest that beliefs about late performance appraisals are either positively or negatively related to the various features or characteristics associated with the appraisal process.

A key conclusion is that employees are not primarily concerned about late performance appraisals. They are concerned about the implications of the late appraisal. If the only feedback they receive about their performance is during the appraisal process, then the late appraisal means that the employee is not receiving feedback at all until that appraisal is accomplished. So, it is not only a good idea for managers to accomplish performance appraisals on time, but it is essential when the performance appraisal is the only form of performance feedback. In addition, the manager or supervisor must be careful to ensure that the employees are not required to remind him or her of the necessity for a performance appraisal. These kinds of reminders, in conjunction with appraisals being the only source of feedback create the impression that the supervisor is unfair in his or her evaluation of an employee's performance. Otherwise, supervisors are perceived to be fair in their appraisals when they are done on time, offer adequate feedback, and set clear goals and objectives. Ultimately, on-time completion of performance appraisals is attributed to the supervisor’s behavior and not to an artifact of the process.

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Why "Outstanding" is not "Okay" Twenty Years Later -

The Relative Value of Single Word Reinforcers

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ABSTRACT

Inspiring increases in worker performance continues to challenge to managers. Finding the appropriate incentives to generate intended outcomes is complicated by resource constraints. In particular, rewarding outcomes with money finds limits, both in practical and philosophical ways. Competing claims for the organization's cash limit its use as a reward, and similarly, the perceived marginal value of each additional unit does not generally equate to further increases in performance or worker satisfaction, thus challenging the utility of cash as an incentive.

An alternative is the use of verbal rewards as a substitute for financial ones. The advantages to their use include immediacy in delivery (rather than peeling off dollars each time a reward is warranted) and financial cost savings. When using words as reinforcers, two relevant questions arise surrounding the frequency of their delivery and the power behind them. In operant conditioning, these two dimensions are referred to as schedules and magnitude of reinforcement delivery.

This paper reports a replication study which tests for magnitude differences of single word reinforcers. Using a method developed in 1991 to evaluate the strength of words as reinforcers, 141 words were rated by a participant population similar to that of the 20-year old study. Analysis shows little difference in the mean ratings of the sets of words defining "high" and "low" magnitude reinforcers from 1991 and 2011. There were, however, a sufficient number of substitutions to suggest that the impact of some words as reinforcers has changed over time.

INTRODUCTION

Researchers have long studied ways to increase worker output using an operant conditioning paradigm based upon reinforcement theory. While many of these studies have examined the effects on performance of different schedules of reinforcement, few have explicitly tested the magnitude of reinforcement. Laboratory and field studies altering magnitude used money as the reinforcer (for example, Tranel, Fisher, & Fowles, 1982 or Saari & Latham, 1982). Most organizations face greater financial resource (money) demands than can be satisfied by their limited budgets. To operate within financial constraints, organizations seek and use non-monetary reinforcers, often verbal. Words offer an alternative reinforcing medium with no explicit cost to organizations and can vary in magnitude (quantity and quality). In addition, the feedback message can be tailored to address specifically targeted behaviors.

Reinforcement theory is based on the Law of Effect (Thorndike, 1911), which states rewarded responses tend to be repeated. Rewards act to increase the likelihood of the recurrence of a response, under similar circumstances, so as to produce more rewards. Thus, rewards act to reinforce, or encourage, repetition of responses.

Magnitude of reinforcement defines how much reinforcer to deliver upon satisfaction of a contingency. Magnitude is (1) amount or volume of reinforcer, (2) duration of reinforcer availability, or (3) percentage of concentration of reinforcing substance (Bonem & Crossman, 1988, p. 348).

Relevant research in the industrial and organizational literature has primarily examined the schedule effect, which is the impact of altering a reinforcement schedule while holding the amount (magnitude) of reinforcer fixed, or constant. Some research ignores the magnitude dimension altogether. Other studies attempting to show schedule effects examined the magnitude effect after-the-fact (Latham and Dossett 1978; Yukl, Latham, & Pursell 1976; and Yukl and Latham 1975). Each of these studies concluded schedule effects dominated magnitude effects. Because explicit tests of magnitude effects are lacking, these conclusions are subject to question.

RESEARCH QUESTIONS

The focus of a prior study (Lowry, 1992) was to examine the magnitude effects on performance when other reinforcing conditions (especially schedules of reinforcement) were held constant. In the prior study, a set of approximately 100 words were presented to a sample population for rating on a Likert scale. After rank-ordering the words from highest to lowest (in mean ratings which equated to highest to lowest in reinforcing value), the top and bottom 20 words were then utilized as high magnitude reinforcers (HMR) and low magnitude reinforcers (LMR). Of current interest is a series of experiments to extend that earlier work to investigate schedule and magnitude effects, however, a necessary first step is a replication of the word-discernment method to determine which single-word reinforcers may be relevant today.

To that end, two research questions arise. The first question investigates the ratings given by a current (2011) sample, drawn from a population similar to that used in 1991. Armed with the list of 1991 words and their mean ratings, of interest is any difference in mean ratings derived from a renewed set of HMR and LMR. In other words, does 20 years make a difference in the reinforcing value of dichotomized word sets?

A second question asked what words populate the 2011 HMR and LMR lists that may not have been present on the 1991 lists, and similarly, in what ways do the same words differ in order or rating.

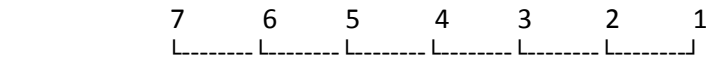
METHOD

The 1991 study measured among other things the effect of high magnitude reinforcement versus low magnitude reinforcement. Each reinforcement was given verbally using a single word from a predetermined list of high and low magnitude reinforcers. This study seeks to determine if the reinforcement level of the original word lists persists twenty years later, and in addition seeks to determine if there is perhaps an improved set of words that current participants may find more relevant.

In the original 1991 study, the high magnitude reinforcers (HMR) and low magnitude reinforcers (LMR) were determined by presenting a set of approximately 100 words to a survey group of undergraduate students. The respondents indicated the level of encouragement provided by each word on a scale from 1-7. The highest rated 20 words were determined to be HMR and the lowest rated 20 LMR. The HMR and LMR groups were compared using a t-test of difference, and the two groups were found to have significantly different means ($p < .000$.). The scale and instructions as presented are shown in Figure 1 and the HMR and LMR from the original study are presented in Table 1.
Table **1**

Figure 1: Scale and instructions for determining encouragement levels

Imagine that you have just performed a task and a person who is very important to you is about to say something about your work. This person can use only one word to indicate their feeling about the task you just completed. For each of the following words, please rate their level of encouragement to you. Circle the number associated with the level of encouragement.



Very Encouraging — Mildly Encouraging — Neither Encouraging nor discouraging

Table 1 (Original 1991 Study)

Low Magnitude Reinforcers			High Magnitude Reinforcers		
Word	Mean Rating	Std Dev	Word	Mean Rating	Std Dev
deliberate	2.67	1.217	ideal	5.93	1.215
cautious	3.07	1.386	awesome	5.96	1.261
rapid	3.07	1.412	ambitious	6.00	1.122
quick	3.15	1.380	intelligent	6.07	1.016
swift	3.26	1.294	fantastic	6.26	1.174
lively	3.30	1.435	impressive	6.30	0.936
true	3.30	1.535	incredible	6.30	0.974
deft	3.37	1.444	marvelous	6.30	0.936
sprightly	3.41	1.225	amazing	6.30	1.082
tireless	3.48	1.548	extraordinary	6.33	1.155
fine	3.52	1.572	expert	6.37	0.949
careful	3.59	1.368	masterful	6.37	0.777
brisk	3.63	0.099	fabulous	6.37	1.159
able	3.63	1.590	outstanding	6.41	0.782
dutiful	3.81	1.441	perfect	6.44	0.629
vigilant	3.81	1.564	exemplary	6.56	0.629
prudent	3.89	1.397	excellent	6.56	0.629
observant	3.89	1.423	superior	6.59	0.828
capable	3.89	1.197	exceptional	6.74	0.516
keen	3.93	1.412	brilliant	6.78	0.497
Mean of Means	3.48			6.35	

t-Test of difference in high and low magnitude group means:
t = 30.93; p = 0.0000+
Note: Rating Scale ranged from 1 – 7.

To replicate the results of the first study a new word list was created. The creation of the word list started with the original 40 words from the previous study. Unfortunately the full original instrument used in 1991 was not available for this study so synonyms for each word were generated using the thesaurus function in Microsoft Word. Duplicate words were eliminated leaving 141 unique words to be rated by the students using the scale and instructions from the earlier study. The words were placed in random order and presented in ten sets of approximately 10-15 words each.

Three methods were used to reinforce the reliability of the testing instrument. (1) The words were administered to the students in two media, the majority (nine of the 10 sets of words) using a computer moderated survey and one set of 15 words using a pencil and paper test. (2) One set of words was presented to the students twice at different points and in a different order during the on-line survey to see if the ratings were consistent. (3) The computer moderated survey presented the words within each set in a random order to each participant to avoid any potential ordering bias.

RESULTS

Thirty-eight undergraduate students in a Principles of Management class were given the opportunity to participate in the rating of the words. Of the 38, 35 completed the computer-mediated portion and 33 completed the pencil and paper portion. Each of the 33 paper instruments could be matched to one of the original 35 using student provided identification numbers. The sample included a balanced number of males and female participants.

The computer mediated survey captured beginning and ending times for each participant. The minimum time to rate 141 words was 5 minutes with the longest time being 57 minutes. Average time was 14 minutes with a modal time of 9 minutes. This modal time indicates a rating time on task of approximately 4-6 seconds per word.

In order to check the reliability of the instrument, two t-tests of means were administered: one between the two duplicate sets of words within the computer mediated survey, and one between the words on the computer mediated survey and the paper instrument. In both cases there was no significant difference between the means indicating a high level of test reliability within the test and across instrument types.

As in the original study the words were rank ordered by mean and the top 20 were labeled as HMRs and the lowest 20 as LMRs. These results are presented in Table 2 (Current Study).

The original HMR and LMR words all grouped in the top or bottom half of the ratings respectively indicating that these words have retained their relative level of reinforcement. The mean ratings of the 20 original HMR and 20 original LMR words were also tested against the same words in the current rating. There was again no statistical difference between the ratings over the time period indicating additional reliability of the ratings.

Table 2 (Current Study)

Low Magnitude Reinforcers			High Magnitude Reinforcers		
Word	Mean Rating	StdDev	Word	Mean Rating	StdDev
hurried	2.17	1.317	astonishing	6.31	0.900
okay	2.40	1.218	flawless	6.34	1.162
hasty	2.60	1.418	best	6.37	1.239
wary	2.60	1.718	**excellent**	6.37	0.808
fleet	2.71	1.467	**brilliant**	6.43	0.698
guarded	2.86	1.611	**fantastic**	6.43	0.850
brisk	2.88	1.338	inspiring	6.43	0.778
bubbly	2.89	1.345	**exceptional**	6.46	0.919
obedient	2.94	1.243	unbelievable	6.46	0.780
fine	3.00	1.627	**perfect**	6.49	0.951
cautious	3.06	1.662	remarkable	6.49	0.702
alert	3.11	1.711	astounding	6.50	0.762
compliant	3.11	1.659	breathtaking	6.51	0.742
intentional	3.11	1.745	magnificent	6.51	0.853
nimble	3.11	1.859	**amazing**	6.54	0.741
rapid	3.11	1.623	**marvelous**	6.57	0.698
startling	3.17	1.689	spectacular	6.60	0.736
conscious	3.29	1.840	**incredible**	6.63	0.547
quick	3.29	1.673	**extraordinary**	6.66	0.725
unflagging	3.34	1.999	**outstanding**	6.69	0.631
Mean of Means	2.94			6.49	

t-Test of difference in high and low magnitude group means

t= 48.89
p= 0.0000+

Note: Rating Scale ranged from 1-7. **Bolded & underlined** words were from 1991 study.

CONCLUSIONS

As there was no significant difference in the ratings of HMR's and LMR's between the 1991 and 2011 studies, it would be reasonable to move forward with the original word lists for a full replication of the behavioral study. The words all seem to retain both their absolute level of reinforcement (no difference between the 1991 and 2011 means) and relative level of reinforcement (a significant difference between the mean values of the high and low magnitude reinforcers.)

While using the original list would be appropriate, there is also a compelling case for using the newer list. Again there is no significant difference between the new and old lists and there exists a significant difference in the new list between high and low magnitude reinforcers. While either list should provide similar results, the participant group for the full behavioral study will come from a similar population as the reinforcer rating group as it did in 1991. It makes since then to use the updated list in the full behavioral replication study.

Beyond the simple question relevant for this study however, there may be broader managerial implications in terms of word choice that can be gleaned from this study. Managers may wish to use or avoid certain words based on the audiences perceptions of their level of reinforcement. The sample size and makeup limit the generalizability of the ratings of these words outside an undergraduate setting, but there can be little doubt that words that are often viewed as synonymous convey a substantially different level of reinforcement. Additional research is needed to determine the generalizability of these results.

Another area for future research is looking at individual differences in perceptions of level of encouragement. Preliminary analysis of the data indicates that there may be gender related differences in individual word ratings. Further investigation of this is warranted.

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USING CHAOS THEORY TO UNDERSTAND FIRM PERFORMANCE: A PHASE SPACE ANALYSIS

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ABSTRACT

In the management literature, chaos theory has been used primarily as a metaphor to understand organizational phenomena. Using metaphors to understand organizations has gained much acceptance, thanks to the pioneering work of Morgan (1986). However, chaos theory's value as a metaphor is overused and offers little that cannot already be explained using existing theories and frameworks.

Because chaos theory is a mathematical theory, we believe its mathematical principles offer the greatest application to the management literature. We propose using one tool of chaos theory, phase space, to understand firm performance. We illustrate the use of a phase space analysis using data from a publicly held firm, Pizza Inn.

INTRODUCTION

The use of chaos theory in management research has been confined mainly to a metaphorical approach. In the management and organizational theory realms, the use of metaphor is well known, thanks to the pioneering work of Morgan (1986). However, none of Morgan's metaphors are based solely on a field of mathematics. In contrast, chaos theory is grounded in mathematical principles. Herein lies the problem; what are management scholars do to do with this theory? Two options can be identified. First, scholars can continue to apply chaos theory primarily as a metaphor. Second, the mathematical concepts inherent to chaos theory, particularly its use of phase space, can be more actively applied. Evidence suggests that the first option has been overused while the second option is currently underused.

In this paper, we address the unwarranted enthusiasm and often imprecise application of chaos theory as a metaphor, as well as its underuse as a formidable mathematical application for management research. The paper begins with a brief history of chaos theory. Next, we overview its main components and discuss its misapplication as a metaphor. We then discuss how one tool used in chaos theory, phase space, can be used to examine firm performance history. We conclude with implications for management researchers.

BACKGROUND

Although there are a number of important figures in the history of chaos theory, a key starting point would begin with Edward Lorenz. As a meteorologist, Lorenz was working with equations in a weather forecasting model he was developing involving data on temperature, air pressure, and wind direction (Briggs & Peat, 1989). At one point in his work, he decided to take a shortcut. Instead of inputting the values to six decimal places, he used three. The results he obtained were noticeably different from what he had anticipated; and that became the trigger event that led to a key component of chaos theory – sensitive dependence to initial conditions. Lorenz had stumbled on a discovery that indicated a small change in the initial conditions of a system could lead to very different outcomes as the system evolved. This later evolved into the famous butterfly effect. This effect states when a butterfly flaps its wings,

perhaps in some exotic part of the world like Hawaii, it can initiate a series of air currents that influence other weather events that eventually cause a hurricane in Florida. Of course, should the butterfly flap its wings in a different direction, the hurricane could develop somewhere else, perhaps Cuba or Mexico. In the butterfly illustration, we see an example of how a slight change in initial conditions can lead to a vastly different outcome in the life of the system under study.

The bestselling book by James Gleick (1987) made chaos theory more understandable to those outside the mathematical and physics disciplines. Soon, social scientists, psychologists, and even a few management scholars found an interest in chaos theory. To these researchers, chaos theory offered an interesting, nonlinear framework that could be used as a lens to understand the complex social and psychological interactions that comprise individual and organizational behavior.

Chaos theory also brought an abundance of interest from those who identified with the concept in nonmathematical ways. One viewpoint was that chaos carried with it a sense of mystery and excitement about life (Stoppard, 1995). The appeal of chaos theory has also been compared to a romantic appreciation of disorder that accompanies a corresponding reaction against the scientific appreciation for order and symmetry (Friedrich, 1988; Smith & Higgins, 2003). Polkinghorne (1993), a priest, articulated that chaos theory helps to describe the divine plan for the universe. While these viewpoints are interesting, they are inconsistent with the original intent of chaos theory. In fact, in one sense, chaos theory is not actually a theory at all, but an extension of nonlinear mathematics (Bolland, & Atherton, 1999).

One of the aspects of chaos theory that has also contributed to its increasing popularity is its visual dimension (Smith & Higgins, 2003). Attractors, a key component of chaos theory, can be graphed and many of these display an aesthetic appeal that likens it to computer art (Carey, 1995). Many of the articles that we reviewed on chaos theory depicted the famous Lorenz butterfly attractor. Add some color to this attractor and one can create an amazingly beautiful graphic. Certainly, this ability to take a seemingly difficult mathematical process and make it visually appealing adds to the mystique and popularity of chaos theory. In addition to the Lorenz butterfly, the Mandelbrot set has probably been the most famous visual artifact from chaos theory.

THE COMPONENTS OF CHAOS THEORY

Chaos is not a state of randomness or disorder, but rather a state whereby phenomena that appear to be unrelated actually follow an unknown or hidden pattern (Smith, 2002; Tetenbaum, 1998; van Staveren, 1999). This hidden pattern is called an attractor and it can be visually observed through the plotting of data in phase space. Furthermore, the relationships among the variables in a chaotic system are existent, but are "rather vague and at best, difficult to discern" (Kiel & Elliott, 1996:2).

Chaotic systems possess two characteristics, sensitive dependence to initial conditions and unpredictability in the long run. Each of these are discussed in more detail below.

Sensitive Dependence to Initial Conditions

Lorenz (1993) noted that a slight change in the initial input of his data led to vastly different results in his weather model. This now famous occurrence led to the popular "butterfly effect" illustration mentioned above. Lorenz also discusses another system in his book that is sensitive to initial conditions, the path of sleds descending down a snowy slope. In this example, he illustrates with diagrams, how seven sleds can end up in different areas stopping areas at the bottom of a hill, even though they may have started their descent within ten centimeters of each other. Of course, the paths the sleds take will change directions,

depending on the location of small humps or moguls along the route of its descent. This example also illustrates the concept of sensitive dependence to initial conditions, one of two general conditions that characterize a chaotic system.

Unpredictability in the Long-run

The behavior of a chaotic system cannot be predicted in the long-run. At best, there may be some accuracy in making short-term predictions. The weather is an example of a chaotic system that cannot be determined on a long-term basis, but can be predicted successfully in the short-run (Lorenz, 1993). For example, as one of the authors of this paper prepared an earlier version of this section, an ice storm was predicted later that evening. Local schools were on a two-hour delay the following day. While this impending ice storm was predicted with a reasonable amount of accuracy, nobody several months ago could have readily predicted such a storm would arrive on that particular evening.

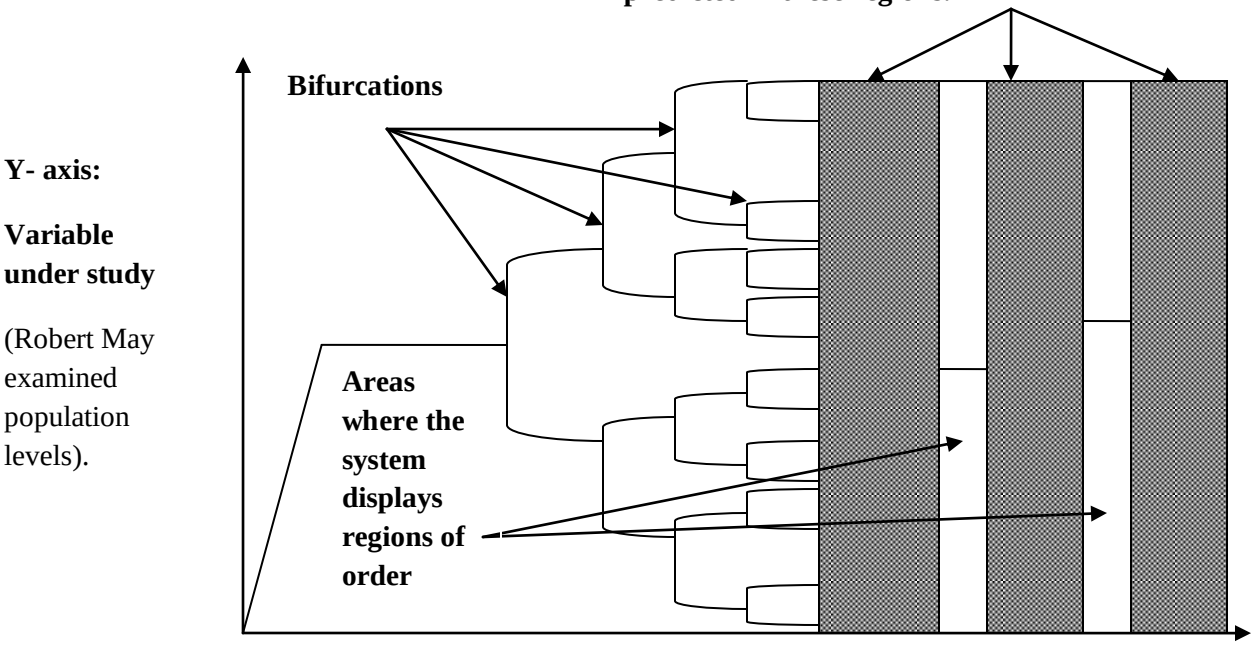
These are the two main characteristics of a chaotic system, (1) sensitive dependence to initial conditions and (2) an inability to predict the final outcome of the system on a long-term basis. There are other components as well, but these first two characteristics represent a good starting point. Next, we describe bifurcations, attractors and feedback.

Bifurcations

A bifurcation is a point in the behavior of the system where the outcome can actually oscillate between two possible values in alternating time periods. The discovery of a bifurcation was made by Robert May, a biologist who was conducting a population model experiment (Gleick, 1987). As May increased the growth rate in his model, the population increased until it reached a critical point. At that point, the population would alternate values on a two year cycle, reaching a certain value the first year, followed by a lower value the next year, then returning to the original value the third year, and so on. May increased the growth rate again until a new critical point was reached, this time a period four or second bifurcation took place. At this new critical point, the population alternated in a four-year cycle. Increasing the growth again led to still more bifurcations until the model reached a state where almost any value was possible. At this point, the system was now "in chaos" because the population did not settle down to any predictable level. Hence, the lack of predictability is central to the notion of chaos.

May continued to increase the growth rate even while the system (i.e., the population level) was in its chaotic state. Surprisingly, when the growth rate reached a certain point, the system settled back down to a constant three-year cycle. In other words, it had moved from a state of chaos back to a state of order. However, as he increased the growth rate again, the system returned to chaos. In fact, the system continued to move in and out of chaos as the growth level was increased. Figure 1 illustrates a simplified bifurcation diagram, more correctly referred to as a logistics map (Guastello, 2008).

Figure 1 – A Simplified Bifurcation Diagram



Adapted from – Crandall, W.R., Parnell, J., & Spillan, J. (2009). *Crisis Management in the New Strategy Landscape*. Thousand Oaks, CA: Sage Publishing, p. 222.

Attractors

In chaos theory, an attractor is a pattern that forms when the behavior of the system is plotted in phase space (Lorenz, 1993). When the points are joined by a line in a chronological order, a pattern develops that can resemble a point, orbit, or some kind of unusual pattern. The unusual pattern is also referred to as a strange attractor.

Attractors range from being fairly simple to vastly complex. Four types of attractors have been identified: Point, pendulum, torus, and strange (Barton, 1994; Hudson, 2000; Stam, 2003). In phase space, a point attractor is depicted as a single plot on a graph. This is because the system behavior remains consistent over time. The pendulum attractor, also referred to as a period attractor, resembles an orbit when drawn in phase space. An example of a period two attractor appears later in this paper. The torus attractor is a more complex pattern that forms an orbit, but also contains points within the orbit, thus resembling a donut when graphed in phase space. Finally, the strange attractor, sometimes referred to as a fractal, is a complicated pattern that exists when the system is in chaos. The attractor is called strange because its shape may or may not resemble any known pattern.

Feedback

There are two types of feedback to consider, negative and positive. Negative feedback seeks to return a system to its original or normal state. For example, when one is speaking into a microphone, the speaker may find themselves adjusting their voice, either speaking softer or louder in order to find the right volume. Other evidence of negative feedback would be if the speaker moves the microphone closer or further away; or if the sound technician adjusts the volume on the sound board.

Positive feedback on the other hand amplifies the deviations in the system and pushes it further away from its original or normal state. Murphy (1996) notes a form of positive feedback that would occur if the speaker were to place the microphone near the loudspeaker. Such an event would cause the sound to distort and amplify itself throughout the system. The output from the speaker becomes input to the microphone, creating iterations which become louder and louder. Hence, positive feedback distorts and amplifies the deviations in the system.

In a chaotic system, positive feedback moves the system away from its original state to a new state. It is important to note that the process of iteration is necessary for the system to evolve into its new form. Hence, the use of time series data is necessary when the researcher is studying chaotic systems.

CHAOS THEORY AS A METAPHOR IN MANAGEMENT RESEARCH

Chaos theory was applied in the social sciences in the 1990s (Guastello, 2008). In the field of management research, its use has primarily been invoked as a metaphor. The practice of using metaphors to help explain the workings of an organization is not a new concept in managerial research. Morgan (1986) was a key player in generating enthusiasm for the use of metaphors to explain organizational behavior. However, Morgan did not use metaphors that were based on deep mathematics.

The dilemma of using chaos theory as a metaphor concerns the theory's intended use, to explain a unique mathematical state—chaos—where system behavior is neither orderly nor random. And herein lies an irony, social scientists and organizational scholars do not readily use elaborate concepts from chemistry or physics to explain social behavior, so why the strange attraction (pun intended) towards chaos theory? Indeed, the appeal of metaphors is a strong attracting force, one that can cause some misunderstandings, as we examine in the next section.

The Metaphor Problem

Misunderstandings concerning chaos theory stem primarily from its overuse as a metaphor, not in its mathematical use, since its mathematical use is limited in the management literature. While metaphors are useful to understanding complex systems, there is a tendency to extend them beyond their usefulness. Eigenauer (1993) pointed out that some scholars have used chaos theory to the extreme. In commenting on Gleick's book, he notes:

> *While Gleick's work is solid, it has led some to be captivated by chaos theory's fecund metaphorical terminology and elegant computer aided graphical images. Although those images … show striking instances of order hidden within chaotic systems, too often they are used to forward the thesis that there are other systems, ranging from modern literary theory to stock market fluctuations, that also house deep structure amid their apparent disorder. The result is, on occasion, analysis that is based only on metaphor.*
> Eigenauer (1993: 455)

Smith (2002:523) also concurred with a similar thought, "… some disciplines have already displayed a tendency to rely too heavily on purely conceptual applications of chaos theory. This is in danger of reducing chaos theory to a collection of metaphors, or worse still reducing it to just semantic innovation if the application is trivial."

One problem with using chaos theory as a metaphor is that it offers little that cannot already be explained using already existing theories or frameworks. For example, Bright and Pryor (2005) compare the four types of attractors to career decisions. While their article is interesting and does an excellent job of describing the various career dilemmas that we may face; their discussion of attractors does not add anything to our knowledge of careers. Put differently, the same article, without the discussion on attractors would have been sufficient. In another example, Sellnow, Seeger, & Ulmer (2002) offer an excellent assessment of the 1997 Red River flood in Minnesota and North Dakota. However, their attempts to tie in chaos theory to the discussion add little to our knowledge and even distracts from the central point; their analogy of the strange attractor to the support agencies involved in managing the flood is interesting, but not necessary.

While metaphors are useful in gaining new insights, its overuse can lead to problems. Most metaphors begin to break down in their usefulness when overused because exact parallels between the metaphor and the phenomena under study are inappropriate (Barton, 1994, Chubb, 1990). While chaos theory can enable us to think about our research question in a different perspective, we must take care not to overextend the metaphor.

Misunderstandings of the Meaning of Chaos and its Accompanying Components

Psychology was one of the first social sciences to embrace chaos theory as a viable tool of analysis. However, as Barton (1994) notes, some misunderstandings of chaos have emerged. He cites Bütz's (1992) use of chaos as "overwhelming anxiety," a state that bears little resemblance to the mathematical state of chaos described in the original theory. In their critique, Kincanon and Powel (1995) cite the example of Sappington (1990), who stated that chaotic systems are unpredictable. On this point, one should recall that chaotic systems are difficult to discern but not completely unpredictable, especially when graphed in phase space.

Using chaos theory as a metaphor has also led to the inappropriate use of the components of the theory. For example, Bright and Pryor (2005) attempted to link attractors to careers. They discuss how point attractors can be likened to a particular vocational goal such as being promoted to the next level in the corporation. While this analogy is interesting, it is not even remotely possible to call this a point attractor, even as a metaphor. Likewise, the strange attractor has been likened to a number of items including the corporation's value system (Frederick, 1998).

EXAMINING FIRM PERFORMANCE THROUGH PHASE SPACE

Chaos theory is a mathematical theory and therefore, its use should include mathematics (Elliott & Kiel, 1996; Faber & Koppelaar, 1994; Smith, 1995; Smith, 2002). In this section, we reflect on the future of chaos theory in management research by offering an application of phase space analysis, a mathematical tool of chaos theory.

The first requirement for such an analysis is time series data, as it is the primary domain area for studying chaotic behavior (Haynes, Blaine, & Meyer, 1995; Hudson, 2000). This requirement is necessary given that the key to understanding sensitive dependence to initial conditions is to acknowledge the iterative process that occurs in the system over time. Iterations increase the magnitude of the deviations (positive

feedback) over time, causing the final outcome of the system to be much different than its starting point. It is the impact of positive feedback that moves the system away from its original starting point.

Choosing Variables to Study

As management scholars, we typically seek to identify the impact of select independent variables on one or more dependent variables. We often measure the strength of these variables as well as their interrelationships, first through correlation analysis (which also helps check for multicollinearity and other concerns), and then multiple regression analysis (which helps determine the strength of the independent variables and the model's overall usefulness, via the R-square). However, in chaos research, we seek to identify the pattern of movement of the system under study through time by graphing the system variables in phase space.

In this paper, we graph the two variables of revenue and profits. These variables were selected based on the following criteria:

- Both variables can be captured in time series data.
- Revenue and profits are absolutely essential for the long-term sustainability of the firm.
- Both variables function as a proxy for how the firm is operating.
- Conceptually, both variables are easy for students to understand and aid in viewing performance from a different perspective.
- There is a limit to the number of variables that can be analyzed in phase space. Although any variables of interest to the researcher can be graphed in phase space as long as they can be depicted by time series data, the two applied herein are of key concern to both scholars and practitioners.

Graphing Variables in Phase Space

Phase space is used in the physical sciences, but may not be very familiar to management researchers. In phase space, the properties of the system under study are plotted at a point in time. With each iteration, another plot is made, which eventually results in a pattern (i.e., an attractor) when the plots are joined in chronological order by a line. "Diagramming the movement of a system's variables in phase space reveals the curious byways of an otherwise hidden reality" (Briggs & Peat, 1989: 32). Put another way, the pattern of a time series that looks haphazard may actually have a hidden structure to it if we look at it in a different manner, through phase space.

Phase space can be graphed using variables that the researcher desires to study. With one variable, phase space is typically graphed by placing the current data point from a time series on the y-axis and the prior data point from the previous period on the x-axis. This one variable arrangement is also referred to as pseudo phase space (Williams, 1997). Stam (2003) studied the single variable, EEG patterns (brainwaves), and plotted attractors in an attempt to identify conditions that can lead to an epileptic seizure. In the production operations management literature, Giannelos and associates (2007) used the single variable, flow time, in assessing dispatching policies for manufacturing jobs.

Plotting with two variables is also possible in phase space. For example, mechanical systems have been examined in phase space using position and velocity while ecological systems have been studied in terms of the population size of the species being studied (Briggs & Peat, 1989). In medical research, Reidbord and Redington (1992) constructed a phase space with heart rate and the patient's behavior state as the study variables. In the area of public administration research, Kiel (1993) constructed an attractor in phase space using time series data involving labor costs associated with service requests. In the area of strategic

management, Priesmeyer & Baik (1989) examined revenue and profit changes among retailers and identified attractors in phase space.

The Priesmeyer & Baik (1989) work sets the stage for the following discussion. In the next section, we assess the movement of revenue and income variables in phase space. We then offer a glimpse into how one firm exhibited a strange attractor in phase space.

UNDERSTANDING PHASE SPACE

Thus far, we have suggested that a research study using a chaos theory approach needs both time series data and a means of graphing the data points in phase space. In this example, we examine total sales and net income as they appear in phase space. In phase space, we are capturing the movement of the system variables through time. To accomplish this, we adjust our two study variables to reflect this requirement. Thus, we need to capture the variables as the "change in total sales", which will be shown on the x-axis, and the "change in net income", which will be depicted on the y-axis.

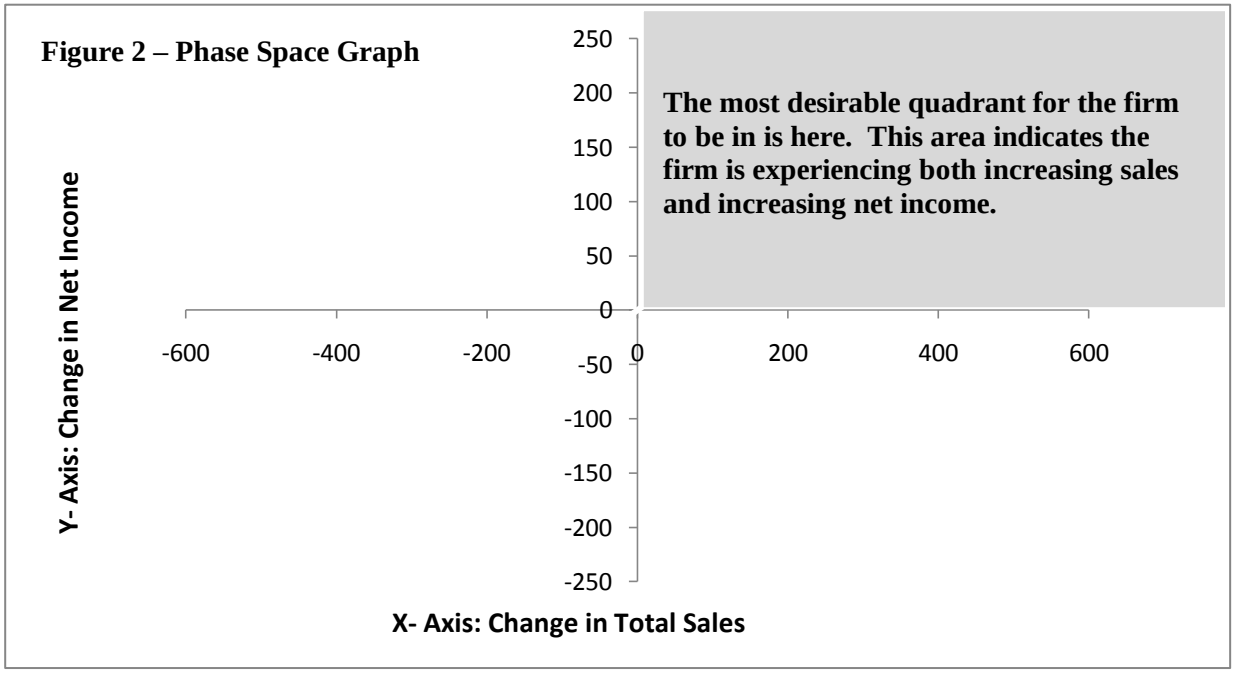
To obtain the change in total sales (x-axis coordinate), the difference between the present total sales for the fiscal quarter and the total sales for the previous quarter are calculated. The same procedure is used to calculate the change in net income (y-axis coordinate), using the net income (loss) figures.

$$\text{Change in Total Sales} = \text{Total Sales}_{\text{current}} - \text{Total Sales}_{\text{previous}} \quad (1)$$

$$\text{Change in Net Income (loss)} = \text{Net Income}_{\text{current}} - \text{Net Income}_{\text{previous}} \quad (2)$$

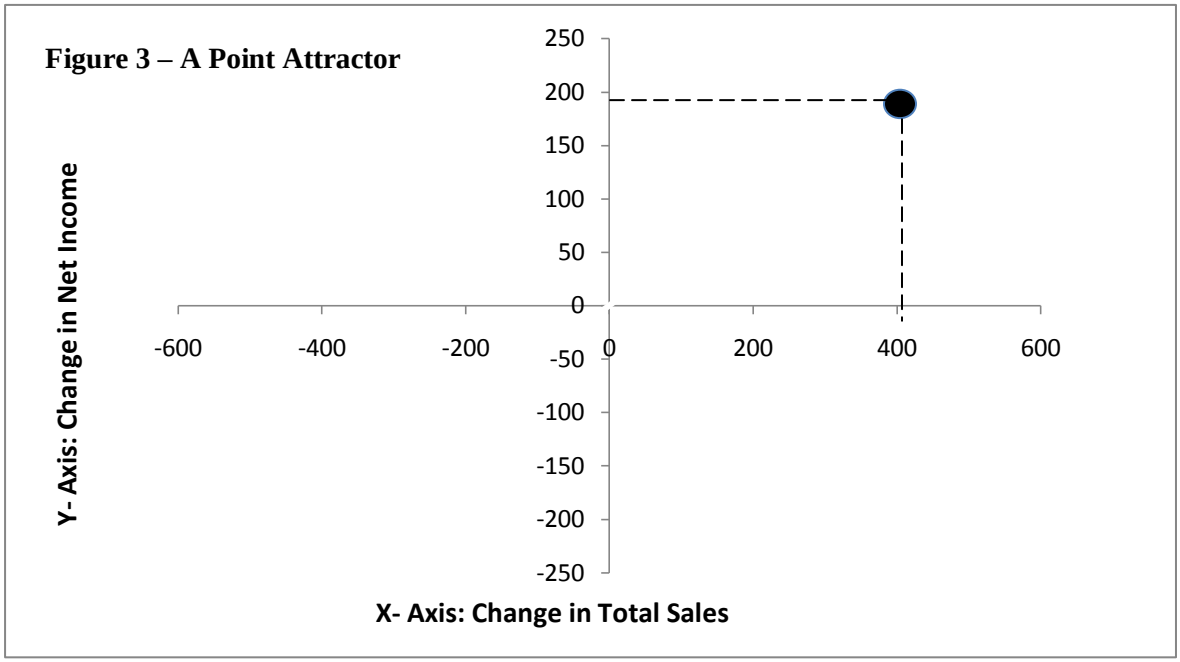
We begin with a graph (Figure 2) that depicts the two study variables, change in total sales (X-axis) and change in net income (Y-axis). Note that the upper right quadrant would be the most desirable for the firm, as it indicates consecutive periods of increasing total sales and net income.

Figure 2 – Phase Space Graph

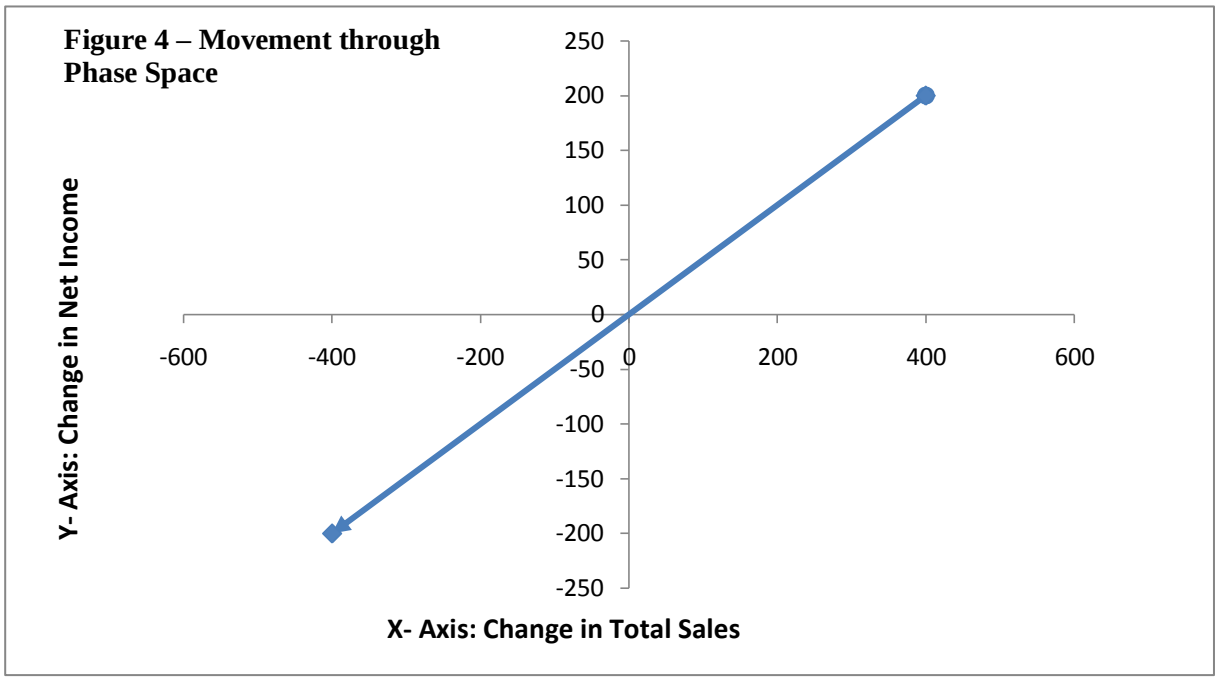


Suppose that a firm was able to increase sales for three fiscal periods by exactly $400. Suppose also that for each period, the firm increased net income by exactly $200. If this oversimplified situation were graphed in phase space, it would be plotted as one single point. This would be an example of a point attractor as shown in Figure 3.

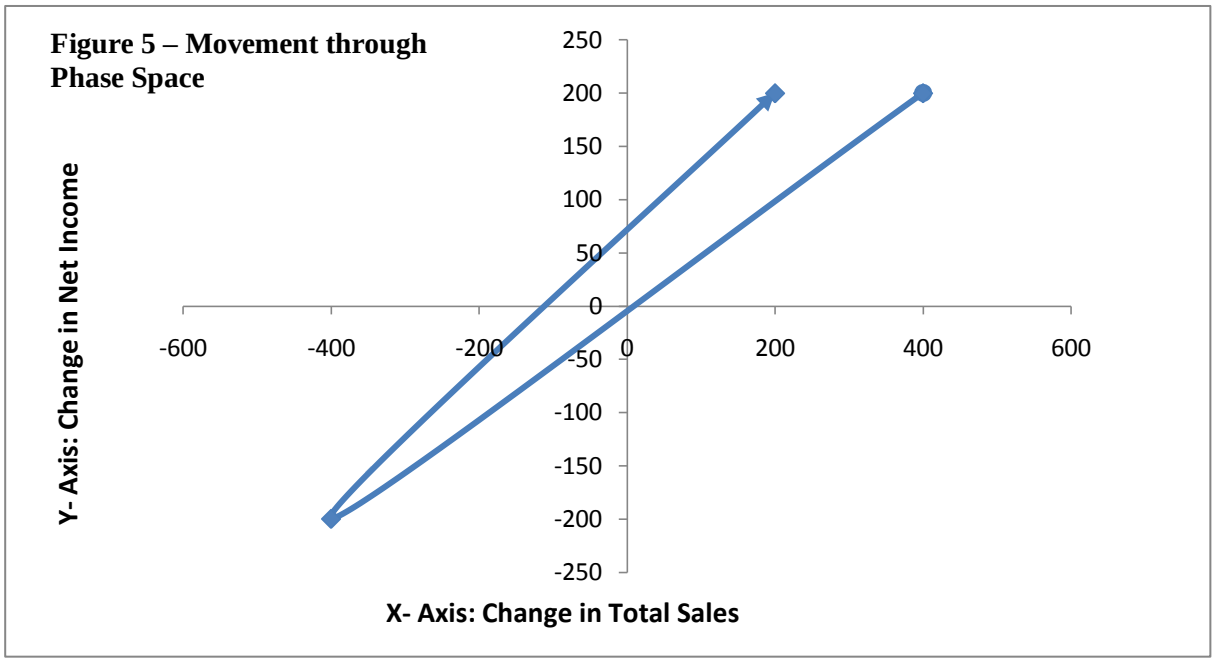
Figure 3 – A Point Attractor



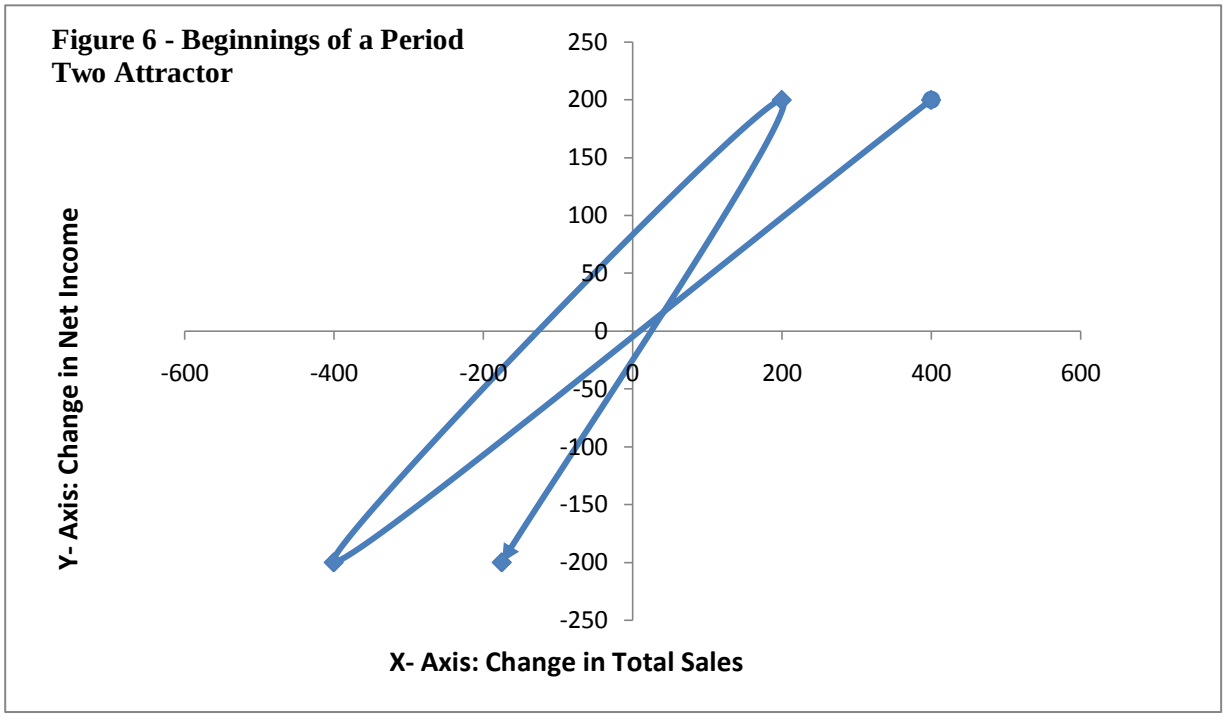
Now, suppose that in the next fiscal quarter, the firm experienced a decrease in sales by $400 and a decrease in net income of $200. The resulting plots would look like the ones in Figure 4. When the two points are joined by an arrow, the line slopes from the top right to the bottom left. It is important to remember that plots in the lower left or right quadrants do not necessarily mean the firm experienced a net loss, only that it experienced a decrease in net income for that fiscal period.



Assume that in the next fiscal quarter, the firm experienced an increase in total sales of $200 and an increase in net income of $200. Remember, these are changes from the previous fiscal period. This is not the same as saying that the firm's sales and net income were $200, a situation that would be impossible to achieve. Figure 5 illustrates this change, which is a return to the original quadrant.



Assume also that in the subsequent quarter the firm experienced a decrease in total sales of $175 and a decrease in net income of $200. When the plots are joined together by the arrows, one can see the beginnings of a pendulum or more accurately, a period 2 attractor as shown in Figure 6.



When the remaining points in this example are graphed, what results is an obvious pattern, an attractor that cycles between the two quadrants. In fact, this pattern could be quite normal for any business that experiences seasonal business cycles where sales and net income fluctuate from one period to the next. One of the characteristics of the period 2 attractor is that it is easy to determine which quadrant the next plot will fall in. In addition, we propose this particular attractor is more the norm for a firm that is operating well. The completed example of the period two attractor appears in Figure 7. The dataset used to generate this hypothetical example is in Table 1.

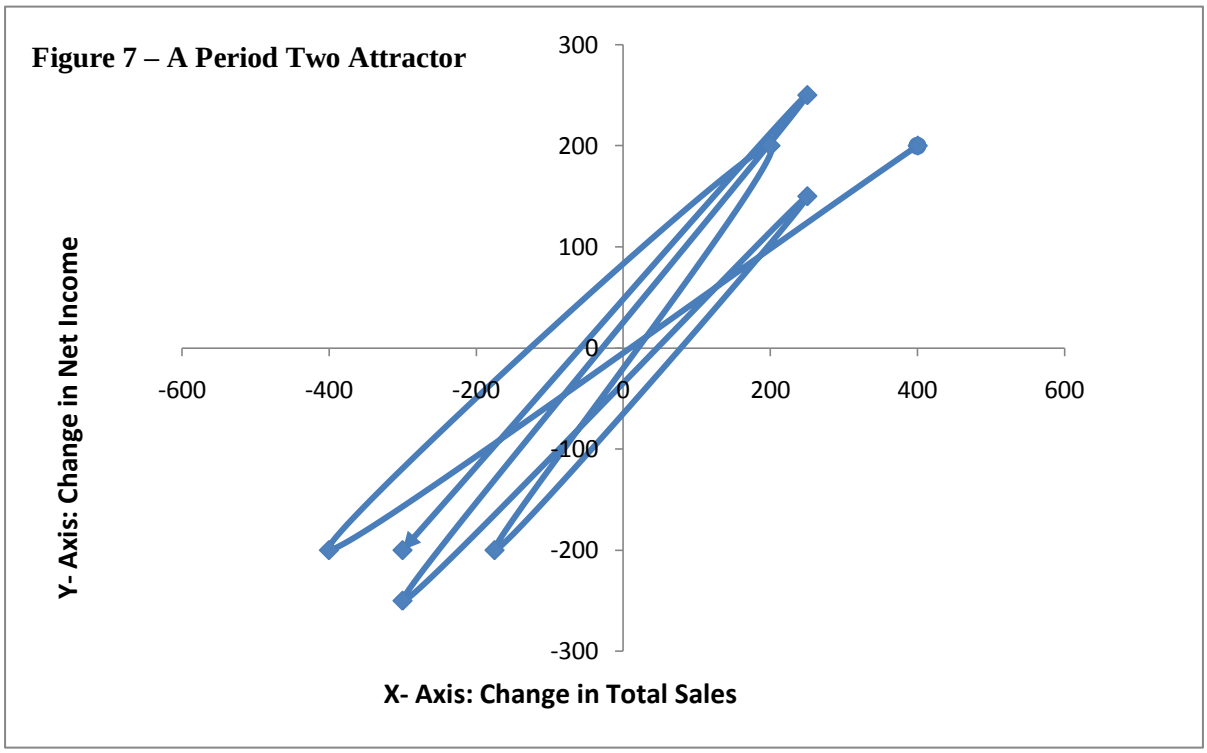
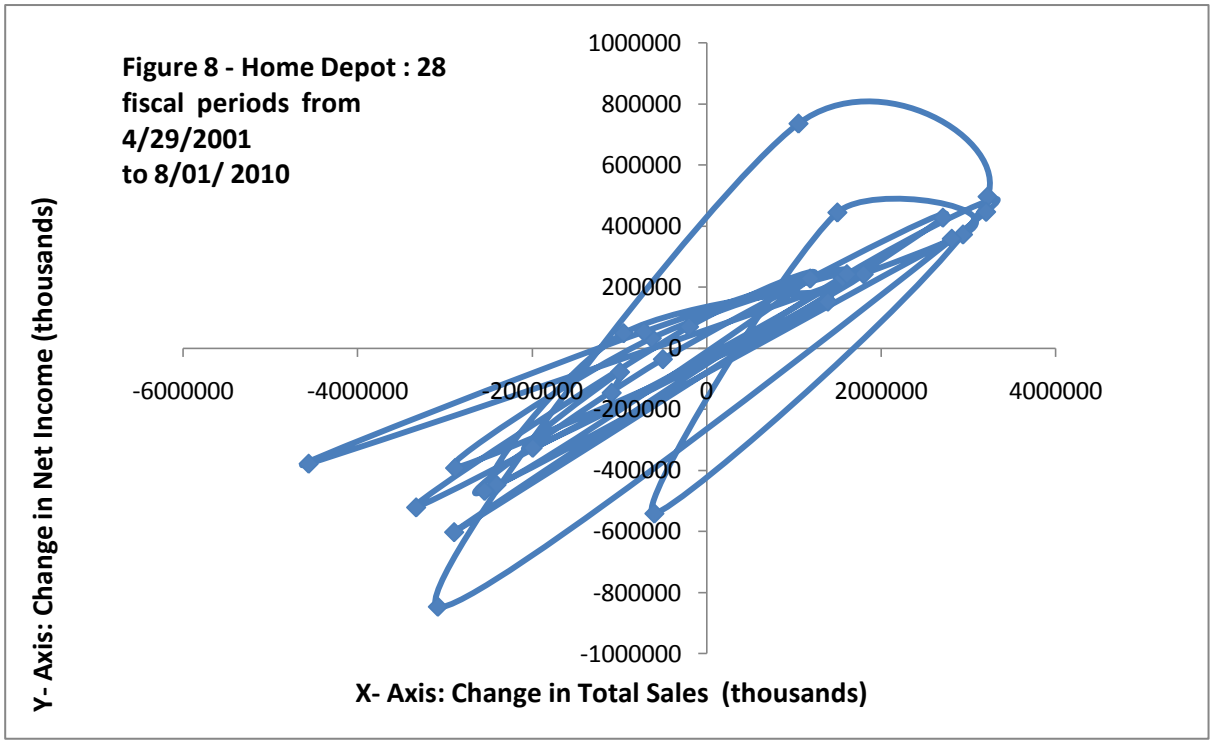


Table 1 - Data Set for the Above Example

Fiscal Period	Change in Total Sales	Change in Net Income
1	400	200
2	-400	-200
3	200	200
4	-175	-200
5	250	150
6	-300	-250
7	250	250
8	-300	-200

Consider another example of a period two attractor using real data. Home Depot exhibits a consistent two phase oscillation from the upper right to the lower left quadrants; an indication that sales and net profits are moving in a normal cyclical pattern. Figure 8 illustrates Home Depot's performance in phase space.

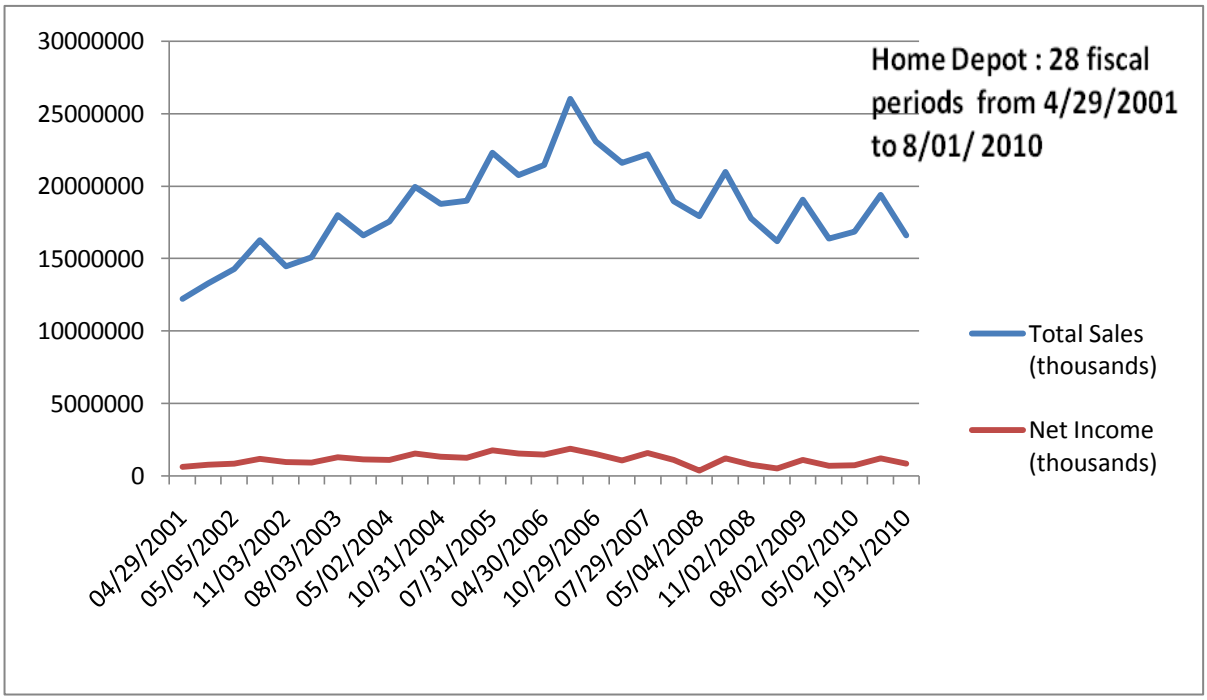


Data Source – Mergent Online

Figure 9 depicts the same Home Depot data graphed in the traditional manner. Total sales are depicted by the top line while net income is shown by the bottom line. This graph has two advantages over the phase space graph depicted in figure 8. First, it shows that net income does not result in a loss during any fiscal period, a feature that is not available in phase space. Second, the graph is more visually appealing vis-à-vis the scale of the total sales relative to net income.

On the other hand, the phase space graph has two advantages over the traditional graph. First, each plot represent the state of the two variables together, total sales and net income. The plot is a representation of the state of the organization at a particular time (or phase). Second, the graph shows more sensitivity to changes in the system behavior, as evidenced by the shape of the attractor.

Figure 9 – Home Depot Data in Traditional Time Series Format



Data Source – Mergent Online

We have thus far presented three examples of phase space attractors; one example of a point attractor, one hypothetical period two attractor, and one real world period two attractor using time series data from Home Depot. However, none of these examples exhibits a state of chaos, an assertion we base on three factors. First, recall the two conditions of chaotic systems, (1) sensitive dependence to initial conditions, and 2) unpredictability in the long-run. The system does not appear to be sensitive to initial conditions. All three examples violate both conditions. First, the point attractor does not deviate at all from its initial conditions; it remains at its designated point in phase space. Second, because the point is stable, it is easy to predict on the long-run, hence, no chaos. Both period two attractor examples are also not sensitive to initial conditions, as their consistent orbits bring the system back into a predictable pattern, which also disproves the second condition, that it is unpredictable in the long-run, hence, no chaos.

ASSESSING PIZZA INN

Based on previous knowledge, we suspected the restaurant chain Pizza Inn as a prospective example of chaos. Specifically, we suspected that the company would depict a chaotic attractor when its performance variables of sales and income (loss) were graphed in phase space.

The reasoning was that a poor performing firm would be more difficult to predict in terms of performance from one fiscal quarter to the next. Hence, its phase space history would be chaotic. The result would be a strange attractor that did not appear to follow a point or period two cycle. This methodology is consistent with Priesmeyer & Baik's (1989) assessment of retail firms.

To test our proposition, we collected time series data from Mergent Online for Pizza Inn Ten years of sales and income data was retrieved. Next, we continue our explanation of the results.

Results

Figure 10 depicts thirty fiscal periods for Pizza Inn using the traditional format for time series data. Total sales are shown by the line on the top and net income by the line on the bottom. The general trend has been a decrease in sales over the 10 year period. Profits have been uneven with a brief spike at the end of 12/29/2002 and a loss in 9/24/2006.

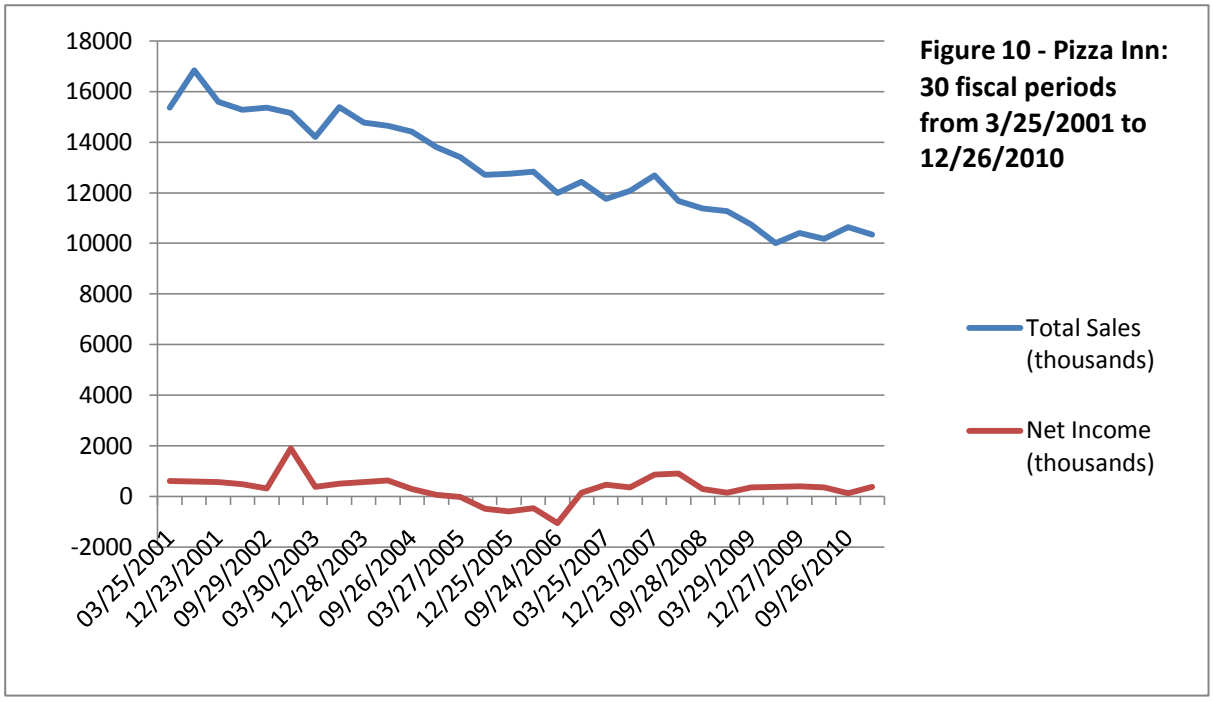
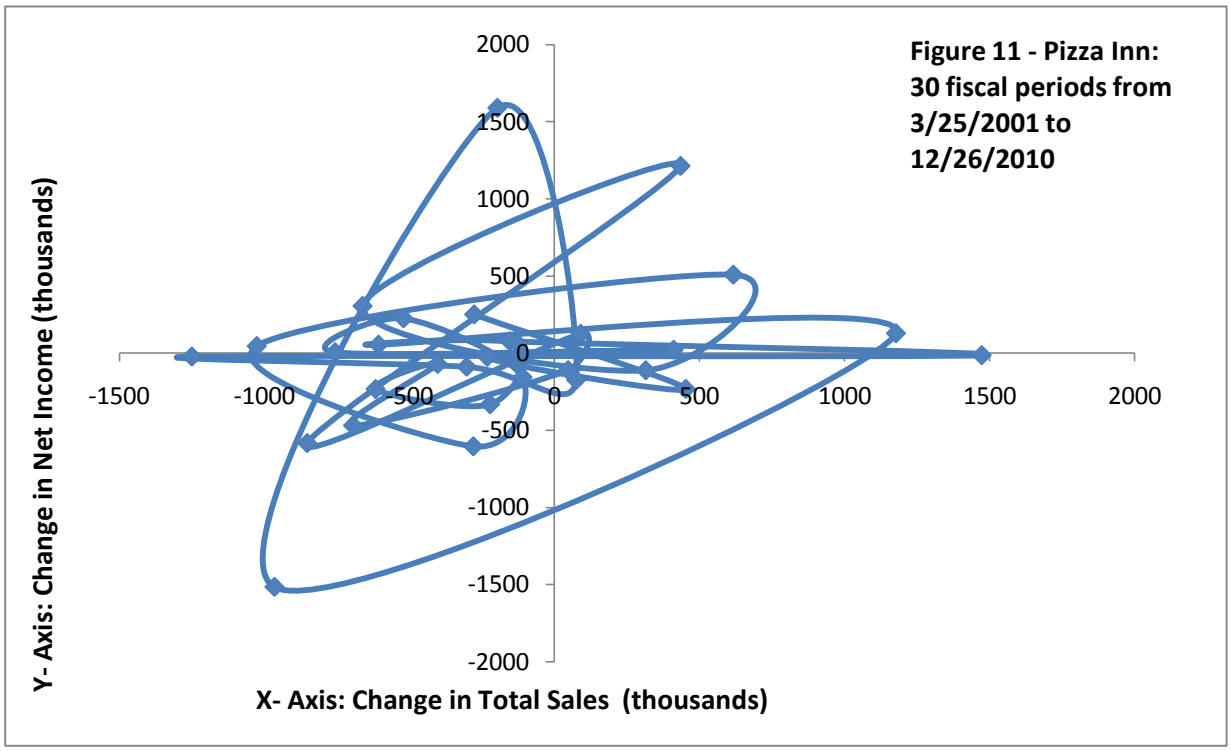
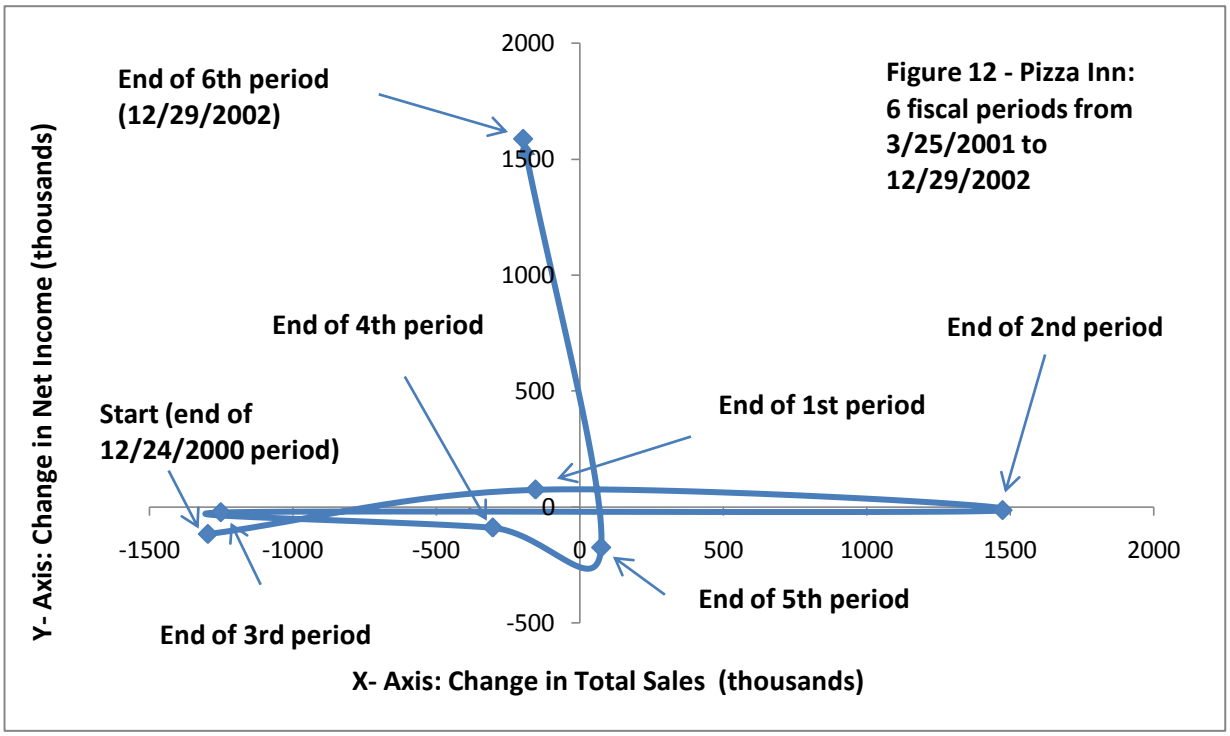


Figure 10 - Pizza Inn: 30 fiscal periods from 3/25/2001 to 12/26/2010

Figure 11 depicts the data in phase space. It is immediately evident that the data does not follow a period two attractor as illustrated earlier. In fact, the plots are represented in each of the four quadrants.

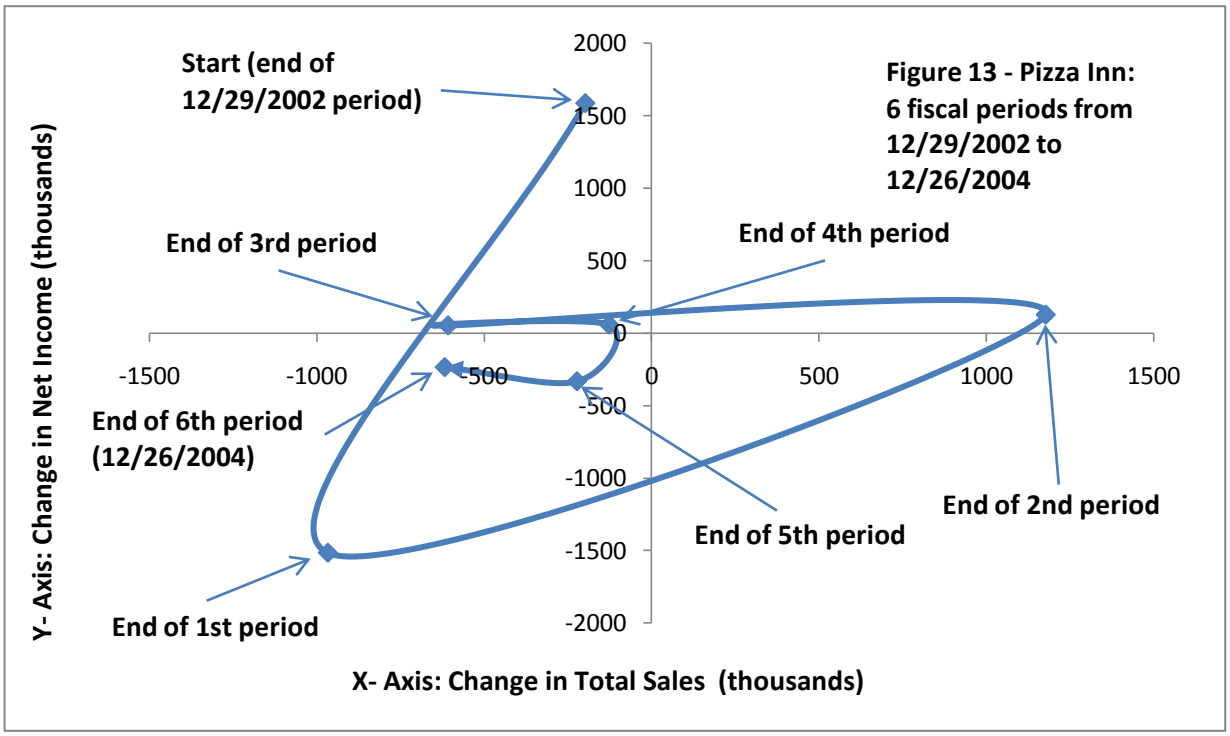


The shape itself is unusual, as this data depicts what chaos theorists would call a "strange" attractor, an indication of chaos. However, in order to understand this firm performance better, we need to assess it in smaller sections. In the discussion that follows, we reexamine the graph in two-year increments to gain a better understanding of how this system evolved. Figure 12 begins our analysis as it covers six fiscal periods from 3/25/2001 to 12/28/2003.



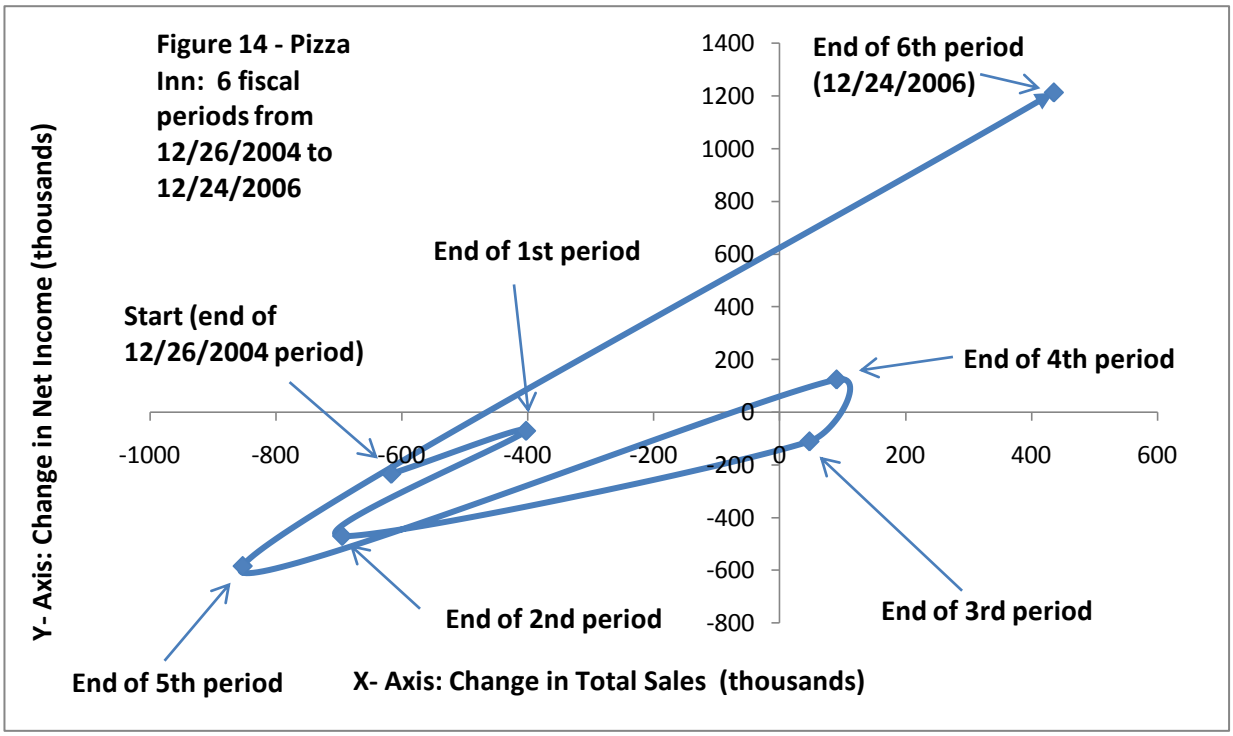
The cycle begins at the start point which is the end of the 12/24/2000 period. The first period ends with a slight decrease in sales, with a slight increase in income, putting the plot in the upper left quadrant. This in itself is somewhat of an unsual situation, as revenue declines are not typically associated with profit increases. At the end of the second period, sales have increased and income has decreased, again, an unusual situation. The third period ends with a decrease in both sales and income, a situation which intuitively, is easier to comprehned. The fourth period also realizes a decrease in both sales and income. The fifth period changes, with a slight increase in sales with a slight decrease in income. By the end of the sixth period, another unusual occurrence has occurred, an increase in income despite a small decrease in sales.

It is difficult to determine from this assessment where the next plot will take place because no pattern has emerged. Considering figure 13, note how the start point is the same as the end point of the previous graph. What is immediately noticeable is that this cyle is very different from the previous two year cycle.



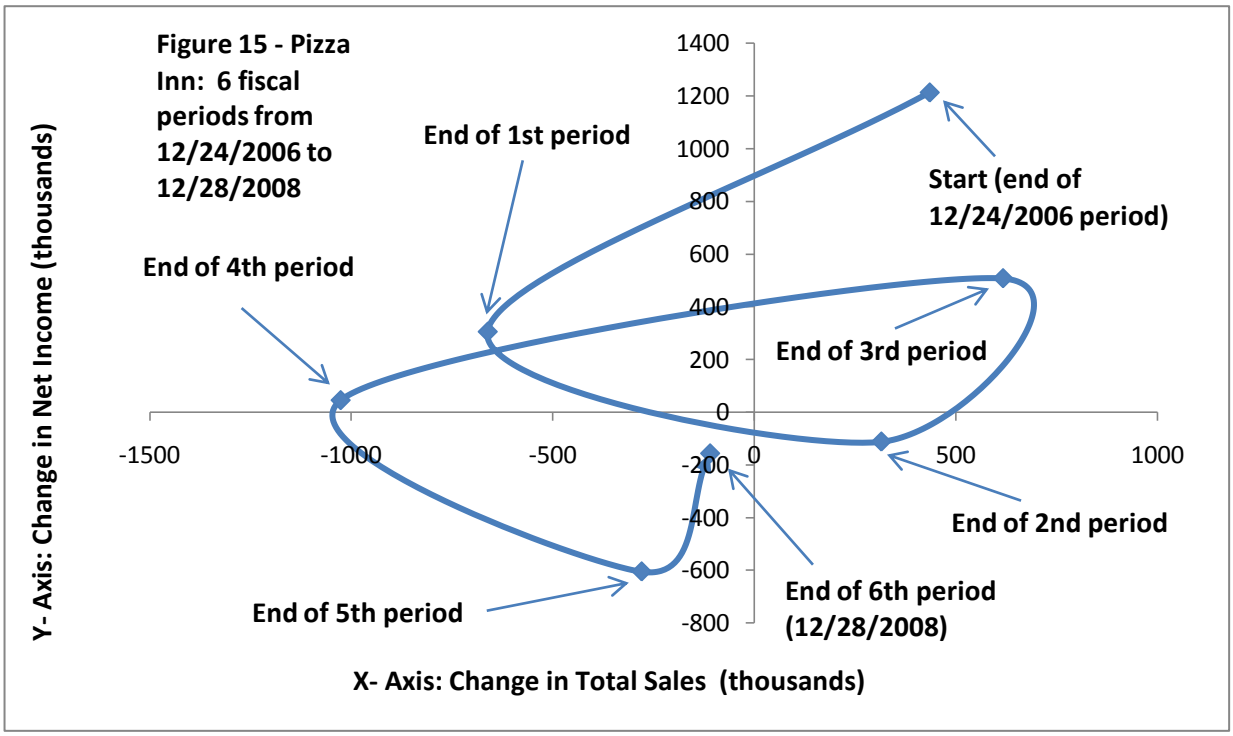
At the end of the first period, both sales and income have taken a substantial decline as the plot moves to the lower left quadrant. The second period sees a major increase in sales, with a slight increase in income. The third period ends with a sales decrease with a slight increase in income. From there, Pizza Inn remains in this quadrant with a continued decrease in sales, with a small increase in income by the end of the fourth period. The next two quarters end with both a decrease in sales and income. Note that firm sustainability cannot be maintained in this lower left quadrant over an extended period of time. Of the six points plotted in this phase space, three are in this lower left quadrant. Only one point land in the upper right quadrant, an indication of healthy firm performance. This could be a cause for concern if Pizza Inn's performance continues to land in this quadrant.

Figure 14 depicts the next two-year graph which appears at first to be a period two attractor. This is not the case, however, as is evident from the location of the points in the quadrants. A period two attractor would have an equal number of points in two of the four quadrants. In this example, four points fall in the lower left quadrant, two are in the upper right, and one point is in the lower left quadrant.



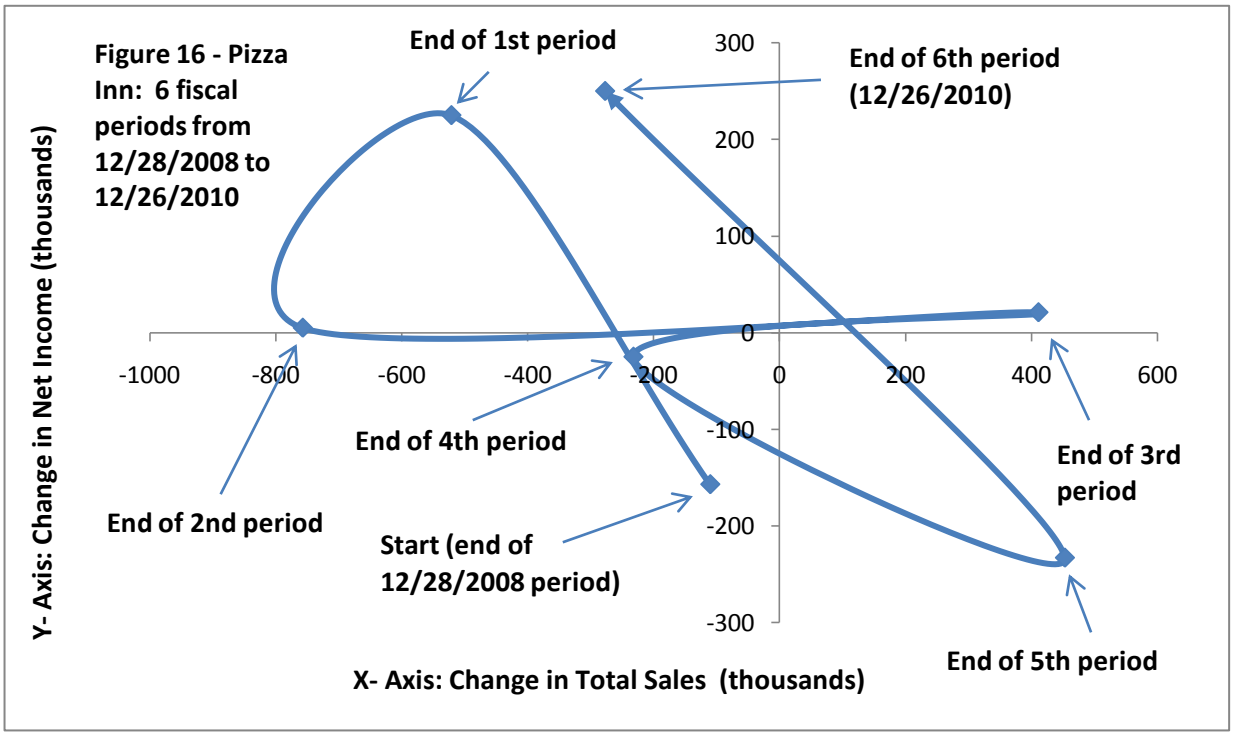
Again, the start point is where the end point was located in the previous graph. At the end of the first period, there is a decrease in sales with a slight decrease in income. By the end of the second period, sales and income have decreased in a greater amount. A rebound in sales occurs by the end of the third quarter, but income is still continues to decrease. Note that this indicates three consecutive quarters of income decrease, a situation that is not sustainable in the long-run. However, by the end of the fourth quarter, there has been a slight increase in both sales and income, certainly some good news. However, by the end of the fifth period, there is substantial drop in both sales and income. What is interesting next is the large increase in sales and income by the end of the sixth period. This one was certainly difficult to predict, given the haphazard performance from the previous five periods.

Figure 15, the next two-year graph, depicts a pattern that is different from the previous ones. That this pattern is different is another indication that Pizza Inn's performance over this ten year period is most likely an example of chaos.



The first period ends with a decrease in sales and an increase in income. Period two ends just the opposite with an increase in sales with a slight decrease in income. The third period rebounds with an increase in sales and income followed by a decrease in sales with a small increase in income for the fourth period. Once again, it is difficult to predict exactly where the next point will fall. The fifth and sixth periods experience decreases in sales and income.

Figure 16, the last two-year period graph, is the most unusual one yet. The pattern appears like a figure eight, with points falling in all four quaderants. Still, it is difficult to determine where the pattern will evolve in the years that will follow.



The first and second periods both depict a decrease in sales and a decrease in income, although the income decrease in period two is relatively small. The third period realizes an increase in sales with a slight increase in income. This is followed by a decrease in sales and income in the fourth period. The fifth period sees a major increase in sales coupled with a significant decrease in income. The sixth period ends with an unusual decrease in sales accompanied by an increase in income.

DISCUSSION

In the previous section, we illustrated how a tool of chaos theory, phase space, can be used to track the firm performance variables of sales and income. We identified a strange attractor in the ten year operating period of Pizza Inn. We then examined the evolution of the system in two-year increments. Each graph displayed a different pattern (attractor) from the previous graph. It was difficult, if not impossible to determine the quadrant in which the next fiscal period would fall and the pattern the system will take in the future. We conclude that this time series data displays the characteristics of chaos.

This conclusion meets the criteria of chaos. Recall that there are two overarching conditions that must be met, (1) sensitive dependence to initial conditions, and (2) unpredictability in the long-run. Proving the first condition is not possible, as it would necessitate the assessment of two almost completely identical pizza chains. Only a few differences between the two chains would be permissible, such as different managers and employees. Then, over a period of time, the chains would eventually diverge and evolve into very different entities. It is the iterations that would make the chains different, and hence, sensitive to their initial conditions. Indeed, only in a computer simulation can such a scenario be evaluated.

As a proxy, we could consider case studies of actual firms. Firms are constantly being formed, but only a small percentage will survive for a substantial period of time. Likewise, in the retail pizza

industry, many pizzerias have come and gone. Virtually every pizza chain started with only one restaurant, some growing large (e.g., Pizza Hut), and some not so large (e.g., Pizza Inn). Many pizzerias have remained small, and most to this day are single proprietorships with only one unit. And yet, they all still began the same way, with an idea, some capital, and a single store. The sensitive dependence to initial conditions comes into play when we see how the hundreds, and indeed thousands of pizza restaurants, have evolved into different forms. Perhaps sensitive dependence on initial conditions is the modus operandi in the business world. Pizza Inn then, started like the other restaurants did, but emerged differently from Pizza Hut, California Pizza Kitchen, or CiCi's. Indeed, all of these companies displayed sensitive dependence to their initial conditions.

As for the second condition, unpredictability in the long-run, our data does support this conclusion with the Pizza Inn chain. The haphazard or strange shape of the attractor displays a pattern of firm movement in phase space that is difficult to determine. It is impossible to predict what Pizza Inn will look like next year. Indeed, we cannot even predict what its attractor in phase space will look like over the next year. Compare this with the period two attractor of Home Depot. With this company, we can say, with some degree of confidence, that its phase space cycle is likely to continue its pattern.

WHAT DOES A CHAOTIC SYSTEM TELL US?

We thus conclude that Pizza Inn displays a chaotic performance with regard to its sales and income. But what benefit exists for understanding that a time series is chaotic? We propose the following three reasons.

1. A chaotic system is difficult to predict.

Each of the two-year graphs illustrates the difficulty in predicting just where the system will move next. Because phase space is sensitive to changes in the system, we can see that firm performance is haphazard in terms of which quadrant it will land in next. This pattern is not apparent in a normal time series data graph; but reveals irregularities when the same data is graphed in phase space.

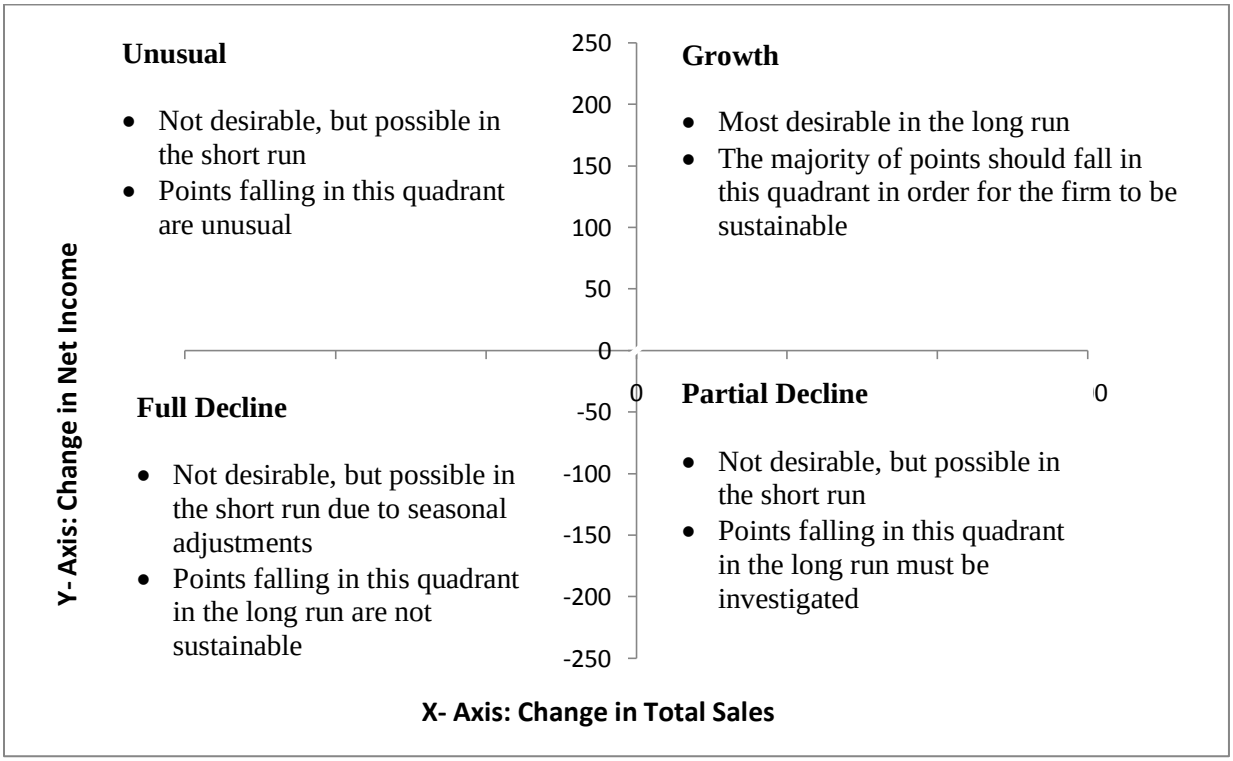
2. A chaotic system may reveal that something unusual is occurring.

The Pizza Inn example illustrates a number of point plots that fall in the upper left hand quadrant, indicating a decrease in sales and an increase in income. Scholars may wish to investigate the causes of this anomaly. While not necessarily dysfunctional, this situation is out of the norm, as one would expect income and revenues to be positively correlated. A look at the time series graph that plots sales and income (as opposed to change in sales and income, as we see in phase space) does not readily reveal this particularity. However, when we venture into phase space, the unusual is revealed more clearly.

3. A chaotic system can serve as an early warning indicator.

Traditional time series data, as illustrated in figures 9 and 10, can indicate when there is a performance problem. In fact, figure 10 clearly shows a closing gap between sales and profits. However, what we can glean from this figure is limited. Because of its sensitivity to shocks, phase space can help us see early on if a problem is emerging in the early stages in a way that traditional time series cannot. Figure 17 offers a visual summary of the four quadrants in phase space.

Figure 17 – A Summary of the Four Quadrants in Phase Space



The growth and full decline quadrants are intuitive. Over the long term, income tends to rise and fall with revenue. Strategic managers at most firms seek a position in the growth quadrant. They attempt to grow their businesses by increasing sales, and ultimately profits. Remaining in this quadrant could be viewed as inherently desirable for most firms.

In contrast, the full decline quadrant is the least desirable position. Income steadily declines, ostensibly due to decreases in revenues. Firms in this quadrant might seek to increase income by cutting costs, but this can be counterproductive if doing so negatively impacts product quality, service, or other factors that drive revenues.

Executives at firms consistently occupying either the growth or the full decline quadrants gain little by applying phase space. The general health or lack thereof is typically clear. Strategic managers whose firms frequently occupy the remaining two quadrants—unusual and partial decline—can glean more from this type of analysis.

The unusual quadrant is counterintuitive; firms occupying this space enjoy an increase in income while revenues are declining. This occurrence could be a short term phenomenon that results from aggressive cost cutting. The relationship between revenue and income is a critical one for such firms as their managers must struggle to discern between effective and ineffective approaches to reducing expenses. For example, a reduction in the advertising budget might be appropriate if promotional efforts do not result in sufficient increases in revenue, but inappropriate if sales declines precipitously as a result. Distinguishing between these two possibilities is a complex challenge, but one that executives must traverse.

The partial decline quadrant is intriguing. Executives at firms in this quadrant face problems similar to those whose organizations occupy the unusual quadrant, but from a different angle. In the partial decline quadrant, increases in revenues are not translating into profits. A number of culprits could explain this phenomenon, from ineffective cost controls to an increase in the intensity of competition, requiring price reductions. Again, the key here is for strategic managers to identify the cause(s) so that remedial action can be taken.

On the surface, examining each quadrant independently is not a difficult exercise. The complexity emanates from the *movement* of the organization across quadrants over time. Identifying these shifts in a visual manner is perhaps the greatest contribution of phase space, while interpreting their collective meaning is the greatest challenge to decision makers.

ADVANTAGES, LIMITATIONS, AND FUTURE DIRECTIONS

In this final section, we offer advantages, limitations, and future directions for research.

Conclusions and Limitations

This study applies a tool from chaos theory, phase space, to help us better understand time series data that involves strategic variables. As a metaphor, chaos theory is overused and appears to offer little in terms of distinctive descriptive or prescriptive value. We emphasize the mathematical properties on which chaos theory was founded, albeit on a limited basis, to help us understand firm behavior. This paper demonstrates that phase space offers unique advantages that are not available with traditional time series data.

Phase space is not a technique to replace any of the more traditional approaches to time series analysis; instead, it can supplement our understanding of firm performance. Hence, the use of chaos theory is not a superior approach to analysis, as some have suggested, but instead, another tool in our box of techniques to aid the management researcher.

The primary limitation of this study was that only one company was analyzed. As we explain next in future directions, studies involving multiple companies are desirable. Each organization charts it own course through phase space. Similar patterns attributable to similar causes may suggest a common organizational response. Outlining such prescriptions can be invaluable, but the present study is only the beginning.

Future Directions

Several research opportunities exist. A potential research stream would be to conduct similar phase space analyses on other firms. Comparisons of companies in the same industry may reveal similarities in terms of how the attractors that are graphed. Put differently, are there industry specific attractors? We also propose that the following questions be addressed in future research endeavors.

- **What conditions would cause sales to decrease and income to increase (upper left quadrant)?** An occasional drift into this section would be understandable, particularly if the numbers are low. But a high decrease in sales with an increase in income would be interesting to pursue. What would cause this unusual event to happen?

- **Are there certain shapes of attractors that are sustainable in the long-run?** We identified the period two attractor that oscillates between the top right and bottom left quadrants as being normal for a company experiencing seasonal influences. However, there may be other more

complicated attractors that exist that are also sustainable in the long-run. For example, a period three or period four attractor may be possible.

- **Do certain shapes of attractors precede episodes of chaos?** Phase space analysis may reveal attractors that act as precursors to chaotic episodes. If so, what would these preliminary attractors look like? Answering this question would assist practitioners in identifying problematic patterns in their organizations.

- **Can other variables be graphed that would add to our understanding of the organization's performance?** For example, what if research and development (R&D) expenditures were graphed in phase space with net income or net sales as accompanying variables? Would the resulting attractors yield meaningful information? R&D is mentioned because of its use as a means of differentiation. R&D is particularly characteristic of the prospector business strategy and the differentiation strategy (Parnell, 2008).

- **What causes a company to enter into chaos or emerge from it?** Recall that chaos is not necessarily a time when the company is experiencing a net loss. Instead, chaos occurs when the firm is experiencing changes in sales and profits that are difficult to predict from one fiscal period to the next. We are not referring to the inability to predict the amount of change, but the *direction* of that change (i.e., whether it is increasing or decreasing).

- **How can the use of chaos theory be blended with conventional forecasting methods?** One of the most sensitive areas for public companies is in forecasting future expectations of revenue and income growth, or decline. Investors would no doubt have more confidence with companies operating with a period two attractor than one operating in a chaotic state.

Given this definition of chaos, the question now becomes, what causes a company to enter periods where it is difficult to predict the direction of sales and the direction of profits (again, either increasing or decreasing)? Likewise, what conditions enable a company to depart from these cycles of unpredictability (chaos)?

The application of chaos theory to the strategic management field remains largely undeveloped. This paper can serve as a catalyst for developing this line of research, in both descriptive and prescriptive terms.

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AN EXPLORATION OF MANAGEMENT IMPROVEMENT PROGRAMS

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ABSTRACT

Today's competitive environment forces most businesses to search for ways to reduce costs, improve quality, reduce response times in delivery and new product development, and increase their flexibility and agility. In the past half-century, one of the most popular, and effective, ways of gaining these improvement objectives, is with what has been designated in the literature as management improvement programs.

A REVIEW OF MANAGEMENT IMPROVEMENT PROGRAMS

As the name implies, management improvement programs are designed to improve some aspect of business operations. They are supplemental activities. In other words, they do not exist until somebody decides they need to be there. For example, most companies are concerned about providing their product or service to the customer in a reasonable amount of time. However, company management may sense that they could improve in this aspect of running their business by providing their product or services in a timelier manner. To address this need for improvement, management may decide to implement a special program to help them accomplish this goal. Such a program could be a QRS or quick response systems. Hence, a special program now exists to improve this aspect of management.

Management improvement programs are usually assigned a name to distinguish them from the normal operations of a business. Often they are known by an acronym, such as ERP (enterprise resource planning), WMS (warehouse management systems), or APS (advanced planning and scheduling). Such acronyms are useful because they help us remember the name of the program better, and in normal conversation and writing, it is easier to use letter abbreviations when making multiple references to the same program. We will try to refrain from designating management improvement programs as MIPs.

Beyond the acronyms and early hype, it is important to remember that management improvement programs are concentrated efforts to improve some aspect of business operations. Examples of potential improvement areas include reducing costs, improving product quality, or shortening response time to the customer. They may involve a part or all of an organization. Usually, they are of a project nature, with a beginning, a life cycle, and an end.

Management improvement programs originated as an attempt to introduce improvement into a business. Sometimes, a program may originate in a particular company. For example, Japanese automaker Toyota started an improvement program to reduce inventory and improve cash flow by revamping their production system. This program was first known as the Toyota Production System (TPS) and then by a variety of other names, such as stockless production and zero inventories. Later, this program achieved widespread acceptance and eventually became known as the Just-in-Time (JIT) system.

In most cases, a management improvement program is an adaptation of an existing program that has become popular, or at least reasonably successful in other companies. As a result, most programs begin

small to address a specific need. If successful, they often expand into a much broader program to become embedded into the day-to-day operations of the company. In other words, it becomes a management philosophy that is part of the way organizations operate on a regular basis, not just as a special program.

WHY ARE MANAGEMENT PROGRAMS IMPORTANT?

Management improvement programs have been widely successful in a number of companies and throughout a vast array of industries. However, not all implementations of these programs have been successful in every company. Implementing a management improvement program does take some planning and careful implementation. Management improvement programs are important to the running of a business. This does not mean every company needs every program; only certain types of programs are necessary to improve most business operations.

Look at how a management improvement program fits into the general scheme of things. A manager deals with three types of activities: (1) maintaining the smooth flow of normal day-to-day operations, (2) correcting problems that arise when these day-to-day operations run awry, and (3) making improvements in these operations (when time permits). The first set of activities probably consumes most of a manager's time; the smooth running of a department, plant, unit, or organization is their primary concern and responsibility.

It is rare that daily activities will run smoothly for very long. Problems arise; that is a natural outcome of even normal operations. At this point, a manager turns attention to addressing the problem at hand. Day-to-day operations continue; the manager must shift attention to remedying the disruption. It is the second set of activities described above. Examples of such problems abound, and they are usually unique given the industry in which you operate. In a retail setting at the store level, you may need to address the following situations:

- Setting up a contractor to fix the leaking roof
- Assisting a customer who has slipped on the floor
- Filling in for an employee who has called in sick
- Calming down an irate customer who has returned some defective merchandise
- Evacuating the store of customers when the power goes off.

However, if you are in mid-management, your set of problems may be much different. Your normal day-to-day operations may be affected by the following:

- Finding someone to operate a store when that manager must be hospitalized
- Re-scheduling a company sales promotion when a snowstorm delays delivery
- Coordinating efforts to get a store up and running after a fire
- Getting a cell phone call to hear the company CEO has just died of a heart attack
- Hearing a major supplier has raised prices because of escalating oil prices.

In the manufacturing sector, other areas can disrupt normal activities:

- Trying to maintain production when a major piece of machinery goes down
- Informing a major customer of a price increase because of rising component costs
- Addressing the cause of an employee injury on the manufacturing line
- Finding and analyzing the cause of a product defect
- Handling an employee grievance filed by the shop steward.

Regardless of your managerial level, or your industry, there is no doubt that problems like these can take a great deal of time to resolve. Between the activities described in the first and second category above, you may find that your days are full, with little time left over for reflection on how to actually improve

business activities. Instead, you may feel like the kind of manager that is always running around, putting out fires.

How desirable it would be to actually have time to reflect on ways to improve operations so some of those items described above would not occur in the first place. Yet, this is the essence of the third category of activities, to improve managerial operations. There is an irony in this discussion that almost sounds like a mathematical equation; the problems that occur in the second category, within the context of the first category (normal day-to-day operations) can be addressed by solutions from the third category (management improvement programs). We could then look at it this way:

Normal day-to-day operations + problems = the need for management improvement programs

The left side of the equation indicates a manager's day consists of daily operations, plus an abundance of problems thrown in. Although it is common to think of these problems as being mostly negative events, they can also be an opportunity for learning and change in your organization (Wang, 2008). The right side of the equation shows the need to be on the lookout for ways to improve things, hence, the need for management improvement programs. As a manager, it is not enough to operate on the "left side"; you need to be on the "right side" as well.

HOW DO MANAGEMENT IMPROVEMENT PROGRAMS RELATE TO BUSINESS OPERATIONS?

Where do management programs fit in with running a business? Every business participates in a number of supply chains, both as a transformer of goods and provider of services, as well as being a supplier or customer to other businesses. To understand the complexity of business operations today, one must see this inter-connectivity of activities. Each of the five facets of the supply chain will be discussed from the context of day-to-day operations, problems, and management improvement programs.

Suppliers

Suppliers provide raw materials for the production process and represent an ongoing, living relationship with your company. The word relationship is important, because when this relationship is strained, business transactions between your supplier and your company will also be strained. Such a strain leads to the general problem of poor coordination activities between your company and your supplier. The result can be missed orders, late deliveries, price fluctuations that are harder to predict, and perhaps poor quality of products delivered from your supplier

Fortunately, poor supplier relationships can be improved with a program of supplier relationship management (SRM). The goal of this management improvement program, as the name implies, is to improve long-term relationships with a company's suppliers.

Inputs

We have listed inputs separately to show that when your company receives supplies, it must store those supplies somewhere. In normal day-to-day operations, storage can be seamless when supplies are always available and not accumulating to the point where they can be damaged or spoiled. However, a number of problems can occur to inventory. Depending on how inventory storage is set up, there may be too little inventory, or too much. Of course, too little inventory can cause delays in production and dissatisfied customers. Too much inventory can raise your storage costs, which ties up money that could be used somewhere else in running your company.

Fortunately, there are management improvement programs that can address these very problems. Warehouse management systems (WMS) for example seek to address issues that arise when moving goods into and out of storage. These programs also include the use of technology, both physical and software, to help develop the optimum methods of controlling inventory once it is in-house.

Transformation

In the transformation process, your company is actually making the product, or providing the service. In addition, many companies today realize they are BOTH a manufacturer and a service provider, a phenomenon we call the vanishing boundary between service and manufacturing (Crandall & Crandall, 2008). For example, manufacturers not only make a product, but they must provide aftermarket service for their customers, as in the case of computer hardware and software.

The transformation process can be plagued with a number of problems including rising production costs, excessive work-in-process inventory, and slow manufacturing cycles. Once again, there are management improvement programs that can systematically address these problems. JIT and its follower, lean manufacturing, are programs that address these types of production issues.

Outputs

Outputs are the actual products or services that your company provides. Usually, we think of outputs as being a tangible good placed in the hands of the customer. Typical problems that arise with outputs tend to be quality related – a product has a defect, or it does not perform as well as the customer would like. A number of management improvement programs exist to address quality issues, including statistical process control (SPC), total quality control (TQC), total quality management (TQM), quality function deployment (QFD), and Six Sigma.

A secondary set of problems relates to the usability of the product in relation to its features. In this scenario, there is nothing wrong with the product in terms of quality, but the features do not match what the customer desires. This is problematic to manufacturers who want long stable production runs in order to keep costs down. However, the demands of the customer dictate that a number of products be built, often with common platforms (such as an automobile), but with small lots of product with different features (or bells and whistles as they like to say in the automobile industry). Two management programs address this dilemma – agile manufacturing and mass customization. The goal of these programs are to help management set up manufacturing systems that can address the finicky needs of customers, while maintaining some semblance of mass production.

Customers

Ultimately, the product or service a company produces must be delivered into the hands of the customer. A common problem at this point is to deliver the goods in a timely manner. It is not enough for a company to produce a high quality product at a decent price; the delivery of that product must be done expediently. This time-based competition can put a company at a competitive disadvantage if it is not able to perform up to the expectations of its customers. Fortunately, there are several management improvement programs that address this very problem – quick response systems (QRS) and efficient consumer response (ECR).

There is another area of consumer relations to consider. Some businesses have taken the attitude that their customers are not just casual sources of revenue but capable of forming a long-term relationship with the company as well. An abundance of consumer information is available to the company by cultivating these ongoing relations with their customers. Not surprisingly, a systemized management

improvement program is available to help facilitate these relationships, customer relationship management (CRM).

By looking at the supply chain, we can quickly see applications of management improvement programs. You might have noticed that some of these programs overlap several areas of the supply chain. Indeed, most programs follow a wider scope than described above. For example, JIT and its successor, lean production has an influence on almost EVERY area of the supply chain, not just the transformation function. Nonetheless, we offer this introductory framework to suggest applications of where the use of these management programs is most likely.

Management improvement programs are here to stay. They have a unique ability to address specific types of problems in an organization. However, few management improvement programs are originals; they have origins that go back to early management thought.

HOW MANAGEMENT IMPROVEMENT PROGRAMS EVOLVED

To understand the evolution of management improvement programs, it is necessary to take a brief look at management history. Table 1 will serve as a basis of operation for the pages that follow. According to management historian, Daniel Wren (1987), management history can be divided into four segments of time: early management (the pre-scientific period), the scientific management era, the social man era, and the modern era. We discuss each of them below to illustrate how they eventually led to the onset of management improvement programs.

Table 1. Management Eras and the Onset of Management Improvement Programs

Management Era[1]	Key Ideas During the Era
Pre-scientific Period (1770s-1880s)	• The Industrial Revolution starts in England and eventually spreads to the United States • The field of management develops as large groups of employees are working in the same factory, which is resulting in larger than ever organizations
Scientific Management Era (1880s - present)	• Scientific Management develops – seeking to find the one best way to do things, particularly in the area of manufacturing and the trades such as bricklaying • Administrative Management develops – putting structure and organization into the organization
The Social Man Era (1920s - present)	• The Human Relations Management movement begins • New ways to design jobs and motivate employees becomes important
The Modern Era (1960s - present)	• The field of management science develops • Systems theory attempts to reconcile the various approaches to management • Contingency theory seeks to adapt management practices to the individual organization • Management Improvement Programs emerge. These programs utilize systems and contingency theory to solve problems in the management sciences

These management eras are developed from the framework by Wren, D., & Bedeian, A. (2008). *The Evolution of Management Thought* (6th Ed.). Hoboken, New Jersey: John Wiley & Sons, Inc.

Early Management Thought (Pre-scientific period: 1776 to 1886)

Early management thought dominates the period up to the Scientific Management period. The period from 1776 to 1886 marked the introduction of large-scale manufacturing to the industrial landscape. In reference to management improvement programs, the period during the industrial revolution is especially important, as this era marked the transition from a craft/agricultural economy to one based on large factories. While the industrial revolution started in England, it later carried over to other parts of Europe and the United States.

The transition to factory life meant that new ideas were needed to manage these larger facilities. For the first time in modern history, large groups of employees were now working under one roof. This transition meant that manufacturing processes needed to be standardized and speeded up as well. It is this need that marks the origins of modern management improvement programs, as all programs focus on the need to improve some aspect of the management process.

A number of interesting personalities emerged during the pre-scientific management era. Among our favorites is Charles Babbage, the father of modern computing. He was also considered "the irascible genius" (Wren, 1987: 58), due mainly to his eccentric nature. Babbage laid the groundwork for the field of management science. He invented a crude computer, a device he called the "analytical engine", which performed functions that mimicked today's modern computers.

Early management thought and management improvement programs

The early management thought period saw the formation of large factories. Within this context, most modern management improvement programs began in the manufacturing sector. However, the large factories created three major problems, 1) inefficiency, 2) organization effectiveness and 3) exploitation of workers. The scientific management era, discussed next, addressed the inefficiency problem.

The Scientific Management Era

The scientific management era stressed the need to find standardized processes in manufacturing. Frederick W. Taylor (1856–1915) is considered the father of scientific management because of his research in work methods studies. His approach was based on the idea that any job can be improved by breaking it down into its basic elements, examining each of the job elements, and then finding ways to improve the job. In essence, scientific management was one of the first management improvement programs.

The principles of scientific management include:

1. Scientifically study each part of the job task and develop the best method for performing those tasks.
2. Carefully select the workers and train them to perform the task by using the scientifically developed method (from the first step above).
3. Follow up with the workers on a regular basis to ensure that they use the proper techniques developed above.
4. Divide the work and responsibilities so that management is responsible for planning the work methods while the workers are responsible for actually doing the work.

Taylor's philosophy led to **job specialization**. Indeed, the scientific management approach made possible high-speed, low cost production that plays a great part in the standard of living we enjoy today. Conversely, job specialization carried to the extreme can have significant adverse effects on employees such as absenteeism, lack of motivation, and employee turnover. This occurs because jobs that are highly specialized can become boring and lead to a decrease in motivation.

Two other prominent figures in promoting scientific management were Frank (1868-1924) and Lillian (1878-1972) Gilbreth. The Gilbreths together studied work methods and motion techniques. Their quest led to increased productivity through motion simplification. On the practical side, Frank was an accomplished bricklayer, and set out to find the one best way to lay bricks, a procedure that, up to that time, had been approached in a variety of ways. By using motion studies and identifying basic movements, which he called "therbligs" (Gilbreth spelled backwards); he developed an approach that was more efficient.

The legacy of Frederick Taylor, the Gilbreths, and others within the Scientific Management Era was that work could be done more efficiently. The principle was to break the job task down into its component parts, and then re-assemble the work process in a more efficient manner. Scientific management found its applications primarily in manufacturing industries. However, some applications were eventually

"borrowed" into service industries, particularly fast food restaurants, as operators sought to deliver cooked food quickly to the customer, while maintaining consistency from one store to the next (Crandall & Crandall, 2008).

Administrative management

While scientific management focused on actual work procedures, administrative management addressed the structure and management of the firm. One of the early thinkers in this area was Henri Fayol (1841-1925), a French engineer who progressed through the management ranks in the coal and iron industry during the later part of the nineteenth century and the early part of the twentieth century. Fayol believed managerial functions needed further study and expanded his view by identifying 14 principles of management. During Fayol's time, management as a field of study had not yet been developed. Hence, the principles he described may today seem obvious, but during Fayol's time, they were actually new teachings.

Another pioneer in the Administrative Management theory building was Max Weber (1864-1920), a German sociologist who published his work at the end of the nineteenth century, but was largely unknown in English-speaking circles until the 1920s. He outlined the characteristics of what he called the bureaucracy, a term he used to describe an ideal, modern and efficient organization. Hence, bureaucracy was not a negative term, but a desired state of organizing. Weber's bureaucracy is an important contribution because, like Fayol, it offers a system for setting up an organization into a smooth running, efficient entity.

The scientific management era and management improvement programs

The scientific management era is important to note in the progression towards management improvement programs. Taylor and the Gilbreths emphasized the need to look at efficient manufacturing processes while Fayol and Weber focused on the necessity for sound organizational structure. This two-phase approach refined the inefficiencies created in the early management era, when factories were being built and the process of making durable goods on a large scale was just starting. What was missing was the need to accommodate the welfare of the working employees, a factor that the social man era sought to address.

The Social Man Era

Elton Mayo (1880-1949) turned the lights on to the human relations movement. He was the researcher who offered an explanation to an unusual situation that occurred at the Hawthorne Plant, (a facility of Western Electric), during some experiments on lighting. The experiments took place in the late 1920s and attempted to answer this question – does illumination (i.e., the degree of lighting intensity) have an effect on worker productivity? The prevailing thinking was that it did and that the more the lights were illuminated, the higher worker productivity would become. In fact, some earlier experiments in another facility had confirmed this thinking. However, at the Hawthorne plant, something unusual occurred. As experimenters altered the illumination of the lights, worker productivity did not follow the predicted pattern (Wrege, Gill, & Mundy, 1981). In fact, productivity even went UP as the lights were turned down. In a follow up experiment, the lights were turned down to "the level of moonlight", and productivity still increased (Wren, 1987: 237).

Enter Elton Mayo, an Australian born philosopher and logician who was called on to explain the perplexing findings from the illumination experiment. He theorized that the workers improved, not because of, or in spite of the lights, but for a much deeper reason. Instead, the workers showed improvement because "someone" was paying attention to them, a phenomenon that was later termed, the Hawthorne Effect. Those paying attention to the workers were the researchers present at the plant, who were adjusting the lights, talking to the employees, and asking questions about their work. This added

attention, to an otherwise boring day at work, gave workers satisfaction and motivation, resulting in higher productivity.

The concept of paying attention to the employees for whatever reason was intriguing at the time, as the emphasis in a factory setting was always more on the product output and smooth running machinery, rather than the feelings of the employees. Nonetheless, Mayo's influence later led to the "human relations movement", the belief that valuing workers can have some obvious benefits to the organization. Certainly, some scholars have debated the results of Mayo's findings, but his influence still holds to this day. Evidence of his influence is found in the design of jobs to include task expansion in the form of job enlargement, job enrichment, employee empowerment, and self-directed teams.

Whereas job enlargement is the *horizontal* expansion of a job, **job enrichment** expands an employee's tasks *vertically* into aspects of managerial functions. Job enrichment not only expands tasks upward, but also expands responsibility. It is the most comprehensive of the humanistic approaches to job design, and embodies the three factors that Frederick Herzberg's research indicates enhances job satisfaction: increasing **achievement**, **recognition**, and **responsibility** (Herzberg, 1987).

The social man era and management improvement programs

The human relations movement emphasized that employees are an important part of the firm, and their viewpoints should be respected. This becomes especially important when change efforts are underway in the company. The implementation of management improvement programs (an example of organizational change) requires that all employees, both production and management, have some degree of say in how these programs should be incorporated into the smooth running of the organization. It is a prescription for disaster when management simply mandates that a certain management improvement program is about to be implemented, without considering the viewpoints of the employees.

The Modern Era

A key development during the modern era was the arrival of the field of management science (Wren, 1987). The use of mathematical tools to solve management problems has strong ties with the field of scientific management. That management science developed should not be a surprise. Organizations were getting even larger and more complicated and needed sophisticated techniques to solve the ever-increasing array of operational problems. This observation is important as most management improvement programs have strong roots in management science. Two other developments, systems theory and contingency theory were also major influences of management improvement programs.

Systems Theory

Systems theory was formalized in 1954 when the Society for General Systems Theory, later renamed the Society for General Systems Research, was founded under the leadership of biologist Ludwig von Bertalanffy, economist Kenneth Boulding, biomathematician Anatol Rapoport, and physiologist Ralph Gerard (Schoderbek, Schoderbek, & Kefalas, 1990). Systems theory provided a way to blend elements of the major management theories into packages, or programs. Prior to that time, most researchers and practitioners used a reductionist approach in which they broke a large problem into small parts and attempted to solve the small problems first. Once this was accomplished, the problem components were reassembled into a more workable process.

Systems theory encouraged analysis of not only the problem components, but also the relationships among those components. It has had widespread application in the medical field. For example, the development of vaccines, gene splitting, DNA analysis and organ transplants used a systems theory perspective. Applications of systems theory in science and technology include space travel, weather

forecasting, and digital data transmission. Computerization has facilitated the design and implementation of systems, not only in the sciences but also in business applications. As a result, systems theory has evolved over the latter part of the 20th century into an ever broader and more complex topic.

In the area of management, systems theory has helped to synthesize the application of various management theories. In the early part of the twentieth century, scientific management, administrative management, and human relations management were viewed as complete in themselves and independent of each other. Proponents tended to subscribe to one of these philosophies as a primary managerial approach to running their businesses. Applying systems thinking made it easier to select applicable elements from the different management theories to form a complete systems approach to solving managerial problems. This perspective is important to note because today's management improvement programs are based on a systems theory approach.

Contingency Theory

Scientific management advocated a "one best way" approach to approaching managerial processes and problems. Usually, this best way was the one that was the most efficient in terms of carrying out the process at hand. However, one problem with this approach is that the "one best way" may not fit the needs of all organizations. Consider these scenarios and the potential problems that could result:

- Does one style of leadership fit all types of situations? Do you want the same style of leader who does well training recruits in the Marines, using that same style to manage an R&D unit at a software firm?
- In terms of production processes, is a batch flow setup appropriate for all situations? Likewise, should the assembly line always be used? After all, it is the most efficient in most cases.
- Is a centralized, top-down approach to management appropriate in all situations? While appropriate in a military unit, should it be used in a university academic department?

Obviously, these examples are exaggerated a bit to show that one size does not fit all in terms of management. There are situations where leadership, manufacturing processes, and organizational structure need to be "adjusted" to fit the particular organizational needs.

Contingency theory made it possible to apply a concept, technique or program in a modified format to a particular company to fit their specific needs. Contingency theory originated in the information systems area of management and has been widely extended to other management areas. For example, it supports the position that no single organizational structure – centralized, decentralized, tall, or flat – is best for all companies. Instead, the structure should be adapted to the situation. The most effective applications of management improvement programs are to design and implement them to fit the specific needs of the organization at hand.

The modern era and management improvement programs

As we have seen, the modern era of management thinking builds on the previous eras. These in turn, help lay the foundation for the advent of management improvement programs. Table 2 identifies the influence of the scientific, administrative, and human relations movements on two management improvement programs, Just-in-time (JIT) and total quality management (TQM). Note how each of the three management movements influence the two programs in different ways. This influence is an example of systems theory at work. Note also, how an emphasis is placed on adapting that program to the needs of the individual organization, an application of contingency theory. Table 2 illustrates a theme throughout this paper; the popular management improvement programs of today received much of their content from earlier management theories.

Table 2. Program concepts derived from systems and contingency management theories

	Just In Time (JIT)	Total Quality Management (TQM)
Objectives of the Management Improvement Program	• Reduce in-house inventories • Reduce supplier and customer lead times • Eliminate waste • Pursue continuous improvement • Recognize customer needs	• Reduce the cost of defects • Offer a competitive advantage based on quality • Eliminate waste • Pursue continuous improvement • Recognize customer needs
Source (systems approach)	**Each individual organization must implement the following as it relates to their operations (contingency approach)**	
Scientific Management	• Pull method of material flow • Standardized work methods • Uniform workstation loads	• Continuous improvement • Cost-of-quality • Problem-solving process
Administrative Management	• Product focus • Close supplier ties • Group technology	• Quality as a competitive weapon • Benchmarking • Quality as customer's perception
Human Relations Management	• Flexible work force • Horizontal organization • Teams/employee empowerment	• Self-managing teams • Quality at the source • Cultural change

Adapted from Crandall, R.E., & Crandall, W. R. (2008). *New Methods of Competing in the Global Marketplace: Critical Success Factors from Service and Manufacturing*. Boca Raton, FL: Taylor and Francis, pp. 104-105.

Looking at the management history eras gives us a sense of how improvement programs came into practice. Another useful perspective is to look at the individual management programs in terms of their life cycles. In the next section, we discuss the life cycle of management improvement programs and why that is important for today's practicing manager.

THE LIFE CYCLE OF A MANAGEMENT IMPROVEMENT PROGRAM

Just as the field of management has a history, an individual management improvement program also has a history, or a life cycle with stages such as birth, growth, stability, and then decline. Management improvement programs follow a similar pattern. Successful programs do not actually go into decline; they become part of the day-to-day running of the firm. In other words, the process of the program is no longer new; it is assimilated into the management philosophy of the firm.

How do we know that management improvement programs have a life cycle? Actually, in two ways. First is the common observation that some programs work, and some do not. However, this way is not very scientific. There is another method that is more accurate, but it relies on an indirect approach to tracking a program life cycle – bibilometric data. This refers to how many articles are published about a certain management improvement program.

Tables 3 and Table 4 show the total number of articles listed in the search engine ABI-Inform (Proquest) from 1975 through 2010, for approximately 50 different management improvement programs. The total amount is also reported for each program in the following categories: Trade, Scholarly, Magazines, Newspapers, Reference Reports and Dissertations. See Crandall and Crandall (2007, 2008) and Crandall, Crandall and Ashraf (2006) for further discussion of management programs.

Table 3. Number of Articles for Each Management Program

	Planning				Execution					Cost Reduction					Quality							Quick Response				Flexibility & Agile		
Year	MRP	MRP II	ERP	Project Mgmt	APS	CIM	MES	WMS	TOC	BPO	BPR	JIT	Lean	Value Analysis	SQC	SPC	TQC	QFD	TQM	Six Sigma		QR	ECR	VMI	C(FR	Flexibility	Agility	Mass Customizatio
1975				1										2														
1976	1													4												1		
1977	11			4										1														
1978	12			3										2												3		
1979	26	1		4										2														
1980	18			4										1												3		
1981	29	8		8								1		3	2		1									5		
1982	63	10		4		6						3		1	1		4									15		
1983	79	12		9		12						5		22	1			1								26		
1984	76	15		10		28						41		6	4	15	7									53		
1985	72	41		28		65						66		4	6	31	3					1				73		
1986	63	48		36		120						88	1	13	3	22	5	1								86		
1987	44	41		22		105						82		19	4	32	8	1	3			2				102		
1988	59	52		29		153						108	2	24	4	34	16	9	3			7				126		
1989	74	48		24		145						156	2	13	2	37	17	4	19	6		7				123		1
1990	52	50		23		147						135	11	13	2	41	17	5	61	7		2				110		4
1991	57	56		13		132			4			137	12	7	8	41	15	7	147	10		3				90	1	1
1992	46	47	3	17		65	4	4				120	31	10	5	38	13	7	351	12		8				136	11	8
1993	43	39	4	26		46	17	1	3		23	141	64	6	4	40	6	20	598	9		8	42			121	7	34
1994	43	62	4	19	1	52	18	3	8		65	121	56	8	1	37	2	14	437	8		17	77			145	34	25
1995	37	55	15	11		44	26	21	10		74	118	51	7	2	37		21	369	4		16	72	7		138	26	33
1996	27	24	51	13		31	17	43	6		62	95	67	12		42	3	13	237	7		8	59	9		128	19	43
1997	26	19	152	13	3	22	31	64	14	2	48	92	48	8	1	39	1	7	192	9		5	50	11	2	103	20	42
1998	13	12	577	8	20	20	22	62	16	5	59	76	80		1	41	1	15	167	34		4	35	13	10	133	17	55
1999	18	11	795	7	17	13	11	84	6	39	45	54	93	1	4	26	2	13	135	36		2	13	6	11	100	30	69
2000	18	5	440	6	11	7	16	40	6	10	39	54	97	2	4	20	1	14	137	82		3	12	13	14	107	14	61
2001	9	1	352	9	8	4	23	49	10	11	28	71	145	3		31	1	14	126	104		1	6	8	13	107	16	45
2002	13	3	352	10	4	15	16	83	8	69	21	32	138	8		27		19	138	160		2	14	16	20	135	14	40
2003	9	1	344	17	4	20	7	77	9	154	23	49	180	6	2	30	1	23	109	214		2	16	12	16	135	14	28
2004	10	2	307	14	2	25	23	56	6	189	15	37	240	4		18		24	106	197		2	5	16	8	127	12	39
2005	11	1	377	27	2	12	18	60	22	163	17	49	479	17	4	30		23	99	203		5	5	12	13	140	12	46
2006	14	1	411	30	6	3	28	62	13	179	18	39	545	11	2	37		31	119	231		2	5	10	7	116	14	62
2007	12	1	328	23	8	7	30	59	14	153	12	44	569	8	1	34		28	81	194		2	3	20	6	98	16	44
2008	16	1	390	17	9	4	45	65	15	256	23	36	631	12		32		30	93	194			4	32	2	88	10	57
2009	7	2	258	13	5	2	12	48	19	110	10	31	443	15	2	35		23	69	157		1	2	21	3	72	9	28
2010	7		351	10	7	5	14	32	13	152	19	35	512	10		23		30	92	412			3	18	7	57	9	35
Total	1115	669	5511	512	107	1310	378	913	202	1492	601	2116	4497	285	70	870	124	397	3888	2290		110	423	224	132	3002	305	800

Table 4. Number of Articles for Each Management Program (continued)

	Measurement				IT and Related Programs									Integration						Management							
Year	ABC	ABM	BSC	KPI	AIS	B2B	B2C	DSS	EDI	IOS	SOA	SaaS	Cloud computing	CRM	NPD	PLM	S&OP	SCM	SRM	Chaos	KTS	MBO	Risk Mgmt	Strateg	Sustain	Virtual	Total
1975																						11	28	1			43
1976																						28	18				52
1977								1														20	25	1			63
1978								1	1									2				21	41	1			87
1979								2										3				15	58	1			112
1980								7							1			5				11	77	19			146
1981								23	1									5			1	15	98	23			223
1982								49	3									11				18	85	22			295
1983								69							1			13				11	80	17			358
1984								74	2						1			15				8	135	45			535
1985					1			82	11						3			20				7	147	29			690
1986					1			66	31						4			19			2	10	171	31			821
1987					1			72	70						4			23				6	184	27			852
1988					1			58	179	3					5			20		2		5	212	40		1	1152
1989	3				5			65	305	1					7			39				5	210	33	2		1353
1990	19							49	320	2					1			31		2	2	1	177	40	3		1327
1991	51							58	276	1					3			47		5		6	167	38	1		1394
1992	57	7	5	1	1			47	335	5					8			57		3	3	4	187	46	2		1704
1993	64	13	2	1	9			62	350	4					3		1	110		5		1	232	61	6	1	2227
1994	87	11	9	1	4	1		56	356	4				1	9		4	196		4	2	2	274	85	4	11	2378
1995	66	17	4	1	4			37	350	5				2	13		2	251		7	7	2	233	84	4	15	2298
1996	71	13	31		12			42	359	4					12		1	431		15	8		266	64	2	6	2353
1997	72	21	48		15	1		40	338	5				3	27		2	666		10	2	1	290	51	16	17	2649
1998	66	19	60	2	20	10		45	317	6				19	29		2	1123		15	7	1	459	64	15	14	3789
1999	53	18	54	2	53	46	5	51	206	6				209	24		1	1411	1	12	19	2	373	42	22	11	4262
2000	43	12	88	4	35	1487	161	25	135	6				495	29	1	2	1612		8	21		392	49	31	17	5886
2001	39	10	95	2	48	1120	111	27	144	7	1			934	25	4	4	1915	9	6	21	2	433	46	32	23	6253
2002	49	8	111	8	113	505	59	35	84	1	2			749	39	18	3	1789	15	14	19	1	593	56	48	14	5690
2003	45	2	146	11	438	429	33	33	75	9	16			584	52	43	6	2018	13	13	41	3	608	79	71	13	6283
2004	30	6	132	14	807	430	41	44	72	7	64	1		367	60	48	8	2147	9	9	40	2	685	57	58	7	6629
2005	39	6	243	17	1051	539	36	38	71	12	142	23		743	69	66	6	2520	7	10	39	3	903	48	82	12	8572
2006	22	2	235	18	793	442	22	39	43	4	345	99		578	74	80	7	2653	13	29	54	2	962	39	97	7	8655
2007	36	5	197	28	586	485	37	52	25	12	293	168	6	539	77	109	13	2592	8	17	59	3	1054	38	155	6	8395
2008	34	3	202	22	574	737	56	55	46	7	292	428	147	650	68	106	19	3387	12	27	79	2	1875	37	282	5	11214
2009	21	1	147	27	314	379	28	42	24	7	80	347	472	395	74	83	16	2327	3	18	61		1200	32	217	7	7719
2010	36	4	53	32	294	477	28	35	35	2	85	441	1263	442	81	74	12	2884	5	37	97	1	2699	18	306	11	11305
Total	1003	178	1862	191	5180	7088	617	1481	4564	120	1320	1507	1888	6710	803	632	109	30342	95	268	584	230	15631	1364	1456	198	117,764

The highlighted cells in Tables 3 and 4 represent the year in which the largest number of articles were published, or the peak of the program's life cycle. Collecting the data shown in the tables is a dynamic effort; the numbers change from time to time with the addition or elimination of sources; however, the numbers shown are the result of a diligent effort to be accurate.

Plotting the number of articles written exclusively about a single management program versus the years in which the articles were published, results in a curve such as shown in Figure 1. Figure 1 shows a plot for JIT and Lean manufacturing. Articles on JIT began to appear in the early 1980s. The underlying concept of JIT had been known as the Toyota Production System (TPS), stockless production and other similar designations following its development in the 1960s by Toyota. JIT gained in popularity (published articles) until its peak about 1990. In the meantime, articles about lean manufacturing began to appear about 1990 and have outpaced JIT in popularity in recent years.

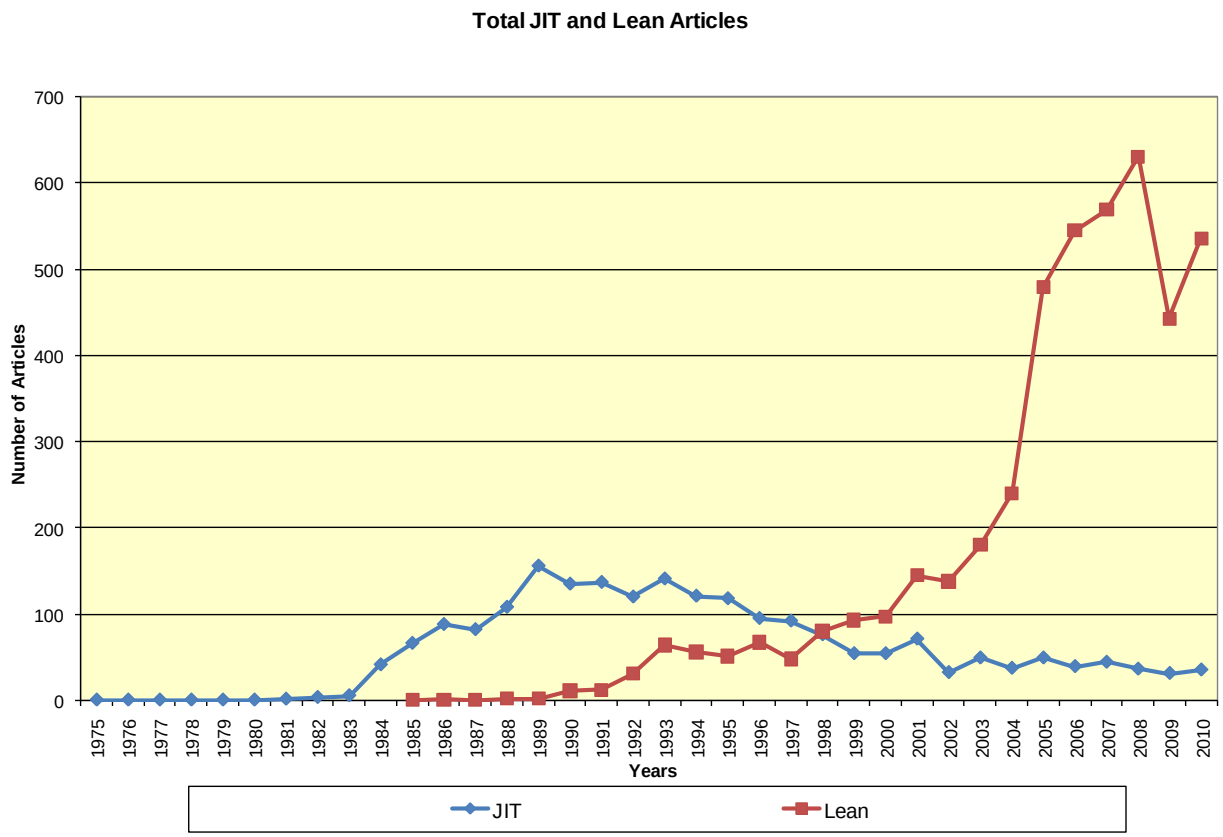

Figure 1. Number of Articles Published for JIT and Lean

Most research indicates a bell shape curve as the most common life cycle form (Abrahamson, 1996: Spell, 2001). Intuitively, this makes sense, as the interest in a program starts out slow and then grows; the number of articles published about that program will gradually increase. You can see this in the graph for JIT as a rising curve going from the lower left to the upper right. At some point, the number of articles hits a peak, and then descends to the lower right hand corner of the graph. Hence, a full life cycle can be plotted using the number of articles written about that management improvement program.

However, some researchers think an S-shape curve is also possible (Ponzi & Koenig, 2002). This observation is feasible if one remembers that a life cycle can sometimes have a resurgence of activity near the end of its perceived useful existence. Taking this observation to management improvement programs, we can see in Figure 1 that a later form of JIT, lean production, adds an upward spiral to give the curve its unique S-shape.

Sometimes, the slope of a curve will vary in its steepness. Carson and associates acknowledge that shapes will vary in slope rates because other active management programs may influence the particular item under study (Carson, et. al, 2000). However, a shape of some kind is plausible, most likely one that resembles a bell curve.

Life Cycle Stages

In addition to the shape, the stages of the life cycle are also of interest. Barbara Ettorre (1997) shows improvement programs progressing through a five-stage life cycle:

1. **Discovery** – "A buzzword is born". This is the stage where the new program gains recognition in the market. Consultants and popular management writers espouse the benefits of these new programs as something new and exciting that every manager should try.
2. **Wild Acceptance** – "The idea catches fire". The number of adopters of the program increases dramatically. Many of these programs will be successfully implemented into organizations, while a few may not.
3. **Digestion** – "The concept is subject to criticism". At this stage, users and non-users such as academics (university researchers and professors like us) will begin to question and critique the merits of the management improvement program. While the wild acceptance stage focused on only the benefits of the management improvement program, the digestion stage will critically evaluate the program from a more unbiased perspective.
4. **Disillusionment** – "The idea does not solve all problems". Shortcomings of the program become readily apparent. Interest and adoption decreases. This stage can occur for two reasons. First, the program may not actually be that good to begin with. Secondly, the program might not have been implemented well.
5. **Hard Core** – "Only true believers remain." Interest in the program is limited, with only a few adopters still practicing the remnants of the program.

The Gartner Research Group offers another way of looking at the life cycle stages. They developed a "hype cycle" with the following phases – Technology Trigger (beginning), Peak of Inflated Expectations (growth), Trough of Disillusionment (decline), Slope of Enlightenment (revival), and Plateau of Productivity (sustained level) (Fenn & Linder, 2005).

Both descriptions above follow a five-stage life cycle. Keep in mind that the length of the life cycle will vary. In the management research literature, programs with short life cycles are called fads while the more durable ones are considered fashions (Abrahamson, 1996).

The Beginning of the Life Cycle

What starts a program's life cycle? Many popular management programs originated as a focused effort within a company to address a specific problem. Examples include JIT at Toyota or Six Sigma at Motorola. The program may have been designed internally or with the aid of a consultant. Often, consultants package the program as an addition to their product line and promote the program to other potential clients.

In the early stages of a management improvement program, consultants and trade publications are often the primary sources of information about the program. A typical way for other practitioners to find out about the program is to attend conferences and workshops offered by consultants or trade associations. Reading trade publications is another way to learn about these programs.

In the early stages of the life cycle, trade publication articles about the program are usually positive and describe the benefits of implementing such a program. This is not surprising, as both consultants and the companies that are using these programs are generating publicity for themselves. As time goes on, business researchers in higher education begin to study the program and view it with greater objectivity. Their role is more reflective as they seek to analyze the program elements and identify the major causes of success or failure (Crandall, Crandall, & Ashraf, 2006). They often compile survey information that summarizes the actual results achieved, often reflecting a range of results, from high success to low success or even failures of the program.

Figure 2 shows the relationship between trade and scholarly articles. As described above, trade articles lead and have their own life cycle. In Figure 2, trade articles peaked about 2008; yet scholarly articles

continue to increase and may eventually exceed the number of trade articles. Some management programs attract scholarly attention; a few do not.

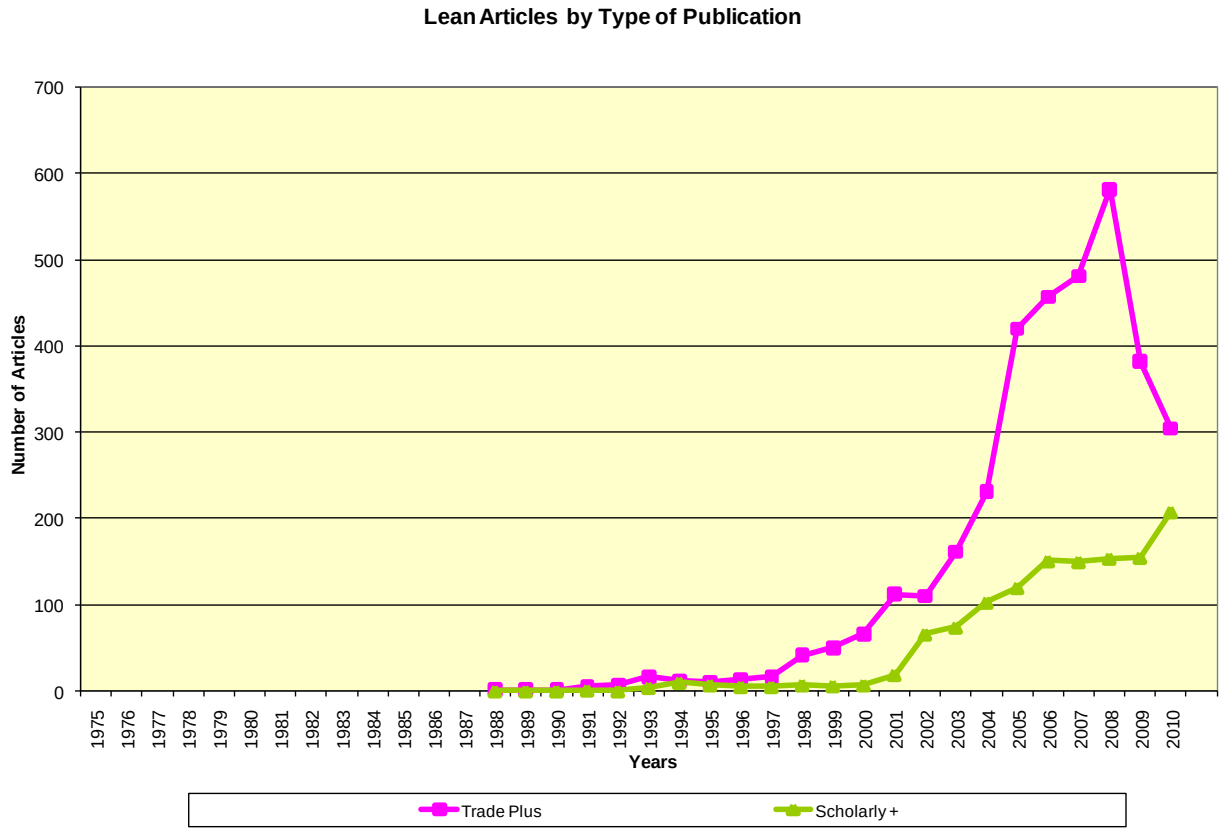

Figure 2. Trade versus Scholarly Articles for Lean Manufacturing

The End of the Life Cycle

Since management improvement programs follow a life cycle, some of them will eventually go into decline. What happens at the end of their life cycles? Some programs with a short life cycle quickly disappear into oblivion. Some programs fade away because newer programs that are similar, but more up to date, replace them. For example, MRP (materials requirements planning) was replaced by MRP II and, more recently, by enterprise resource planning (ERP). In a similar vein, many programs morph into a new program, such as JIT being succeeded by lean management or TQM by Six Sigma.

Many companies assimilate management programs into their normal day-to-day practices. While they may not have a definite identity as originating in a specific program, basic elements of the program remain as standard practice. For example, some companies may introduce self-directed work teams as part of a TQM program and continue their use of teams even after discontinuing the formal TQM program.

Implications of Program Life Cycles for Management

What are the implications of knowing about management improvement program life cycles? After all, life cycles are interesting, and certainly good to know about when you are discussing something like a product life cycle. Marketing managers must be astutely aware of where a product is in the life cycle

because of the need to constantly introduce new products at the right time. However, being aware of management improvement program life cycles is different because as a manager, you are adopting a program into your organization, not producing a product for sale to an outside consumer. Nonetheless, there are several reasons to be aware of where an improvement program is in its life cycle.

1. **Programs that are early in the life cycle have not been completely tested yet**.
   In tracking articles about management improvement programs, we found that when the program is relatively new, it is still a novelty on the market. Articles in trade publications tend to be positive about the merits of the program. At this stage, you should view the program optimistically, but with caution, remembering that because the program is new, all of the problems have not been worked out yet.

2. **Programs that are further into their life cycle have gone through more application and testing, and hence, have gained more credibility in terms of value added to the industry.**
   Programs that have been around for several years have gone through a number of iterations of testing by various companies. As a result, these programs are more "seasoned" in terms of their ability to benefit a potential adopting organization. At this stage in the life cycle, articles may start to appear in academic journals, in addition to trade journals. In other words, there is a certain lag effect that occurs – trade journals and the popular press publish these programs first, followed by more scholarly/academic journals next (Ryan & Hurley, 2004). This distinction is important to note when one recognizes that the role of academic journals is "to disseminate scholarly knowledge" (Amason, 2005: 157). This statement upholds the traditional view of academic research, to lead the market with new ideas on how to run effective organizations. Within the context of management improvement programs, this translates into offering a critical evaluation of the true merits of these programs. An analysis of the strengths and weaknesses, as well as the application limits, is part of this scholarly evaluation. For management, information is more readily available to evaluate the merits of the program at this stage than at the earlier stages.

3. **Programs near the end of their life cycle may be replaced by new programs that are more contemporary and relevant.**
   Just as lean production succeeded JIT, and Six Sigma followed TQM, most successful programs eventually spawn new programs that are designed to correct developing problems or capture opportunities not addressed in the original program. For management, it is important to make the decision between choosing an older program, one that may not be around much longer but has proven reliable, versus a newer program that may not have been tested as much, but could potentially offer more than the original program. This is the same decision managers often face when deciding upon versions of software.

Understanding the life cycle of an improvement program helps management in their evaluation and selection of the right program. Selecting a program that has not been tested or applied much in industry could yield a costly and ineffective decision if the program fails. On the other hand, selecting a proven program near the end of its lifecycle could yield a short duration of the desired results, when selecting an upgrade to the program would have been more effective.

INTRODUCTION TO INDIVIDUAL MANAGEMENT PROGRAMS

In this section, we provide an overview of approximately 50 management programs. In order to make the discussion more relevant, we have grouped the programs into ten categories:

- Planning and control
- Execution
- Cost and waste reduction
- Quality improvement

- Response time reduction
- Flexibility enhancement
- Performance measurement
- IT and Intercompany Communications
- Integration
- Management

While other classifications could have been used, we believe that the ones listed above will adequately differentiate among the programs.

Planning and Control Programs

Planning and control programs are used to plan production and service operations. They usually begin with a demand forecast and translate that into production, inventory and resources plans.

The programs described in this section – MRP, MRPII and ERP – were developed to plan the production, or purchasing, requirement for complex assembled products, such as appliances and automobiles. They incorporated the concepts of independent and dependent demand. Independent demand refers to finished products, such as an automobile, and dependent demand refers to those components in an automobile, such as engines and wheels.

Materials requirements planning (MRP) was developed first. It could determine quantities and time requirements for products, but did not provide a way to monitor progress in achieving the plan. Its plans assumed infinite capacity – it ignored capacity requirements – and had other limiting constraints.

Manufacturing resources requirements (MRP II) attempted to extend the scope of MRP beyond the shop floor to link with marketing forecast and accounting cost systems. This was progress, but MRP II still used infinite capacity planning and had to be supplemented with special software programs to develop more realistic production schedules.

Enterprise resources planning (ERP) systems were designed to be even broader and included more integrated links with a number of separate modules, including not only marketing and finance, but also engineering and human resources. While it achieved greater integration of functions, it still did not include, in most cases, finite capacity planning.

Planning programs were a major step forward in developing software that would make it possible to plan production and resource requirements faster and for more complex manufacturing environments. However, they needed to be supplemented with systems that could provide more realistic production schedules, or execution systems.

Planning systems were primarily concerned with processing data and did not provide a way to activate process equipment, a task for the execution systems.

Execution Programs

The planning programs could develop when and how much was needed, both at the macro and micro levels. However, they needed additional programs to decide how best to schedule the work through procurement, manufacturing and distribution processes. These are classified as execution systems and include computer integrated manufacturing (CIM), manufacturing execution systems (MES), warehouse management systems (WMS) and advanced planning and scheduling (APS).

CIM was developed in the 1970s but suffered from a lack of clear identity. Its scope ranges from a localized view, such as in flexible manufacturing systems (FMS) to being promoted as even broader than ERP systems. We present it as being a system for activating individual pieces of equipment, such as the use of numeric control (NC) capability. It also included the linking of individual pieces of equipment into automatic assembly lines or other forms of automated processing.

Manufacturing execution systems (MES) represented an approach to how best to link machines and process steps with information collection and control devices. It includes feedback on operations and introduces controllers that can adjust equipment to keep it running as intended. As an oversimplification, an MES system digitizes and collects data about actual operations and sends this data to the ERP system, where it is stored and made available to other systems.

Advanced planning and scheduling (APS) systems were designed to overcome the infinite capacity problem generated within the planning systems. It used algorithms and mathematical programming to develop optimized schedules that met the requirements generated by the planning systems. An APS system obtains data from ERP systems for use in the planning process.

Warehouse management systems (WMS) focused on warehouse operations, as contrasted with the manufacturing area, and used computers and automated transport capabilities to increase the automation within warehouse operations.

We have also included the Theory of Constraints as an execution system because of its pioneering work in introducing the "drum-buffer-rope" approach to dealing with bottleneck operations.

Cost and Waste Reduction Programs

While most management programs claim that cost reduction is a benefit of that program, most programs also dislike being labeled as "just" a cost reduction program. Consequently, we agree that the programs included in this section provide benefits beyond cost reduction. However, they also represent programs that make cost reduction a major emphasis. If waste can be aligned with costs, then these programs can be said to have cost and waste reduction as their primary focus.

Just-in-Time (JIT) originated with the Toyota organization as a way to reduce inventories and to streamline their production and distribution processes. This concept was known as stockless production, zero inventories and The Toyota Production System before the JIT label became universally accepted. It was designed for repetitive industries but found some acceptance in related industries.

Lean manufacturing was a concept introduced in the late 1980s, with its origin in the global automotive industries. It incorporated many of the concepts found in JIT but its name seems to capture more accurately its objective of identifying the desired flow of materials and smoothing that flow by removing obstacles to the flow.

Business process reengineering (BPR), introduced in the 1980s, proposed radical changes in processes to achieve dramatic improvements. It proposed that incremental improvements were inadequate and that companies should take a "clean slate" approach to redesigning the best process available. BPR had a few notable successes but faltered because of its disruptive effect, especially in the area of human resource management.

Value analysis was a concept introduced as far back as the 1950s, when it was endorsed by the U. S. military. It never materialized as a popular program; however, in recent years, it is reappearing. Its basic

premise is that the basic value of a product or service should be identified and that knowledge used in design of future products and services.

Quality Improvement Programs

Quality improvement has become a critical success factor for most organizations, whether manufacturing, service or nonprofit. The quality improvement movement started with statistical process control techniques developed at Western Electric in the 1920s, spearheaded by Walter Shewhart. Two men who later became recognized internationally as quality gurus were Joseph J. Juran and W. Edward Deming. They developed their basic understanding of the quality movement while at Western Electric, working with Shewhart.

Statistical process control (SPC) focused on improving individual operations. A related topic was lot acceptance sampling, in which individual lots of incoming materials could be sample tested to see whether it should be accepted or rejected.

As the quality movement began to catch on, one of the companies that endorsed its use was General Electric. While at GE, Arnold Fieganbaum wrote a book called *Total Quality Control*, describing an approach that spanned from product development through manufacturing to final product distribution. This was one of the early efforts to present quality improvement as an integrated management program.

Total Quality Management (TQM) emerged in the mid-1980s as foreign competition, especially from Japan in the automotive industry, realized that quality was an important issue in manufacturing. TQM was presented as an all-encompassing program that included both statistical and behavioral considerations. The use of teams and employee empowerment were an integral part of TQM. TQM was highly promoted as useful to not only manufacturing but also service companies. While some of the results were positive, a number of organizations found that their TQM programs were only moderately successful, if at all.

The disappointing results from many TQM programs gave rise to a more disciplined approach known as Six Sigma. Motorola introduced the concept in the late 1980s and Jack Welch at General Electric soon endorsed it. While Six Sigma incorporated many of the concepts from TQM, it packaged them differently and insisted on more formal training, closer monitoring of actions and results, thoroughly prepared team leaders and top management commitment. The more structured approach seems to be working. Six Sigma programs can be found in both manufacturing and service organizations. It is still in the growth phase of its life cycle.

Genichi Taguchi, a Japanese scientist, originated the "quality loss function," a concept that broadened the scope of quality costs to society. While there are direct costs of poor quality, Taguchi extended this cost to include the negative effects on society in general. While his ideas never resulted in a specific management program of note, his concept is prized, especially in the academic textbooks.

Response Time Reduction Programs

During the latter half of the twentieth century, lower costs and higher quality became basic objectives for most companies. By the last quarter of the century, it became apparent that reduced response times were becoming almost as important. Accordingly, companies began to design programs specifically aimed at reducing response times.

The Quick Response System (QRS) was developed in the textile and clothing industries. It was designed to offer a way to quickly replenish products that sold in the early days of a season. In the past, retailers usually had to order enough merchandise to last the entire season. As a result, they sold out of the fast moving items and were forced to mark down or otherwise dispose of slow moving items. The QRS offered a way to order enough to get the season started and then to reorder those items that sold best.

The Efficient Consumer Response (ECR) was an extension of the QRS to the grocery industry. As the number of products increased, it became unrealistic to order the same quantities of each item and ECR was an attempt to reduce that need. It also served to help companies "try out" new products with minimal quantities and then to reorder those that proved to be successful.

Vendor Managed Inventory (VMI) was an extension of the rack jobber or service merchandise programs that have been around for at least the last five decades. VMI charges the supplier with the responsibility for managing their customer's inventory. As point-of-sale (POS) terminals and electronic communication systems become more effective, it makes it easier for vendors to have insight into the flow of their goods through their customers.

Collaborative Planning, Forecasting and Replenishment (CPFR) brings the previous three programs to a new level by introducing the need for collaboration among entities along the supply chain. One of the key areas for collaboration is in preparing demand forecasts. Companies not only share demand information but also jointly agree to the demand forecast. This added knowledge provides the suppliers with a greater insight into the potential demand, especially as it relates to events planned by their customers, such as sales promotions.

Flexibility Enhancement Programs

After cost, quality and response time, flexibility appears to be emerging as a fourth critical success factor for businesses. While the first three can be defined and measured to a reasonable level, flexibility remains a somewhat ambiguous term.

If we were to design a continuum with standard mass production on the left and mass customization on the right, flexible operations would be somewhere in the middle. Flexibility, according to the APICS Dictionary, is the capability to deal with a number of factors, including product mix, design changeover, product modifications, volume changes, rerouting requirements and material changes. The implication is that the existing processes can be adapted to handle the required changes, whether planned or inadvertent.

Agile processes, or agility, imply a capability to move smoothly among a wide variety of product choices in a systematic way to provide what the customers want, and to do this within the constraints of cost, quality, and response time requirements. The implication is that the processes have been designed to handle the variety as a regular part of making relatively standard products.

Mass customization carries agility to a higher level by requiring that the processes be designed to not only produce a wide variety of standard products but also customize those standard products to meet the needs of individual customers. Mass customization requires the highest level of flexibility and agility.

Flexibility enhancement programs focus on using the modularity concept in both products and processes. Modular products make it possible to move from a make-to-stock (MTS) orientation to an assemble-to-order (ATO) or even a make-to-order (MTO) position. Modular processes involve using a combination of machines and operators to achieve the best balance between the two resources – enough automation to achieve speed and efficiency, and enough operator input to achieve flexibility.

Performance Measurement Programs

Performance measurement has been an area of interest for management for centuries. While there was interest, it is difficult to identify a specific program that focused on performance measurement. In general, the finance, or accounting, function was generally considered responsible for developing ways to measure the performance of operations and other functions within an organization.

Some of the early attempts at program development included management by objectives (MBO) and standard costing. These, and other, programs suffered because of the difficulty in relating the results with the financial accounting system, which became the official barometer of performance, especially as public companies grew and were required to present audited financial statements.

Activity-based-costing (ABC) was developed to bridge the gap between micro performance measurement and a macro link with the financial accounting system. It focused heavily on devising a better way of allocating overhead expenses to products and services costs. It did not distort the financial accounting system; it supplemented it with greater detail. As a result, it gained favor. However, it had a major drawback in that it required a great deal more detail and complexity in the reporting and assignment of expense categories. While this examination of the detail provided opportunities to eliminate, simplify and combine, ABC programs faltered in many organizations because of the increased cost and complexity.

Activity-based management (ABM) extended the role of ABC to doing something with the information developed in the ABC program. While it offered a logical approach, it was difficult to distinguish between the concepts of ABC and ABM.

The Balanced Scorecard (BCS) extended ABC and ABM into the strategic area. It included not only the financial perspective but also the customer perspective, the business process perspective, and the innovation and learning perspective. This program appears to be gathering support but it is difficult to know how widespread it is used.

IT and Electronic Communications Systems

Advances in information technology (IT) are providing the connectivity required within and between organizations. Intra- and inter-organizational communications systems are making coordination and cooperation among supply chain members a reality.

Electronic data interchange (EDI) has been a viable technology for at least three decades. However, its initial investment costs are high and only a limited number of companies considered it an attractive alternative. Those that used it found it to be reliable and efficient. While third party providers extended the scope, traditional EDI did not achieve mass use.

The advent of the internet began to open up the attractiveness of electronic communications to all companies. Almost all organizations have some access to the internet and there are a number of ways to use it to communicate with other organizations. While the cost hurdle has been lowered, the questions of confidentiality and information security are still troublesome considerations. Companies will likely find a way through the maze of options to reach a satisfactory way of communicating electronically with their suppliers and customers.

Electronic communications has opened up two major ways of doing business. Business-to-business (B2B) involves one business selling products or services to another business. Business-to-consumer

(B2C) involves a business selling products or services directly to an individual consumer. While B2C is more widely publicized, B2B provides a greater volume of business.

Electronic communications has great future possibilities. Teleconferences are just beginning to become an accepted medium of communication; they offer great opportunities for reducing travel costs and promoting more collaborative relationships. Health care is another area that may benefit from electronic communication systems, from using RFID tags to reduce medication errors to long-range diagnostics.

Integration Programs

Integration programs more closely link one entity with another, such as in supply chain design. The concept of core competencies suggests that a company should concentrate its resources on doing those things it does best and outsource the other needed processes and services. In contrast to vertical integration, in which a company owns all of the necessary activities, the current view is that a company must develop business relationships with a number of other organizations to achieve comparable results at a much lower investment cost.

One program that promotes integration among functions within a company is Quality Function Deployment (QFD). The unfortunate choice of names is misleading. While QFD does consider quality, its foremost purpose is to design a product or service that considers customer needs or wants, internal process capabilities and competitor strengths and weaknesses. This technique has more potential than is currently being realized.

Sales and operations planning (S&OP) is a program that was first developed at least three decades ago but had difficulty in being accepted, perhaps because they was not sufficient recognition of the need for integrating the marketing and operations functions. In recent years, S&OP has experienced a new level of interest and is now a basic part of achieving collaboration, both within a company and with external trading partners.

Supply chain management (SCM) is, of course, the ultimate integrating program. It envisions the linking of a series of organizations to achieve a smooth flow of goods and services from the raw material state to the finished goods state. While almost every organization is conscious of the need for effective supply chains, most are still in the early stages of successful implementation.

Customer relationship management (CRM) is an extension of the supply chain toward the customer. It is a more formal approach to determining customer needs and designing approaches to satisfy those needs.

Supplier relationship management (SRM) is an extension of the supply chain back toward the supplier. As is CRM, SRM is a more formal approach to determining how best to deal with suppliers to achieve the desired results.

Building relationships is the core of integrating functions. This requires an extension of coordination and cooperation into collaboration. Collaboration requires trust, and trust is an elusive element in most of today's business relationships. Building trust is one of the challenges for the future.

Management Programs

Programs in this category are more difficult to track because some of them do not have an acronym to accompany their general description. Consequently, the accuracy of the number of articles may be a bit more tenuous. There are also variations of these programs. The programs included in our study include

Management by Objectives (MBO), Strategic Planning, Risk Management, Knowledge Transfer Systems (KTS), Sustainability, and Chaos Theory.

MBO was a concept first introduced in the 1950s by Peter Drucker. While the objectives are praiseworthy – to establish measureable objectives for individuals and then measure progress against the objectives – the implementation proved to be difficult. In theory, the objectives of each manager would fit within the framework of the total corporate objectives, a monumental undertaking. In practice, the situations within an organization were continually changing, making it impossible to use the original objectives in any meaningful way. Articles go back beyond 1975, our starting year, but have tailed off to practically nothing in recent years.

Strategic planning has also had a long, and sometimes rocky, history. While there have been a steady stream of articles, this program has never had a surge of interest. Companies found it difficult to prepare strategic plans that could be used in ongoing operations. Writers have also noted a distinction between strategic planning – a formal planning process, spearheaded by planning departments – and strategic management – a more informal process, sometimes internally initiated and sometimes a reaction to external forces. While the need to be "strategic" is accepted, implementation of the concept varies, both in content and level of achievement.

Risk management has also been written about for a number of years; however, the popularity of the topic has mushroomed in the past few years. The primary cause of this increased interest is undoubtedly the increase in offshore outsourcing. As supply chains grow longer and more complex, and as companies implement lean manufacturing techniques that increase the need for low variation in their supply chains, the risk increase. Risk management requires the ability to anticipate and plan mitigation efforts; it also requires an organization to be agile enough to react to unanticipated disruptions.

Knowledge transfer systems (KTS) have become a formal type of program in the past couple of decades, again perhaps the result of the trend from vertical integration to loosely coupled supply chains. Knowledge has become a valuable asset, and the need to preserve and protect it has emerged as a strategic objective in most organizations.

Sustainability issues have been building for a number of years and appear to be nearing a tipping point, where there will be broader acceptance and implementation of initiatives. At present, programs appear under a number of banners – "green," "cradle to grave," "cradle to cradle," "triple bottom line," and others. While there are major differences between the major stakeholders – society, special interest groups, business and government – there is a growing acceptance of the need to act, not just talk.

Complexity, and chaos theory, has been studied since the 1970s, with the work of Lorenz in meteorology. Its application in business has been primarily metaphorical, not based on scientific principles. However, the idea is intriguing and will no doubt be studied in more depth during the next few years, with an eye to more carefully packaging it as a management program.

CONCLUSIONS

This has been a quick trip through the maze of management programs and their acronyms. We conclude with these additional observations about the value and potential for them.

- Management programs have demonstrated lasting value when appropriately applied and implemented.

- They are a convenient way to package improvement initiatives that might otherwise be lost in the bustle of everyday business.
- They consolidate the body of knowledge for a given program and usually show the links with similar programs.
- Management programs increase the competitiveness of a company and often an industry, as multiple companies use the program to improve.
- Consultants and educators are available to help organizations with their analysis and use of programs, eliminating the need to "reinvent the wheel" every time.

A caveat to all who consider adopting a new management program. They can be oversold, inappropriately fitted to the problem, and inadequately implemented. However, they can be the difference between success and failure for many organizations.

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A NATURAL EVOLUTION IN PRODUCTS

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ABSTRACT

This paper examines incorporating natural elements in product design with an eye toward understanding future marketability of natural and green products. As a result of human and technological evolution, products have developed to meet changing needs, but also to utilize the materials available. Recent trends in product design, supported by contemporaneous investigations into mental and physical health trends, suggest a movement toward the substitution of natural elements for their synthetic counterparts. Materials, colors, and textures that reflect nature seem to have made a resurgence in products markets and producers of durable and non-durable goods are advised to pay heed to this change.

INTRODUCTION

One of the hallmarks of humankind is the ability to alter the world around us. We have created tools, vessels, clothes, shelters, modes of transportation; we have domesticated wild animals, cultivated the land for food, and even changed the landscape around us to suit our needs or aesthetic desires. Each item created led to new discoveries, new technology, and new exploration. Very few corners of our world today remain untouched by human hands, and when visiting those remote depths we carry with us as many man-made objects as possible.

Modern economies are built on the production of all these items, and thus are built on our perceived need for them. For the economy to grow and thrive, new items are continually created and marketed. With communication technology increasing, we are made ever more aware of new products and why we *must* have them. The rapidity with which new products are invented has increased exponentially, and has left many yearning for simpler times.

Today, it has become fashionable to attempt assessing the impact on the earth we inhabit and on the other living things sharing this world with us. Many of the objects we buy and foods we eat are given stamps of “green” approval, letting us know that the manufacturers have made some concessions to the environment in the production of these items. Companies are now founded on the very basis of being “eco-friendly” and one can buy clothing made from unusual fibers, furniture and flooring from *sustainable sources*, and foods which have undergone minimal processing from their natural forms. Reasons for businesses subscribing to these changes range from marketability to genuine concern for the environment, but regardless of the driving force, the “green” movement has changed the way we do business, and the way we lead our lives.

One question that has only begun to be addressed is how has, and how will, this green movement change humans? Put into other terms, how have these man-made products changed us and will making greener products change us in a different way? An obvious follow-on question asks how a return to natural elements will affect the evolution of products.

SEPARATION FROM NATURE LEADS TO PHYSICAL AND PSYCHIATRIC DISEASE

Evidence shows that the incidence of certain physical disorders, including cardiovascular disease, diabetes, and other stress- and obesity-related diseases, as well as certain psychiatric disorders, including depression and anxiety disorders, are much higher in societies which rely heavily on highly processed objects and foods. Conversely, comparable societies which rely on more natural foods and individual investment into production, such as the Amish living in the United States, have far lower incidences of these diseases and disorders (Lambert, 2008). As with all human studies, particularly those done retrospectively, there are many uncontrolled variables which could account for these differences. However, recent rodent studies indicate that contact with nature may be a vital component of these differences (Franssen, 2011).

While it has been demonstrated for over 50 years that an enriched environment will enhance the brain and subsequent cognitive function, recent work suggests that different materials used to enrich a habitat can actually change the brain in different ways. For instance, in one study (Franssen, 2011), some rats were housed with rubber and plastic toys (standard enrichment options), while another group was housed with sticks, logs, rocks, and dirt (naturalistic enrichment). Both groups were cognitively enhanced over a control group of rats housed in a bare cage. However, in this study of highly inbred strains of laboratory rats which had no experience with the natural world for at least 50 generations, it was found that just 4 weeks of interaction with natural elements changed these rats' anxiety responses. Baseline stress levels were lower in the naturally enriched groups; however their stress response to a predator odor was much higher than the control group and laboratory-enriched group. Essentially, exposure to natural elements helped instruct these rats' stress systems to more accurately evaluate the potential threat in a situation, allowing them to mobilize a pronounced fight-or-flight response to a potentially life-or-death situation, and to not "sweat the small stuff" in their daily activities. While humans differ from in many ways, there are similarities in the brain functions and biology.

The incidence of generalized anxiety disorder, panic disorder, and other such anxiety-related disorders is currently increasing in today's youth, concurrent with a decrease in time spent in contact with natural elements. Population shifts from rural to urban and suburban areas continue with lessened contact with the natural world. The average amount of time a child spends outside continues to decline with concerns ranging from abduction to allergies; all at the potential deficit of natural surroundings (Louv, 2005). Piecing these data together with the data from rodent research may indicate that our society's fascination with indoor activities, electronics, and even highly manufactured and plasticized toys and equipment for outdoor activities may be contributing to our children's inability to accurately assess threats and deal with daily life stressors.

THE INCLUSION OF NATURAL ELEMENTS IN PRODUCT DESIGN IS MAKING A COMEBACK

Over the past few centuries we have seen an evolution of products away from natural elements. Part of this evolution began in the middle ages as the value of cleanliness in preventing disease became well-known and products which were more easily cleaned increased in value, such as smoothly sanded furniture, metal and stone utensils, and glazed ceramic dishes, rather than rough-hewn versions from the past. The industrial revolution and the technological advances of the past century and a half have allowed us to create products of finer, smoother materials. In the past 50 years the revolution of plastics has changed our way of life, from toys to furniture to food packaging.

While plastic-wrappings and plastic products still dominate much of the consumer culture, evidence suggests that these products are not here to stay. The "hippie-dippy" "granola crunchy" counter-culture, demanding more natural products, is likely giving us a glimpse of the leading edge of product development. Several market sectors provide insight into the extent of "natural" influences.

Food products

One way in which people are trying to move toward simpler times is to eat less processed foods. This includes eating a whole food diet, lacking in processed items such as white flour, white sugar, high fructose corn syrup, and other recently developed food items. Highly refined foods, being easy to digest and high in calories (and now low in cost due to evolution in both manufacturing and transportation), are at the crux of both a hot debate regarding the obesity epidemic in developed countries and crusade among ecologists worried about the damaging effects shipping has on the environment. The inclusion of natural foods in one's diet can then become a health issue as well as an environmental issue, and marketing these food products tends to mix the two interchangeably suggesting advertising for both a healthier individual and a healthier habitat for the individual. Producers will have to tease apart multiple issues in order to address the motivations for individuals in shopping for, purchasing, and consuming food products which are more "natural" as well as the extent to which the products will meet them.

Toys and tools for children and adults

While many of us have a toolkit in our garage containing a hammer, screwdriver, and a few other assorted items for simple repairs, unlike a century ago few of us make our living on these tools. Instead, many rely on more sophisticated tools to carry out their work and personal lives. The omni-present computer technologies have, in a lot of ways, drawn people away from the rewards of hands-on work and connections to their natural surroundings. However, these same technologies have evolved to enable a reconnection with nature. I-pads, the variety of e-readers, cell phones, and other devices allow a freedom from the traditional "desk top" environment so users can get move about and continue to do their "work". The trade-offs associated with constant connections to the e-world are in some ways counterbalanced by the psychological and physiological benefits gained.

So, too, are the tools for the young. Their tools, of course, are the toys they play with and there is increasing evidence of conscious efforts to produce items using natural materials and/or relying on paints and dyes that better represent nature. Wood and metal replace plastics, in whole or in part for many toys now produced. And, as with adult devices, e-toys are made to be mobile.

Furniture and appliances

Perceptions shape valuation, and one key input is the price tag hanging on the item. Furniture is no different, but a return to more natural fabrics, glass, and wood suggest perceptions are excited by a return to nature. Even the color palettes reflect an organic emphasis. Stainless steel kitchen appliances, granite and other natural stone counter materials, ceramic and other tiles dominate the interior design motifs. These trends suggest an earnest desire and return to nature on the part of consumers.

Transportation

Luxury vehicles have long incorporate wood paneling, metal, leather—all natural elements—into their design, but many of these elements find their way into mid-level vehicles today. Even pick-up trucks, formerly utilitarian in design, include textures and details communicating a connection to natural elements. Similar applications of the use of natural materials can be found in commercial aircraft and other mass transit equipment.

A LOOK TO THE FUTURE

As our species races forward in technological advances, we find ourselves in the midst of a revolution, where experiences have moved not only from natural to non-natural products but also into the virtual and abstract world. Product designers and manufacturers will do well to heed the revealed preferences of consumers as they register their needs and wants.

Taken at an aggregated level, the investments made by consumers in longer-lived, durable goods suggest a longer-term view of values. Thus, purchasing such goods which demonstrate a stronger connection to natural elements commits to a constructed environment that is, in itself, more natural. Those products offering less capacity to engage consumers at the appropriate levels will not fare well. Any which respond and encourage a deeper connection will meet their underlying needs.

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SUCCESSFUL INNOVATION IN ORGANIZATIONS: THE EFFECTS OF TRANSFORMATIONAL LEADERSHIP, PRODUCT INNOVATIVENESS, AND MARKET RECEPTIVITY

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ABSTRACT

The United States of America have been shown to be a laggard in innovation (Latta & Twigg, 2008). This lag suggests either markets are not as receptive to U.S. innovations as business leaders might think, or transformational leaders are not as effective as thought in successful innovation. In this study we suggest leadership style affects both organizations innovativeness and its innovative success, but is limited by market receptivity. This study looks at the relationship among leadership style, organizational innovativeness, market receptivity, and performance. In the classical view, organizational innovativeness includes two sources; innovation success (Baker & Sinkula, 2009) and product innovativeness (Wang & Ahmed, 2004) as strategies to improve an organization's effectiveness. It is suggested here another avenue to improve an organization's effectiveness in innovation is finding receptive markets and exploiting them.

LEADERSHIP STYLE

A Transformational Style of leadership consists of coaching, mentoring, and facilitating the work of others, whereas, a Transactional Leadership Style consists of planning, directing, organizing, and controlling (Bass & Riggio, 2006; Twigg, 2008). Innovation requires a break with the status quo of the culture, processes, developments, and delivery of products and services (Baker & Sinkula, 2009) to have any success in the innovative initiative.

Top management has been a major focus of transformational style (Ensley, Hmielski, & Pearce, 2006; Hacker & Doolen, 2007; Matzler, Schwarz, Deutinger, & Harms, 2008). Yet, Transformational Leadership (TL) Theory would maintain that a transformational style can exist at all levels of an organization (Bass & Riggio, 2006; Ensley, Hmieleski, & Craig, 2006; Frick & Spears, 1998; Twigg, 2008). A Transformational Leadership style encourages followers to share in the strategic vision of the organization (idealized influence) (Bass & Riggio, 2006), inspires followers to look beyond self interest towards the needs of the organization (inspirational motivation), and to challenge the norms and existing cultures to see what changes may lead to a competitive advantage (Intellectual stimulation).

A transformational leadership style addresses the leaders and the follower's intrinsic needs and motivations (Bass & Riggio, 2006; Matzler, et al., 2008). Innovation may be driven by external circumstances (necessity is the mother of invention), yet innovation implies a change in creativity of the individual (Drucker, 1998). Creativity is intrinsic to an individual.

Innovation implies risk. A transformational leader challenges followers through intellectual stimulation to challenge assumptions and take risks (Bass & Riggio, 2006; Judge & Piccolo, 2004). Questioning the status quo is a basic prerequisite for creativity and innovation.

INNOVATION

Innovation is ". . . the effort to create purposeful, focused change in an enterprise's economic or social potential." (Drucker, 1998:149). Innovation is essential to an entrepreneurial culture (Baker & Sinkula, 2009; Drucker, 1998). Innovation creates competitive advantages for an organization (Levesque & Walker, 2007). It is not the intent of this study to get involved with the discussion on the definitions or typologies of innovation (Garcia & Calantone, 2002). In this context we use innovation success as a process of innovation (Baker & Sinkula, 2009). Subsequently, we use product innovativeness (Wang & Ahmed, 2004) as an outcome measure of R & D productivity. Flexibility in an entrepreneurial structure affects the organizations innovativeness (Baker & Sinkula, 2009). Innovation implies change and change involves risk.

Innovation Success

On the front end of new product development and adoption, is the development process. In the drive to survive and thrive, business leaders strive to innovate. In new product development, timeliness and effectiveness are emphasized (Dooley, Subra, & Anderson, 2002). As a result, business leaders emphasize best practices in new product development activities.

Sometimes best practices in finding new product ideas rely on the market as a way to improve the odds of acceptance (Morrison, Roberts, & Midgley, 2004). New product concepts are tested with what are sometimes called key opinion leaders (KOL) to see if they have merit. Innovative companies attempt to improve their success by ensuring market receptivity through working closely with KOLs (Thomke & von Hippel, 2002) or through the application of technology in developing better Research & Development systems (Thomke, 2001). Both approaches are utilized to lower failure rates for new products and increase speed and depth of adoption after launch.

Product Innovation

Innovation is often defined as an idea, practice, or object viewed by a market, a business, or an individual as new. The successful innovation-development-adoption process consists of all the business decisions, activities, and their outcomes directed at identifying either a need or a problem in the market that needs satisfaction or a solution. The steps involved in business performance over the long haul include:

1. Identification of the need or problem
2. Basic and applied research
3. Development of the basic research product
4. Commercialization of the product
5. Diffusion and Adoption of the product
6. Consequences for the individual and social system

Markets can be innovative in nature especially if applied to a specific country where social, cultural, and political make up can determine the willingness or resistance to new product adoption. Adoption theory may be used to understand the nature of a specific country's propensity to adopt (Rodgers, 2003).

MARKET RECEPTIVENESS

Key elements of business performance are leadership, mission, and vision. Regardless of how innovative a company is in new product development or changing existing products, the receptivity of the market for innovations can vary widely (Von Hipple, Thombe, & Sonnack, 1999). The development and launch of failed products is commonly due to lack of market receptivity.

On the back end of new product development and adoption, is the marketing process. Some researchers have emphasized relationship marketing and lead users (Gruner & Homburg, 2000), others have placed emphasis on personal values and socio-demographics (Steenkamp, Hofdstede, & Wedel, 1999), while still others emphasized innovativeness of individual consumers (Goldsmith & Hofacker, 1991).

Other research approaches concentrate on organizational and communication processes (Rogers, 1976) or global issues such as national culture and wealth (Chandrasekaran & Tellis, 2007). Looking at organizations as well as individuals leads to a concept of receptivity to innovations. There has been an attempt to develop a measure of individual consumer innovativeness through the use of a variety of measurement scales such as the Exploratory Acquisition of Products Scale (Steenkamp, et al., 1999) for use in modeling individual characteristics. But, many receptivity issues surround the characteristics or typical behaviors of the organization once business to business instead of consumer marketing is the focus.

Rogers (2003) has combined these two issues and postulated there are individual members of a social system who are predisposed to be innovative and adopt an innovation sooner than those who are not as innovative. The tendency of members of a social system to adopt innovations was classified into five categories according to the amount of time passing from innovation availability to adoption:

1. Innovators (2.5%)
2. Early Adopters (13.5%)
3. Early Majority (34.0%)
4. Late Majority (34.0%)
5. Traditionalists (16.0%)

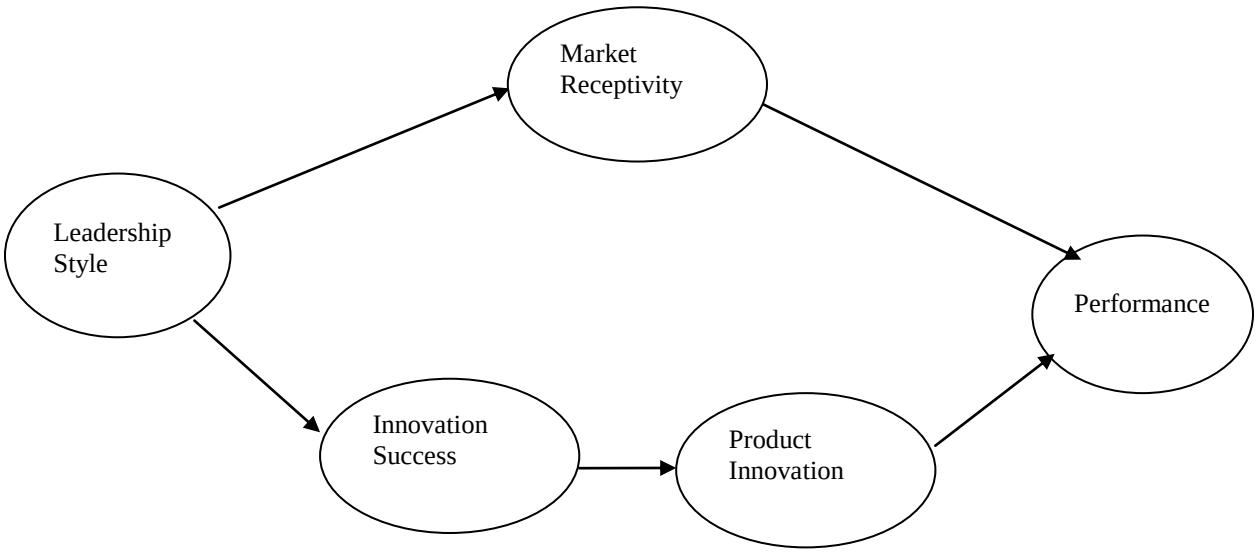
The proportion of members of a social system falling into each of these categories appears in parentheses above. Note that Rogers' label for the fifth category is actually Laggards, but Traditionalists has been used in prior research at the behest of research participants (Latta & Twigg, 2008). At one end are the risk takers or pioneers who adopt innovations early while at the other end are those who resist adopting innovations for a long time, if they ever adopt. In addition to individuals, organizations can be described in this manner. In fact, nations have been described in this manner in global studies of new product adoption (Chandrasekaran & Tellis, 2007). A company can have the perfect product according to best practices in innovation, and it may fail if the market is not receptive to innovation due to a lower proportion of Innovators and Early Adopters. It is postulated the market receptivity to innovation is defined by each of the five categories below.

By definition an organization that believes it is a leader in adopting new technology or innovations is one that is an Innovator. An early adopter will embrace new technologies whether a product exists or not. An early majority waits until a product or service has been developed and may enter the market with more resources, better brand name, or earlier than the other early majorities. The late majority have neither the will nor resources to adopt at this time, whereas the traditionalists may have the resources, but do not have the will to adopt.

These descriptive characterizations of organizations consistent with Rogers (2003) appear below.

An Innovator	We are venturesome and able to quickly understand and apply complex clinical trial information concerning new [Innovation Type]
An Early Adopter	We command respect and are an opinion leader concerning new [Innovation Type]
In the Early Majority	We deliberate for some time before trying new [Innovation Type]
In the Late Majority	We are skeptical and wait for peers to adopt new [Innovation Type] first
A Traditionalist	We are in favor of the status quo unless there is a strong need to change to a new [Innovation Type]

MODEL



METHODS

Sample
Marketing managers from a database supplied by the American Marketing Association will be surveyed for the firm's side of the model and for the measures of performance. A random sample of organizations that use the firm's products or services will be surveyed to determine a baseline for market receptivity.

Procedure
Two methods of delivering the instrument will be used. One method will be to mail a pencil and paper questionnaire to selected samples. A second method will be to email a link to a site where the questions will be located.

Variables
The main variables included in the model were measured with well established multi-item scales that exhibited good psychometric properties. Responses to all items were made on 6-point Likert scales (1=strongly disagree to 6=strongly agree). A 6-point scale was used to force a neutral response into a disagree or agree, however weak the association may be.

Transformational leadership and Transactional leadership behaviors. Four transformational and three transactional items were adapted from Bass, Avolio, and Jung (1995). The items included "My supervisor displays a sense of power and confidence," and "My supervisor provides me with assistance in exchange for my efforts."

Market Receptivity. The categories from Rogers' definition of receptivity of a social system can be used to determine the percentage of a population that are Innovators and/or Early Adopters predisposed to be receptive to an innovation. This is consistent with Rogers' "classical definition" of an innovation which is perceived by a unit of adoption, communicated to other members of a social system through appropriate channels over time (Rogers, 1976).

Innovation Success. A four item measure adapted from Baker and Sinkula (1999) can be used to measure the supply side dimension of success. Items included were, "The rate of new innovation success rate relative to direct competitors.", "The level of differentiation between your innovations and your direct competitors' innovations.", "The degree to which you beat your direct competitors to the market with Innovations.", "The rate of new innovation relative to your direct competitors."

Product Innovativeness. A three item scale adapted from Matzler, et al. (2008) can be used to measure this construct. Items included were "In new product and service introductions, our company is often first-to-market.", "New products and services in our company often take us up against new competitors.", "In comparison with our competitors, and our company has introduced more innovative products and services during the past 5 years."

Performance can be a self report measured with 6 items adapted from Moizer and Pratt (1988). Items included were "I am making a real contribution to my organizations success." and "I am effectively helping my organization to reach its goals." Included here was also six items from Matzler, et al. (2008) measuring Growth and Profitability.

Demographic information was also collected as control items which included gender, age, race, education level, and years in the company.

CONCLUSIONS

The study design will allow a determination of how transformational leadership style, organizational innovativeness, market receptivity, and performance are related. Should leaders concentrate on the process of innovation in fostering product innovativeness or on matching innovative products to receptive markets? The proposed model will allow a determination of whether product transformational leadership, product innovativeness, and market receptivity work independently of each other to influence company performance, or if they work in combination of two or three variables in a joint effect on company performance.

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THE DEVELOPMENT OF A REALISTIC AND PRACTICAL TRAINING ENVIRONMENT IN A DISTRIBUTION AND LOGISTICS PROGRAM

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ABSTRACT

Degree programs that include realistic and practical labs that expose students to environments similar to the environment they will be employed in will help prepare students for rewarding careers in their chosen field of study. A large university on the east coast has developed a degree program that has incorporated realistic labs that utilize common software applications, actual inventory, and a warehouse simulation lab designed to mirror a distribution branch and its associated warehouse. This paper will describe the degree program, the use of technology in the program, and the warehouse simulation lab. The paper will also describe some of the practical labs included in the program. A brief discussion of the limitations of the program will also take place. Furthermore, planned improvements to the program and labs will be discussed. The paper will conclude with suggestions for further research.

INTRODUCTION

Hands-on experience in daily business processes, using actual software and equipment, enables future graduates to gain an understanding of the organization's processes, requires less initial on the job training, and reduces the time it takes employees to become acclimated to the new work environment. Furthermore, academic programs that incorporate actual hands-on skills using real world examples enable students to understand how standard business processes actually take place. "Without an appreciation of a company's internal business processes and workflow, it is especially difficult for a newly minted graduate to grasp even more complex inter-organizational supply chains and information flows" (Fedorowicz, Gelinas, Usoff, & Hachey, 2004, page 235). Therefore, academic programs that include hands-on components along with traditional academic coursework prepare students for rewarding careers.

Since hands-on training goes beyond simple simulation and exposes students to real world environments, faculty at a large university on the east coast decided to add a physical laboratory that would expose students to real world examples and exercises by exposing them to physical distribution and material handling techniques and the associated management warehouse management decisions.

This paper will describe the degree program, the use of software and technology in the program, and the warehouse simulation lab. The paper will also describe some of the practical labs included in the program. A brief discussion of the limitations of the program will also take place. Furthermore, planned improvements to the program and labs will be discussed. The paper will conclude with suggestions for further research.

THE WAREHOUSE SIMULATION LAB

An article published in *Industrial Distribution* (2005, p.1) described the warehouse simulation laboratory as "a practical, working distribution branch simulator, complete with, among other areas, a warehouse space, manager's office, sales areas and a shipping and receiving dock." The physical appearance of the warehouse simulation lab mimics the appearance of an actual work environment. Its appearance does not resemble a typical classroom, where students are seated in rows facing the front of a classroom. Instead,

it consists of several sections setup by function. For example, one section contains a branch manager's office and another section contains the sales counter. The largest section in the lab is the physical warehouse section. It consists of racks with multiple shelves with actual products that are assigned line item numbers. Anyone unfamiliar with the lab would assume it is a typical warehouse. The goal was to create a realistic environment for students interact with.

Since a large percentage of the graduates were finding employment in distribution branches, the laboratory was designed to support all of the day to day activities within a typical distribution branch and its associated warehouse. This approach has helped students learn firsthand the techniques involved in barcode technology, Radio Frequency Identification (RFID), warehouse utilization, and effective branch operations. Most of all, this approach has allowed students to learn management and problem solving techniques while performing tasks they are likely to perform on the job or supervise others that perform such tasks.

Recent additions to the laboratory include a plasma TV, smart board, and multiple computer stations. These additions have enhanced the capability of teaching software applications in this room. Furthermore, the addition of 25 laptop computers used by Distribution and Logistics majors in other courses has improved software availability throughout the program. Students that need to borrow a laptop to complete class projects and homework can do so free of charge.

DESCRIPTION OF THE PROGRAM

With a goal of incorporating hands-on skills with traditional coursework, faculty launched the Bachelors of Science in Distribution and Logistics Program in 1997. The program originally focused on sales and later added a logistics component to its curriculum in order to further address the needs of business professionals. The program currently has over 200 students in the major. Every student in the program is exposed to realistic training that involves real world applications, processes, and management problems in several of the 18 core courses that cover different areas of industrial distribution and logistics. To further students' hands-on skills, they are required to complete an internship in order to graduate from the program. Those unable to locate an internship have the option of registering for a special course where they implement or manage a logistics project that spans an entire semester. Currently, the program consists of 18 core courses that cover different areas in industrial distribution and logistics. Table 1 lists the core courses within the program.

Table 1: IDIS Program (Source: 2008-2009 Undergraduate Catalog)

Introduction to Distribution and Logistics	Security & Risk Management
Warehousing and Materials Handling	Enterprise Resource Planning for Distributors
Distributor Sales and Branch Management	Technical Presentations
Global Logistics	Technical Writing
Supply Chain Logistics	Technical Project Management
Industrial Safety	Quality Assurance Concepts
Transportation Logistics	Industrial Supervision
Strategic Pricing	Distribution and Logistics Capstone
Purchasing Logistics	Distribution Research

The courses within the program attempt to incorporate curriculum that strengthens students' technical and managerial abilities by exposing them to detailed and complex logistics and distribution issues corporations faced today. Software packages, case studies, hands-on experiences, and leadership games are implemented in these courses only after they are determined to be current and realistic. For instance,

in order to integrate real world examples, where students perform actual tasks undertaken in a supply chain environment, an Enterprise Resource Planning (ERP) software package and training program has been integrated into the current curriculum. ERP software's distinguishing characteristic is that they integrate an organization's processes and systems under one integrated system that spans all facets of the organization such as, sales, accounting, human resources, and logistics (Rosemann & Maurizio, 2005). SAP was chosen as the ERP system to implement, since it is one of the most widely used ERP software packages in the world (Hayen & Cappel, 2003). The Distribution and Logistics degree program joined the SAP University Alliance (UA) program in the summer of 2008. Since then, over 30% of the Warehousing and Material Handling, the Special Topics in Distribution and Logistics, and the ERP for Distributors courses contain SAP training modules.

In the past three years, the Special Topics in Distribution and Logistics course has served as the development test bed for several other courses that will utilize SAP. For example, in one semester, the course was used to ensure proper deployment of SAP in the ERP for Distributors course in the spring of 2009. In the ERP for Distributors course, students learn to manage a variety of ERP and business processes using SAP. The University Alliance (SAP UA) program develops and provides ways to test the software so students understand the concepts used in real world applications. Therefore, students gain real world experience and valuable skills in the use of an ERP system as they progress through the course. The integration of the SAP UA program is producing graduates that are more prepared for rewarding careers, since studies have shown that similar programs have produced successful results (Hayen & Cappel, 2003). In fact, a survey conducted by Rosemann and Maurizio (2005) of 714 university students from eight different countries indicated the majority of students were pleased with their SAP program and realize the value of their training and their future marketability upon completion of the program of study.

Since students were able to assist in the design and testing of the ERP for Distributors curriculum, they were exposed to the new software from a different perspective. For example, they were able to see how an ERP implementation is performed in phases and how one phase can affect another. Furthermore, they learned that user input is valuable throughout the process and that the success of the implementation depends on many variables.

Besides learning to use SAP in a realistic environment, students learn a variety of management skills. They are also expected to perform a variety of labs where they will use SAP to produce logistics reports managers often produce and ultimately analyze those reports to make changes to business processes. For example, one report students are required to produce provides a list of the most requested items. This report is used to enable students to reorganize the distribution simulation laboratory warehouse effectively in order to facilitate easier and quicker picking of orders. Since students use a popular ERP to process an actual physical inventory of approximately 200 line items, they gain valuable experience they will need to secure gainful employment.

Although the SAP UA program is relatively new to the Distribution and Logistics program, plans are currently underway to develop courses that prepare students for industry certification in SAP by utilizing the skills gained in the UA program. As Hayen and Cappel (2003) point out, industry certifications are very valuable in demonstrating students' understanding of the technology. Most of all, in order to prevent some of the problems identified by Seethamraju (2007), where most of the students mastered the SAP software but did not gain as much knowledge in business functions, existing labs and assignments were designed to include as many business concepts as possible. Furthermore, lab and assignment deliverables require students to explain why the SAP steps are necessary for the associated business processes. The goal is to create an integrated learning environment where technology is used to address business processes and problems.

Since the adoption of SAP, the Warehousing and Material Handling course was modified to incorporate a variety of new labs that include SAP and other technologies. One of these technologies is Radio Frequency Identification (RFID). Although RFID is still in its infancy stage, it is expected to become a popular method to identify products during supply chain movement and storage (Bottani, 2008). Despite Bottoni's belief that RFID is still in its infancy stage, it is rapidly expanding in the logistics and distribution industry. RFID technology provides several benefits barcode technology does not. One of these benefits is that RFID tag readers do not require line-of-sight to read RFID tags (Karkkainen, 2003). Another benefit of RFID technology is that it enables the storage of more detailed information than barcode technology (Jones, Clarke-Hill, Shears, Comfort, & Hillier, 2004). Other benefits include less handling of products, identification and tracking of products during highway transit, and warehouse arrival and departure.

Future RFID technology implementation into the Warehousing and Material Handling course include the retrofitting of the entry and exit points of the warehouse lab with RFID readers. Future plans also include the retrofitting of the roller conveyor system so RFID tags can be read during movement in and out of the warehouse and as they move throughout the warehouse. Several labs have been developed to train students on the use of RFID technology and warehousing procedures. Examples of these labs include the order picking lab and the order shipping lab. In these labs, students pick products to fill orders generated by SAP users and prepare those orders for shipment. Since all of the products in the warehouse will be tagged with RFID tags, RFID equipment will be used to aid in picking, palletizing, and further processing of orders. As shipments leave the warehouse, RFID readers will read the tags, allowing students to complete the order picking and shipping labs without manual scanning of products. Picture 1 shows a student picking orders as requested by the pick sheet.

Picture 1. Example of student picking items in the lab

Since RFID is not as widely used in supply channels as barcode technology, several barcode development, management, and utilization labs are currently in use in the Warehousing and Material Handling course. The first barcode lab students perform is the identification and creation of various barcode standards using BarTender 9.0. Students learn to generate labels using this specialized software and a dedicated Zebra lab printer. Other labs follow where students, using a variety of barcode scanners, scan products under various conditions to learn proper scanning procedures and to troubleshoot scanning problems.

One such lab is the Barcode Scanning Lab. The purpose of this lab is to investigate characteristics of barcodes and scanners to provide an understanding of the differences in scanners and barcodes. Specifically, this lab investigates depth of field (optimum scanning range), the "X" dimension, barcode symbol density, barcode substrate (background colors), and various barcode symbologies (Excerpt from IDIS 3780/81 Warehousing and Materials Handling Lab course manual). Picture 2 shows a student using a barcode scanner during a lab exercise to scan a pallet of products that just arrived.

Picture 2. Student using barcode scanner to check in material

In order to create a warehouse lab environment that replicates an actual warehouse environment, a variety of material handling equipment is used in the Warehousing and Material Handling course. Some of this equipment includes a forklift, pallet jacks, racks, and conveyors. Several labs have been developed to show students how to safely and effectively use material handling equipment. Since the operation of a 350,000 square-foot warehouse can cost $10 to $15 million a year to operate, it is important for students to understand proper warehousing procedures and concepts, as well as important safety measures that should be taken in this type of environment.

All of these labs require teamwork and different roles rotated among students. For example, the physical inventory lab requires a warehouse manager, two or three auditors, and several teams of two counters. Students perform the lab within their assigned roles and are rotated to expose them to the various roles. The goal is to provide students with real world experience in various work situations. Feedback from students, employers, and the degree program advisory board indicate this method of training is helping to prepare students for rewarding careers in the distribution and logistics field.

Furthermore, virtually every lab performed within the courses requires the use of Microsoft Office. The lab deliverables require students to create management reports, charts, and presentation materials that will be used in future labs. This helps students understand the importance of proper decision making. In addition, reports are created that teach students how to brief upper level management on issues that have arisen in the workplace. Picture 3 shows a student briefing a supervisor during a lab. This requirement encourages students to develop their management skills and to learn to analyze management data. Some of these reports include, but are not limited to, an analysis of inventory accuracy, inventory turnover, and percentage of warehouse utilization.

Picture 3. Students role-playing in the lab environment

CONCLUSION

In conclusion, the distribution simulation laboratory is an integral part of the learning process in the Distribution and Logistics degree program. Having the ability to use software packages such as SAP and BarTender have given students the opportunity to understand the basic concepts of these application packages to further enhance their learning ability in the workplace.

In addition, by providing technologies and applications such as RFID, Symbol Barcode readers, and hands-on lab exercises, students graduating from the degree program gain real world knowledge and are prepared to begin work upon graduation with less initial training, which ultimately reduces employer costs and aids in the employees' chances of success.

As more SAP modules are developed and implemented into more courses within the program, such as Purchasing Logistics, Global Logistics, Strategic Pricing, and Supply Chain Logistics, students will see how important this software package is in industry and will be able to relate to their current workplace without the need for additional SAP training. The goal is to enhance learning opportunities for all students in the program, making them more marketable and more conducive to the learning environment in today's distribution and logistics fields.

While significant improvements have been made to the program, many more opportunities for improvements exist. For example, additional labs, equipment, software, and additional collaboration with industry partners would further enhance the program. Since financial resources have been limited for the past three years, purchases for new equipment and software have been placed on hold.

Since the inclusion of SAP and the new labs that utilize it are still relatively new to the program, more research is needed to determine just how effective this approach is. While preliminary employer and graduate feedback indicate the program is effective, scientific studies are needed to determine how effective the new changes are. Studies that survey employers and graduates are needed to determine if these changes have help students find and maintain gainful employment and whether the skills they have gained as a result of this exposure to the software and techniques utilized within the program enabled them to be successful. Other studies that can add value to the distribution and logistics field would be studies that look at similar programs that utilize ERPs and simulated warehouses to determine what successes or failures have resulted from such initiatives.

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A Service Opportunity for Your Consideration:

School Principals and Their Growing Marketing Responsibilities

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Abstract

This paper outlines a research study conducted at the local level to provide an example for your replication in your community. Specifically, we conducted primary research with two local school districts to determine the existing level of marketing understanding and receptivity amongst their school principals. From these research results, we have a baseline of their current knowledge and can plan specific professional development training and seminars to provide these local school districts in the future. Your replication of this study will give you a similar service opportunity in your community.

Introduction

Over a decade ago, the *Clearing House*, a publication with an audience of elementary and middle-school educators, published an article which posed the following question to its readers: "With the growth in school choice, will principals become marketers?" (see Robenstine 2000). Advancing to the present day, we know the answer to that question – YES. A number of authors have looked at this issue and have arrived at the some conclusion (see, for example, Oplatka, Hemsley-Brown, and Foskett 2002; Bagley 2006; Berkeihiser).

Indeed, leaders of public schools find themselves in an increasingly competitive environment as today's consumers (i.e., families) have more educational choices, including: (a) charter schools, (b) private schools, (c) online schools, (d) home schools, (e) early college programs, and others. Gone are the days when the local public school educated all of the local children. Even within local school districts, specialized schools and programs are being created which attract students from across the district, including Academies for Arts, Science, Technology, International Baccalaureate programs, and other options. School principals are being challenged to market their schools in this increasingly competitive environment (see Bagley 2006). However, most school principal have little, if any, training in Marketing. By and large, school principals are trained teachers and educational administrators. They are being asked to become more marketing-oriented while lacking formalized training in the discipline. They can benefit from our assistance.

The purpose of this paper is to outline a research study conducted at the local level to provide an example for your replication in your community. Specifically, we conducted primary research with two local school districts to determine the existing level of marketing understanding and receptivity amongst their school principals. From these research results, we have a baseline of their current knowledge and can plan specific professional development training and seminars to provide these local school districts in the future. Your replication of this study will give you a similar service opportunity in your community. As academic colleagues, we are tasked with bringing together our teaching, research, and service efforts. School principals in your communities are looking for assistance. We invite you to take our study methodology and survey instruments back to your community and offer your assistance to school administrators in your markets.

Study Methodology

Securing School District Support

Conversations with school district personnel led to a recognition of the importance of school principals becoming 'chief marketing officers' for their individual schools while the district superintendent (and others) serves as 'chief marketing officer' for the district's portfolio of schools. It was recognized that there was variation in school marketing efforts. The district wanted to improve the sensitivity level of all school principals to the importance of assuming a more active role in the marketing of their individual schools.

It is very important to secure top management support of such an effort. Their support will validate the need of school principals to become more active marketers. District approval will act as a 'blessing' or approval of the project to aid in data collection. Finally, their support of the project will lead to your ability to deliver specialized training in school marketing to help them fulfill the increasing responsibility of school administrators.

Survey Instrument

We found no existing scales to meet our needs to determine the existing level of marketing knowledge and sensitivity. So, we simply started with a Principles of Marketing text and developed questions which, in our minds, captured the essence of such a survey course presentation. We also made the decision to use Importance-Performance analysis in our study. That is, we measured the perceived importance of marketing activities while concurrently asking the school principals to rate their recent performance on the identical items. The following rating scales were used:

Importance	Performance
Please tell us how important each item is to your work as a school principal.	**Please tell us how satisfied you are with your school's efforts to complete each action.**
1 = Not Important at All	1 = Very Dissatisfied
2 = Not That Important	2 = Dissatisfied
3 = Neutral	3 = Neutral
4 = Somewhat Important	4 = Satisfied
5 = Very Important	5 = Very Satisfied

The following statements were provided for both an IMPORTANCE and PERFORMANCE score:

1. Remaining student-focused.
2. Striving to meet the needs of your students (and their families).
3. Planning for the short-term success of your students and school.
4. Planning for the long-term success of your students and school.
5. Researching the needs of your students (and their families).

6. Monitoring your operating environments for opportunities and threats.
7. Helping move families through their school choice decision-making processes.
8. Dividing students into groups to serve them more effectively.
9. Seeking to create a unique position for our brand.
10. Creating different services or programs for students with different needs.
11. Monitoring the perceptions our families have of the educational experience realized by the student.
12. Developing different time commitment expectations for different students.
13. Monitoring operational costs to ensure cost competiveness.
14. Using a variety of communication methods to reach your students (and their families)
15. Seeking to develop a consistent message regarding your school.
16. Using your teachers and staff members to tell your story on a one-to-one basis with your students and families.
17. Using unpaid mass media (television news, newspapers, etc) to tell your story to your community.
18. Seeking to maximize the access to educational services for your students.
19. Seeking to enhance the customer service experience for your students (and their families)
20. Seeking a long-term relationship with your students (and their families).
21. Developing mutually-beneficial relationships with distribution partners and service providers.
22. Developing mutually-beneficial relationships with supporters/sponsors.

Data Collection

Your local school district likely has, from time to time, scheduled meetings for all school principals. In our case, we were invited to attend such a meeting to talk about the impending study, its usage, and to make an appeal for participation. The district then had its principals complete the web-based survey instrument in use right at that meeting, thus vastly improving response rates. From this data, we are now positioned to provide specialized training for district personnel.

Presenting the Study Results: Importance-Performance Analysis

In general, studies which focus on the assessment of outcomes tend to focus solely on importance of outcomes or performance toward standards and thus do not provide a complete picture of current activities and mission fulfillment. Importance-Performance Analysis involves measuring the IMPORTANCE and the PERFORMANCE of a stimulus (such as a list of marketing actions, outcomes, etc) and then creating a graphical display of the results on a two dimensional (i.e., 2x2) "action grid," such as presented in **Figure One**. This graph serves two important purposes. First, it offers an easily-interpreted visual display of the results of the analysis. Second, and perhaps more important, it provides a basis for strategy formulation.

Figure One

Importance-Performance Grid

HIGH Importance	**A. Concentrate Here**	**B. Keep Up the Good Work**
LOW Importance	**C. Low Priority**	**D. Possible Overkill**
	LOW Performance	**HIGH Performance**

Looking at **Figure One,** you see the upper half of the matrix represents stimulus dimensions which are considered to be of greater importance while the bottom half are those dimensions considered less important. The right-hand side of the matrix contains attributes for which performance is at higher levels whereas the left-hand side of the matrix contains items with lower performance levels. The 2x2 Importance-Performance grid presented contains four quadrants:

1. **Concentrate Here** – High Importance, Low Performance
2. **Keep Up the Good Work** - High Importance, High Performance
3. **Low Priority** – Low Importance, Low Performance
4. **Possible Overkill** - Low Importance, High Performance

Importance-Performance Analysis has been used to evaluate outcomes in a variety of industries. For example, it has been applied in positioning restaurants, business school education delivery, professional association membership offerings, perceptions of bank services, and many more. This method is robust and works in a variety of operational settings. Further, software programs that utilize either means or top-box percentages to create quadrant charts, bi-plots, correspondence maps, and multi-dimensional scaling maps have been developed to explore importance-performance relationships.

Study Results

For the purposes of this paper, we believe it is most appropriate to NOT share our district-wide results with you. Rather, our interest here is to help YOU be of service to your local school district. We can tell you, however, that principals in our districts are very marketing-oriented and very open to increasing marketing efforts. If we were farmers, we would say that we've found 'very fertile soil' in which to plant a program of broad-based marketing by school principals in our community.

Our Challenge to You Looking Ahead

We invite you to replicate our study in your community with your local school administrators as part of your service contribution to your university and community stakeholders.

- Talk with your local school district to see if you can be of service.
- Take our survey instrument and establish your local baseline measures of your local school principals and marketing.

- Use Importance-Performance Analysis to present your data to your audience.
- Develop specific professional development sessions to your local school principals to assist in their ongoing development as 'chief marketing officers' for their schools.
- Come back to Southeast INFORMS next year and present your work as a service opportunity for our consideration so we can learn from you and replicate your work.

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ONLINE REVIEWS: AN AVENUE TOWARDS CONSUMERS' BEHAVIOR

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ABSTRACT

The internet has become a two-way communicational avenue. For businesses, online recommendations serve as a great market research tool to better understand consumers' attitudes toward their goods and services. Our study introduces the environment of internet searching and a discussion about some of the well-known online review search websites. Viewers can read reviews posted by other consumers which can act as a guide for selecting goods and services. In this study, we have discussed the relationship of online reviews and consumers. The study involves reviewers' experiences, different kinds of reviews, and the potential benefits of online reviews. Finally, our study offers recommendations to improve online review websites to better assist consumers in their decision making process.

INTRODUCTION

During the purchasing decision process, consumers tend to conduct thorough research on the commodity or service they are about to purchase. Online review is a useful source for finding such information. Online reviews can be used for a variety of products, such as book reviews, restaurant reviews, or movie reviews. Consumers use online reviews as a guide to support their purchasing decisions.

The Internet has created a new deliver platform for many businesses whereby enlarging businesses potential customer base. AC Nielsen has indicated that 53 percent of online shoppers plan to buy even more on the Internet in the coming year. Customers who were once hesitant to shop online, mainly due to the overwhelm concern about Internet fraud, are discovering a new level of users confidence. Therefore the value of good online reviews is high. For the most part, businesses have provided the means necessary for consumers who purchase items from their website to communicate directly with the company and also, post comments for other potential buyers about recent purchases. While the good comments are most likely to be highlighted, the not-so-glowing reviews, those directly related to the business, might not be made available for all users to view.

According to ComScore (2007) study, 41 percent of reviewers will visit a certain restaurant after browsing review sites containing its information. Amazon and BN.com also realized that consumers' attitude can be affected by evaluations created by other reviewers (Chevalier & Mayzlin, 2006). Thus, online reviews significantly influence businesses. Based on an article by Liu (2006), reviews written by consumers are related to box office revenues for movies: a movie with high box office revenues would have had numerous positive reviews.

For businesses, online reviews are also one important indicator of consumers' satisfaction. Through online reviews, companies can understand how consumers value their products or services. It is important for businesses to note that one negative online review can represent another twenty unsatisfied consumers (Do your customers Yelp, 2010).

In the U. S., websites such as Yelp, iDine, and Citysearch, which offer information about restaurants, bars, or shopping, have become prevalent for consumers. Internet surfers can read many different reviews and get suggestions from these websites. However, there are a lot of criticisms directed at these websites. A major criticism is some consumers are skeptical about whether or not the online reviews are trustworthy. Since participation is open and free to the public, the credibility of online reviews in some cases is questionable. Discussed later in this study will be the ways on how the businesses can appropriately increase the trustworthiness of online reviews.

GENERAL SEARCHING WEBSITES' ENVIRONMENT

The demographic characteristics of internet customers include factors such as age, gender, education, income, marital status, social class and so forth. To a certain extent, these factors directly influence

their online utilization. These characteristics can be associated with needs, wants, preferences, usage amount, and buying habits (Turban & Volonino, 2010). For instance, consumers who differ in income level may also differ in terms of their presumptions about services, objectives, their attitude towards usage of technology, and their inclination to make online purchases.

Age and education can often account for consumer behavior. In a telephone survey presented by Pew Internet Project, Susannah Fox (Fox, 2007) found that 70% of adults in United States browse the Internet. Fox also found the group with the highest utilization is among 18-49 year-olds. In regards to age, it is reported that younger users spend more time online than older users. However, online usage is increasing among people over the age of 65. It is also suggested that the upward surge in online usage for that age group is due to the fact that more elderly people are retiring early, mainly due to the economic downturn, and now have more leisure times for internet shopping or browsing.

In addition, Popular Press assumed that the level of education is a significant factor that affects online buying behavior. Fox noted that more college-educated users are online than those without degrees. College educated users are more likely to utilize internet resources, such as consumer product reviews and online stores, thereby increasing their buying power (Fox, 2007). Figure 1 illustrates examples of Demographic Realities & Consumer Behavior Online Results (Fox, 2007).

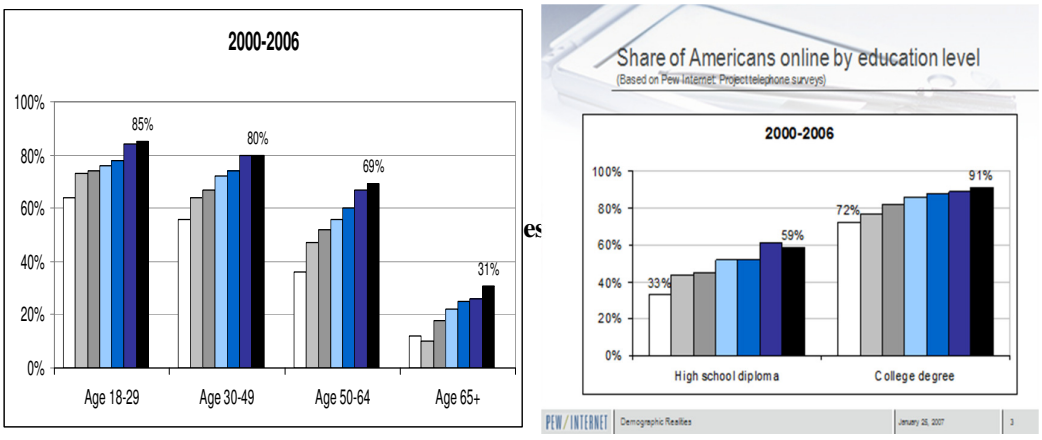

Figure 1: Examples of Demographic Realities and Online Consumer Behavior

Another demographic factor is the impact of gender on consumer attitudes. Women and men's online behavior has been explored in numerous studies. A study by Pew Internet & American Life Project found that women, 65 and younger, spend significantly more time online than men. Nevertheless, according to a survey by Lighthouse Research, men more often times would read online reviews than women, though by only a fraction of percentage points (Day, 2008). The distinction between the sexes among younger people was especially interesting because it could model the way consumers use technology and the internet in the future.

The socio-cultural elements of the environment also affect the tendency of customers to utilize internet resources. These elements consist of customs, lifestyles, and values that define the society in which we live. Socio-cultural components of the environment have the power to affect an organization's bottom line.

The internet, coupled with the development of science and technology, is redefining the way businesses and consumers interact and communicate. Although it is undeniable that technology has changed the customs of daily lives, it definitely does not define traditional values and ethics of society. Technology influences society in a subtle way, by bringing a wider exposure of other cultures to a certain group of users, thereby helping to introduce and inter-mingle the old and new values into the society. Technology has been playing and will continue to play an important part in trending toward globalization.

The rising unemployment rate has significantly impacted online consumers' spending habits. The mindset of most online consumers has turned from "cutting back to spending cautiously" (Rodriguez, 2009). An online survey performed by PriceGrabber.com, from May 2008 to March 2009, revealed that online consumers' "efforts to cut back have reached a plateau" (Rodriguez, 2009). That is, consumers' spending has not significantly increased nor decreased, rather, the internet has empowered consumers with a cost efficient way to do business. The information is widely available and it is easily accessible. The internet market is extremely competitive. Businesses use online reviews posted by consumers to find cost effective ways to meet the heightened expectation of consumers. Moreover, by doing so, those businesses will gain consumer confidence and trust, thereby increasing the demand for their products and service.

The Internet has made such an enormous impact on society, so much that it is difficult to comprehend a society without the internet. The popularity of the internet has touched every aspect of our life that it has changed the way we keep in touch, share information, conduct business and perform work. Through the internet, we can now communicate with each other almost instantaneously anywhere in the world. We no longer have to depend on our postal service to deliver letters, sometimes waiting in excess of a week, to communicate to our friends and relatives.

Instant messaging technology has revolutionized casual conversation. This technology is most appreciated by the younger generation, as it has become so popular that a new code language comprised of emotions and acronyms has emerged. Almost all businesses now use the internet in some fashion to communicate with their customers. From the consumers' point of view, there are numerous advantages. Consumers can now easily compare prices and features of a product before deciding whether or not to make a purchase. From the businesses' point of view, "click-and mortar" businesses are the new market leaders (Turban, & Volonino, 2010). The requirement for physical stores is almost non-existent when businesses conduct their transactions primarily online, thus reducing the cost for renting revenues as well as paying for sales associates.

New technology has revolutionized the marketing mix in another important way. It has changed the way companies market their products. Consider the revolutionary changes brought about by the

internet, which offers marketers a new vehicle for promoting and selling a large range of goods and services. Marketers must be knowledgeable about technological advances and change their strategies, both to seize opportunities and to stop potential threats (Turban, & Volonino, 2010). Online reviews have empowered consumers and businesses, so businesses can no longer assume that good service is sufficient; they must strive to continuously improve their products and services to meet their customers' needs. Online reviews have empowered consumers with service and product evaluations, thereby increasing the demand for premium services.

The political environment of a business is influenced by the political organizations such as philosophy of political views, nature and extent of administration influence of primary groups, political stability within the business, and overall policies implemented within the business and organizational structure (Kurtz, 2007). Much of these views and policies lead to the legal aspect of the business. The Legal environment includes flexibility and adaptability of law and other legal rules governed within the business. It may include the exact rulings and managerial decisions in which may affect the business and its managers to a certain extent. The political and legal framework exercised in business has influenced consumer's mind in molding ones desires for certain products in which have high regards in declaring the set of available goods and services in the market; since most people tend to behave themselves within the law.

Online consumer reviews are subject yet not limited to involving experiences, evaluations and opinions on products from previous consumer. Such consumers play two roles; an informant and a recommender. These two roles affect a consumer's intention in potential buying, or buy-back and post purchase evaluations. Much of these evaluations are formed due to consumers having a favorable attitude toward a product, service, or good in which has been put at the top of the consumers mind based off of positively reviews in which have influenced an individual from a "recommender. " According to the Journal of Consumers (2001), consumer data and political polling offer a glimpse into consumers' psyches. In the new world of "corporate affinity" politics, more and more campaigns are working with commercial data-mining firms to build databases of consumer's preferences, hobbies, and media viewing habits. When cross-indexed against publicly available information, campaigns can target, with reliability, both potential supporters and key consumers. From such information collected businesses then reach out to the consumers they have identified with via personal contacts, phone calls, direct mail, e-mail, or Internet ads that pop up when the consumer visits certain Web sites.

Online consumer reviews impact a future purchased made by consumers a great deal and especially triggers political and legal aspects, not only in terms of positive lights such as campaigning for the businesses or marketing through a host of implemented strategies, however also used to place negative light on a company. For example, after conducting a lot of research and related findings, the online reviews include consumer complaints, knowledge of scams and fraudulent activity and other illegal misuse of information or false advertisements made by businesses in which hinders consumers behavior online as well.

Much of these acts result in a company's reputation at stake, complaints formed against the business itself, and other issues in which bring about controversy. According to an online review website, "A pissed consumer" (2009), this is where consumers share their experiences with products, or run-in with companies in which they were dissatisfied with the service or purchase in itself. Online consumers share their stories in high hopes to persuade others' feelings and emotions about a product or service similar to theirs. Much of this leads to legal disputes, and other issues in which lead to controversial issues with online purchases, and overall consumers buying habits as a whole. Korobkin (2010) discusses that a recent lawsuit against the website tripadvisor.com for not removing a customer comment that alleged a restaurant was patronized by prostitutes. Korobkin (2010) argues that most consumers will ignore a single outlier comment and look for patterns, and that businesses should be more concerned with trends, such as a half-dozen complaints about slow service, than a single extreme allegation. The author also suggests that businesses should take advantage of the fact that many web sites allow a criticized business to provide a response and dispute false charges.

In some instances, when customers have encountered bad experience with a company, a service, or product, they tend to share that experience with other consumers via online review websites such as Twitter, Angie's List and Yelp. Most of these complaints are attempts to communicate to other consumers who are seeking similar or furthermore products overall. In most cases, this is viewed as a tool in which helps other users, never would one take this to higher levels and turn this in to a legal dispute for one's opinion. According to an article, "Woman sued over online Review," Smith (2010) suggests that if you complain about the wrong company, you may end up at the wrong end of a lawsuit. That is exactly what happened to a woman who complained about a local concrete company in Chicago, "All Fields of Concrete Construction" and provided an "F" rating on a consumer review website (Angie's List Review). The woman claimed that All Fields refused to give her an estimate on a new gangway and patio because they claimed it didn't work in her area- a claim she found to be odd considering that her home was five miles away from the company's offices. The review was mixed in with others, allowing consumers to take in all reviews and make up their own minds, but Michael Fitzgerald, 'All fields' owner, has singled her out and is currently suing for 10,000 dollars, plus court costs alleging that she "willingly and maliciously tried and succeeded in damaging the company's reputation. " Unfortunately lawsuits regarding online reviews are becoming more common, and these lawsuits are referred to as SLAPP, Strategic Lawsuits against Public Participation. These are lawsuits in which generally seek no monetary form only silence. Much of this is why many online consumers are watching what they say and how they say it because of SLAPP and this is why more and more anonymous comments are prevalent today than before.

Consumers are increasingly searching for information about businesses online, so it makes sense for businesses to think about their search engine optimization strategies. At the same time, small businesses must compete with large national brands in highly competitive local business categories for optimal position in terms of search results. Being innovative through creative framework and techniques, and understanding how to use technologies to one's advantage is essential to exploiting

into the search opportunity locally and globally; search engines provide a mechanism for blended results in which consumers are attracted to. This can be seen as an advantage of globalized networks because this means if a business is generating blended search results, they do not have to be the first result on the search page to gain a consumers attention (Kurtz, 2008).

Recommendations from personal acquaintances or opinions posted by consumers online are the most trusted forms of advertising, according to the latest Nielsen Global Online Consumer Survey of over 25,000 Internet consumers from 50 countries (Global Advertising, 2009). In this new age, consumer control is definitely a major issue in terms of advertisements being made by websites in which are attempting to gain trust of consumers through the various online consumer opinion polls and reviews.

Global Advertising (2009) suggests that consumer' reliance in terms of word of mouth in the decision-making process of buying stems arousal either from people they know or online consumers they have seen expertise based off of previous experiences. While Brand websites globally are perceived as the most trusted form of advertiser-led advertising, regional differences provide a clear guide to advertisers as to how they should focus their ad strategy in different countries. It also indicates that, despite the authority of word of mouth when it comes to consumer decision-making, advertisers still have a major say in shaping the overall consumer decision-making process.

GLOBALIZATION

Consumers are definitely more involved in making online purchases and conducting business on a global level. Many businesses are implementing strategies that appeal to consumer's likeability and ease of use; providing a website that appeal to all markets and different countries. Google now covers about 170 languages and the list is expanding every day through volunteer translation efforts. This means more and more of one's target consumers are searching for their products and services in a language other than English (Kurtz). The innovative explosion of local-language content allows consumers to search information and products in their native language first. Much of these efforts have stemmed from the lack of globalized search engines, whereby consumers have been unable to search using their language preference. Ensuring that each language variant of a business site is indexed by the search engine has led to the accomplishment of global networks ability to reach all potential consumers.

The choice between global and local products, brands, and experiences is extremely contingent upon consumers own identity and intentions in the market. Such trends are associated with having more ability in terms of choices made on a daily basis. Cultures have been introducing ideas and goods for commerce for many of years without disappearing or losing their identities in the process. Our society has become structured more on worldly and cultural trends that are taking a kind of structuring of diversity in accordance with globalizing patterns of consumer buying habits and consumptions made overall.

ANALYSIS OF THE INDUSTRY: YELP AND CITYSEARCH

There are several professional websites designed for the purpose of collecting online reviews of local businesses. Among the most popular of these are Yelp and Citysearch. Each will be analyzed for its strengths and weaknesses as follows:

Yelp

Yelp is a free website that allows users to post reviews about local businesses. The company was started in San Francisco, in 2004, and has now expanded everywhere from the United States to Canada, United Kingdom, Ireland, and France. One of the strongest aspects of Yelp is that it is free and available to a wide range of participants (10 things you should know about Yelp, 2010). The reviews collected over time from participants can create brand recognition for the restaurant entrepreneurs which can lead to a variety of commercial and advertising opportunities. Yelp's participants have reached an impressive number of 38 million, with over 12 million reviews, as of August 2010. Multiple awards and recognition from Travel and Leisure's Top Travel Websites, Time Magazine's 50 Best Websites, and PC World's Best Free Apps and Services for the phone have done more to bring awareness to customers and help the website's potential for expansion (Frequently asked questions, 2004).

However, several weaknesses have to be mentioned in regards to Yelp. The website relies mainly on the willingness of members to post reviews. This means that incentives are often needed for increased participation. Since the website is free and open to the public, a very high level of monitoring is required to maintain reliability. With the aforementioned site, notable registered online reviewers and visitors, as well as opportunities for advertising and sponsorship to the website are almost guaranteed. As with expanding online opportunities, legal and privacy issues cannot be ignored. The website's need to improve its terms and conditions to protect user's privacy, but at the same time, maintaining the integrity of their reviews must be assured. Table 1 lists the strengths and weaknesses that have an internal focus and the opportunities and threats that have an external focus, i.e., SWOT analysis.

Table 1: Yelp's SWOT Analysis

Strengths	**Weaknesses**
Free Participants Strong brand recognition	Rely on members (incentive for participants) High level of monitoring required
Threats	**Opportunities**
Legal issues Privacy issues	Advertising Sponsorship

Citysearch

Citysearch is one of the websites operated by CityGrid Media's Website, which also hosts various websites including Ask Answers, Ask Kids, Bloglines, Expedia, Hotels, Hotwire, Life 123, Insider Pages, Merchant Circle, and Urbanspoon. Currently more than 75,000 businesses around the country are included in Citysearch's directory, where recommendations from users and guides from professional critics can be found. In this aspect, the operational method is slightly different than that of Yelp, since both editorial and users' comments are included.

Citysearch holds several unique advantages over other sites of the same genre because it can design contests, such as "Best of Citysearch" where both users and businesses can participate and be involved directly with the website, providing a wide range of opinions from both sides of the table (About best of citysearch, 2010).

Other strengths of Citysearch include offering a variety of supporting sister sites, such as Urbanspoon, Ask Answers, Merchant Circle, etc. (Citygrid media businesses, 2010). Customers are provided an opportunity to browse more than one website and a chance to stumble upon what they might not find otherwise. This is a very attractive aspect of Citysearch, since customers can be enlightened by the amount of information provided and are much more likely to return to the site to further explore their dining options. Expert advice from professional critics also highlight Citysearch's unique feature over their competitors. Together, the recommendations from the pundits and average users can create strong brand recognition for this site's visitors.

Disadvantages of Citysearch can still be pointed out, despite its many distinctive and innovative features the website offers to its users. Since expert advice and editorial comments come from only a limited number of associated businesses, visitors are limited in their exposure to new restaurants. Citysearch can potentially expand to the international market; however, difficulties in establishing new associations with foreign businesses are recognized here again. The age of ever-changing and improving technology not only provides new tools to Citysearch to utilize, but also introduces threats of strong competition from other entrepreneurs, hoping to gain a share in this promising online business section. Table 2 lists the SWOT analysis for Citysearch.

Table 2: Citysearch's SWOT Analysis

Strengths	**Weaknesses**
Strong brand recognition Expert advice (over competition) Other supporting sites (Urban spoon) Reliable sources	Only limited to certain businesses
Threats	**Opportunities**
Strong competitions New technology	International expansion

Other Online-Review Businesses

Business response reviews are very effective and beneficial to many people, especially consumers in today's society. This is because more and more companies and businesses are exposed and have been included in more in depth reviews online in which consumers are being offered new and updated information about the online business market overall. The new top online business recommendations give potential business owners and consumers the information they need instantly.

UK Make Money Programs has responded to that need with these newly released top product reviews and information on their website. UK Make Money Programs has provided new top recommendations as a reliable guide for students to use when researching legitimate business opportunities. These programs offer a wealth of information and online reviews for those with an entrepreneurial spirit and the newly released recommendations feature cutting-edge information (Smith, 2010). UK Programs is a review site at heart that links people to the best make money programs online. It's packed with articles and free resources that will help people make money in general and make money online in particular

Another tool or form of opinions given by individuals to help with future online purchases or overall consumer's opinions about products, services and or businesses is 'Epinions'. Epinions are rating reviews ranging from all categories from cars, books, movies, music, computer and software, electronics, sports, travel, and home supplies. Epinions suggest that the website helps people make informed buying decisions. It is a premier consumer reviews' platform on the Web and a reliable source for valuable consumer insight, unbiased advice, in-depth product evaluations and personalized recommendations (About Epinions, 2010). Epinions is a service of Shopping.com, Inc., a leading provider of comparison shopping services, also teamed up with E-bay which is very prevalent with the e-commerce and online purchases. Shopping.com's mission is to help consumers anywhere uses the power of information to find, compare and buy anything. Epinions community, Shopping.com empowers consumers to make informed choices and, as a result, drives much higher conversion to sale and value for merchants (About Epinions, 2010).

SYNTHESIS OF RELATED RESEARCH

The internet has been seen as an information exchanging platform. One business can utilize the internet to diffuse news about company's products, service, or announcements to potential consumers or current purchasers. Currently, online reviews created by individuals have also become an important resource for consumers. It means that consumers also become information providers (Chen & Xie, 2008).

According to Chen and Xie (2008), reviews posted online belong to one kind of word of mouth (WOM) communication, and online reviews can build trustworthiness easily between sellers and buyers. Contrary to traditional WOM whose messages are diffused by person to person, or person to group, online WOM allows internet users to use the internet media, such as review websites, blogs,

and online discussion boards, to share their evaluations. The features of online WOM are that messages can be spread fast and that reviewers can receive numerous messages at the same time (Xiaofen & Yiling, 2009). Importantly, customers tend to believe messages from WOM more than those from formal promotional campaigns initiated by the producer of the goods and services (Grewal, Cline & Davies, 2003).

The current research about online reviews involves many directions, which are:

1. The effect of online WOM.
2. The relationship between personal experience and online reviews.
3. Benefits created by online reviews.

These distinctive aspects of the research on online reviews will be further introduced and discussed below.

The Influence of Online WOM

Customers reviews released on the internet can be distinguished into two primary types, positive and negative. Positive reviews indicate that products or services can bring fulfillment to consumers, while negative reviews serve as a warning that customers are not satisfied with goods and refuse to repurchase. Consumers view online WOM as an important guide and consider this more credible than information offered by businesses (Ye & Yushe, 2009). Nevertheless, Sher and Lee (2009) stated that based on different degrees of skepticism, people have various opinions of online reviews. If a consumer finds dubious or questionable messages circulated on the internet, he/she will read more reviews to examine the quality of the product in question.

Although, customers' attitudes can be affected by positive and negative online reviews, the study conducted by Susskind showed that consumers tend to believe negative online WOM's because negative messages are paid closer attention to than positive messages, and they also tend to browse negative reviews first (2002). Moreover, for consumers, honesty and objectiveness are essential factors in online reviews, and consumers cannot accept recommendations they deem unreliable or dishonest (Grewal, Cline & Davies, 2003).

Personal Experience and Online Reviews

Personal experience is another element that influences consumers' decision making. According to the investigation conducted by Aiken, Jones and Boush (2009), positive online reviews combined with image advertising easily influence the group having no experience, contrasting the two groups with positive and negative personal experiences. Zhang and Smith (2009) presented that travelers prefer utilizing the online reviews to determine their trip plans before traveling abroad. Therefore, online reviews are important for individuals lacking sufficient experience.

Moreover, one kind of experience, using the internet, can be defined as a factor influencing online reviewer attitudes. In a study by Zhu and Zhang (2010), they found that customers with abundant internet experiences have more influence on others regarding decision making process. When consumers see online reviews, they are also able to see the writers' other recommendations or

evaluations of these writers. One person leaving many suggestions online is seen as one who has more experience and is more professional. Therefore, consumers are more willing to believe recommendations wrote by this kind of internet users.

Sales and Online Reviews

For business, it is a primary issue if online reviews can help increase sales. Liu (2006) said that customer online reviews posted to the Yahoo Movies website can cause tremendous influence on box office revenue. The relationship between positive reviews and revenue of movies is a positive correlation. Similarly, Chevalier and Mayzlin found that sales at Amazon.com and Barnesandnoble.com changed accordingly with a book's review (2006). They also noted that the impact of negative evaluations affect sales more than positive evaluations. In addition, the survey from the ComScore website (2007) revealed that reviewers visited restaurants after browsing the restaurant online reviews. Based on these studies, online reviews have the power to trigger consumer buying tendency and increase revenue, or they can exert the opposite effect.

MANAGERIAL IMPLICATIONS

A company must pay close attention to each negative review posted online because these reviews represent responses from unsatisfied customers that could be easily addressed both internally and with feedback to the customer. Negative reviews are the first ones noticed by online reviewers (Susskind,2002), and these reviews can have a negative impact on sales (Chevalier and Mayzlin, 2006). Therefore, businesses with web sites should monitor those sites on a daily basis, so that they can quickly address negative comments. The business should have someone who can read any negative review or response to determine whether these reviews are rationally expressed and deserve a response. If the customers' complaints need to be addressed, the company could respond by making necessary changes accordingly. Thereafter, companies can publicize these changes to prove that customers' feedbacks are not ignored. Companies can also use promotional strategies, such as offering a cost saving coupon that customers can download from the web site. It is a good method for reducing any negative impact that may occur from bad reviews.

On the other hand, the companies that are building strong websites can consider using promotional tools such as advertising to increase their popularity. Good advertising, along with good customer reviews and testimonies can help develop a positive company image and credibility (Aiken, Jones & Boush, 2009). Companies that receive numerous positive reviews are able to use the internet to spread their good image and a proactive marketing campaign can increase their brand awareness quickly. As potential customers notice advertising about one company, they became curious and interested to reach out to the company's website and other online review websites to see what other customers are saying about the company. If the company has received positive feedback, the customers' purchasing decision is being posittively reinforced and therefore is more likely to consider the company for

future business or purchases. Combining advertising with a strong website will help increase sales.

CONCLUSION

With the expanding e-commerce market, more buyers and sellers are participating in online transactions. Customers are requesting more options, creating a higher demand for products and services. This led to an increase in buyers' power and a decrease in suppliers' power. Thus, the level of competition between businesses has becoming highly intense. Consumers want a host of products and assortment of these products via the home front stores, as well as available information to access such products and the ability to choose accordingly based on the functions that offer that capability. Due to the merchant demand of brand awareness and exposure in the marketplace, much of this extensive knowledge has expanded and is increasing, not only in local markets, but also globally with the expansion of the global population of shoppers. Such reviews will allow consumers anywhere to use these informative tools, consumer reviews, and shopping resources to find, compare, buy and sell anything and everything.

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DIGITAL AD DESIGN, CREATION, AND MARKETING RESEARCH

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ABSTRACT

The digital age has brought tools that few of us understand or use to either market products and services, or research markets and customers. In 2001, Ray Kurzweil outlined The Law of Accelerated Returns where he described the exponential growth of development and applications of technology [12]. In this view, Gordon Moore's Law that technology will yield twice as much capacity in circuits every 24 months may be applied to Google [11]. This firm is leading the way in new modes of advertising research and development using the web. The tools available range from search engines as research tools, test marketing landing pages for head-to-head testing of effectiveness, measuring competition intensity, identifying and measuring trends, estimating traffic flow, all offered by Google. These tools allow marketers and marketing researchers to directly measure relevance of ad design elements, to improve ad campaign performance, and to help boost ROI for online ads. This paper describes the digital tools available at Google and their use in marketing researching and advertising online.

GOOGLE HISTORY AND CORPORATE OVERVIEW

A look back at how Google was started shows in 1996 Larry Page and Sergey Brin collaborated on a Stanford search engine called BackRub. By 1998, these two Stanford University graduate students had adopted a mission, "to organize the world's information and make it universally accessible." They created what today is known as Google, a play on the word "googol", which is a mathematical term for 1 followed by 100 zeros. Today, there are over 20,000 employees worldwide with over 50 office locations around the globe. The corporate headquarters nicknamed Googleplex is located in Mountain View, CA [3].

PAGE RANK

So why are some pages listed higher than others by Google? Before you even enter your query in the search box, Google is scanning the web information with software programs called crawlers, or "Googlebots." A crawler visits a page, copies the content and follows the links from that page to the pages linked to it, repeating this process over and over until it has crawled billions of pages across the world-wide-web [3].

"PageRank" is an algorithm tool used by Google to determine the importance of a webpage. This is how the search engine organizes and ranks results of the search query. Companies with a higher ranking are usually the first to be clicked because most users do not click websites unless they are on the first page of results. To make pages easier to find by Google, webmasters and businesses have started to utilize principles called search engine optimization (SEO). SEO is both important and relevant because it means more traffic and potential customers when optimization occurs. A very important component of SEO is creating pages with unique and accurate page titles. These page titles need to be brief yet descriptive. Web site developers should be using meta-tags to provide both search engines and users with a summary of what a page is about. The website Universal Resource Locator (URL), or web address such as www.google.com, should be comprised of important descriptions not plain text. Using heading and image alt-tags appropriately will help crawlers find and index website content.

A webmaster is able to submit an xml site map, which causes Google to automatically crawl pages in a website. Google Webmaster Tools will help programmers better understand website html and enhance coding. There are also many other resources within this service to make a site run faster and easier, enabling customers to become more engaged [4].

ADWORDS

Effective ads lead to more sales. In the last decade, technology caused online advertising to evolve dynamically. Now with AdWords, advertisers can create basic text ads that then appear beside related search results. AdWords are the advertisements shown as 'Sponsored Links' in blue at the top right of a Google search result page. Anyone can create and run ads for a business, with a flexible budget. Businesses only need to pay for ads when clicked, not by the times the ad is displayed. This approach is called 'pay-per-click.'

Marketers are able to reach an audience with targeted geographic specifications. For instance, marketers can just run the ad to locations within a 50 miles radius of a business. Remember, it is critical to write ads which make people look twice. Promotions using push tactics or a call to action with buzz words such as "free" or "discount" tend to be more effective. Customers need to understand what keywords to use to reach specific products or service or to find a specific website. Keyword selection needs to be specific because using vague or broad keywords lowers performance. Essentially, vague keywords generate more impressions but less relevant clicks.

Why should marketers pay for ads which are not describing what the customer really needs? Using direct descriptive keywords targets a product. Campaigns can be organized by themes and separating products or brands to highlight a specific product for advertisement. For instance, a print company, instead of running a campaign for the entire product line, can separate an AdWord campaign into segments such as business cards, brochures and publications. Advertisers can then choose more relevant keywords to fit into each product category, allowing potential customers to efficiently find exactly the pages related to the search topic.

Expected success rates can be calculated by using the Traffic Estimator. This tool shows the estimated click volume by region for any given search keyword. This can be helpful when determining what budget to use for a campaign. If uncertainty or disagreement exists for an AdWord campaign, the Keyword Tool can be employed to generate relevant words by analyzing a website's content.

A great ad is only as good as the page used to send prospective customers to a great website. Every campaign should be anchored by a landing page which emphasizes the theme and product described in the ad campaign. Helping users find what they seek in a fast and easy way helps convert more sales. Campaign performance can be tracked with analytic conversion tracking tools. These tools measure success by analyzing which keywords and ads get the best results. Marketers and researchers can visit the AdWords online classroom to learn how to use this important tool [5].

GOOGLE INSIGHTS

Informative marketing research leads to more knowledgeable business decisions. Google Insights for Search is a product allowing marketers to compare search volume patterns across specific regions, product categories, and time frames. This allows insight into search patterns across Google. By using the Geography Tool marketers determine what countries and cities customers are concentrated in for a given industry. Geographic segments can be defined where designated search terms are used to define a "hot spot." Tracking can use a time frame to better anticipate expected demand for upcoming seasons. Additionally, search volume market share can be measured by comparing search results for the business to competitors. To determine if an advertising campaign changed awareness, spikes can be monitored in a product or ad web site visits over time and see if an advertisement inflated searches [6].

GOOGLE ANALYTICS

Google Analytics is used to determine how potential customers find, interact, and become customers on your site? As an advertiser using Google Analytics, helpful measurements are available to assist understanding site statistics and overall website performance. Data is available for analysis to measure where visitors originate and how long they spend on individual pages in the website. This means countries, states, cities, or towns originating customers and searches can be identified. Data can also be accessed which is important to web design teams such as the operating system viewers are running, the browser type and the page resolution size. This data shows if customers are originating searches from a computer or mobile phone [7]. These analytic data can help answer such questions as:

1. What channels do customers go through before purchasing a product?
2. How do customers find out about a website and discover product information?
3. How can marketers optimize the path from search to sale allowing customers to find what is sought faster?

WEBSITE OPTIMIZER

Website Optimizer is a free testing platform that increases conversion rates. Typically, the page content that needs testing is used to create a version A and B with different headlines, colors, images or verbiage. Google then reports data and advice helping to identify which combination of design elements works best. Conversion rates on the two alternative designs can be monitored. This measurement helps decrease cost per new customer acquisition because the best version is capturing the attention of potential customers more effectively. Without Website Optimizer, many designers and businesses work by hunch. Now webmasters can experiment on a sample population and leverage empirical data. As always, letting potential and actual customers decide which site layout and design is best is optimum [8].

Here are some useful optimization tips yielding needed data:

1. Test a page with a lot of traffic
2. Keep your independent variables consistent and test a bold headline or dominate image
3. Using a page where customers are asked to complete a specific task or sale

ANDROID OPERATING SYSTEM

The Droid Phone is creating more customers on new devices constituting another marketing and research innovation from Google. Recently Google developed the Android operating system for cell phones. There an estimated 32,000,000 Android phones sold to date [2]. The system is a free, open source mobile platform so any phone company can install and use it on existing hardware. Some research suggests more people are using their mobile devices to view content online rather than their laptops or computers. Mobile advertising has been on a steady incline since its introduction. Advertising Age explains there has been a 79% increase in mobile ad spending since last year. This is a new way to engage target audiences. As with computers, advertisers can segment potential customers by region, phone platform, and app usage. Advertising publishers can then receive instant quantitative results which analyze the campaign. This allows ad publishers to measure how efficient the message was. Mobile advertising proves to be a low cost alternative allowing businesses to find a plan to fit any budget [1].

GOOGLE TV

This past year, Google has developed a new media platform known as Google TV. This innovation is changing entertainment and opening up new business opportunities. Sony and Logitech are integrating the technology into televisions, allowing users to watch videos, view photos and play games. It is also possible to search on these televisions and find web content straight from any room in the house or apartment. The world's websites are becoming tweaked and optimized for this new platform in order to reach new users in this evolving market. Businesses can develop applications which run on the Google TV system, extending reach and integrating more seamlessly into customer's lifestyles. These apps can be found by customers on the Android Network, which is basically Google's version of Apple's iTunes store. Prime data on customers can be collected to understand viewing and searching habits [9].

WHY IS DIGITAL AD RESEARCH AND DESIGN RELEVANT?

Latest data from Internet World Statistics [10] show there are approximately 1,966,514,816 internet users and about 68.4 million mobile web users with these numbers growing exponentially. Businesses are developing site content which is optimized for phones. Many companies are even creating mobile Apps which can be downloaded and used to generate consumer awareness. Mobile marketing helps create a buzz about your products or services because your offers will reach consumers while they are shopping, socializing, and making buying decisions. More than ever consumers are on the go, so creative strategies need to be adapted to fit the lifestyle of versatile consumers.

CONCLUSION

Digital media technology and online advertising is a new and rapidly evolving field of marketing. These new tools offered by Google are allowing businesses to more effectively connect to consumers in a completely new way. Now customers can find information faster with a better overall experience. Additionally, advertisers can make decisions on real time analytical data. It is possible to monitor ad campaigns and segment target customers in real time. Businesses can do more with a limited budget because it is now possible to control pay per click advertising. Optimization tools offered by Google can make company sites intuitive and increase customer acquisition and retention while limiting click-through visits. Using these new digital tools makes marketers able to more effectively promote a business and drive revenues.

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The Green Vehicle Routing Problem

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ABSTRACT

This work introduces the Green Vehicle Routing Problem (GVRP). The GVRP is an extension of the well-known vehicle routing problem (VRP). Moreover, the GVRP includes an objective function that minimizes weighted distance. Minimizing weighted distance reduces fuel consumption and consequently CO_2 emissions. Therefore, the GVRP is more environmentally friendly than traditional versions of the VRP. This work presents a Mixed Integer Linear Program formulation for the problem and a Local Search algorithm to find local optima. Also, the problem is illustrated using a small problem instance.

1. INTRODUCTION

The Vehicle Routing Problem (VRP) is the designing of vehicle routes such that total distance traveled by all vehicles is minimized. The VRP has multiple applications in the fields of logistics and transportation. In fact, any company managing a fleet of vehicles that visits a set of customers needs to solve a VRP. The VRP has different objectives according to the goal to be accomplished. The most common objective functions (OFs) of the VRP are to minimize total distance traveled by the vehicles, and to minimize total traveled time. Often, traveled time is correlated with traveled distance; making minimizing total distance traveled the most common OF for the VRP. The VRP was introduced by [1] and was proved NP-Hard by [2]. In fact the VRP combines two difficult combinatorial optimization problems, the Bin Packing Problem (BPP) and the Travelling Salesman Problem (TSP). The BPP assigns cargo to vehicles, and the TSP optimizes vehicle routes.

As it was mention above, VRP problems are at the core of companies such as UPS and FedEx. There are multiple variations of the VRP according to problem OFs and assumptions. The most popular one is the Capacitated VRP (CVRP). In the CVRP vehicles either deliver or pick-up cargo (but not both) to or from a set of customers. Moreover, in the CVRP, customers are visited only once during the planning horizon. Another popular version is the VRP with Time Windows (VRPTW). The VRPTW allows customer to be visited only during certain periods of time. A third popular version is the pick-up and delivery VRP in which vehicles can visit customers more than once to either, deliver cargo, pick-up cargo or both. Finally, detailed reviews of VRP and its most important variations are available in [3], [4], and [5].

Previously, it was mentioned that the most common OF for VRP is total distance traveled minimization. Minimizing total distance traveled speed up time deliveries. However, routes that minimize total distance traveled are not the most efficient ones from the point of view of fuel consumption and CO_2 emissions. Therefore, this research proposes an alternative and more environmentally friendly version of the VRP that minimizes total weighted distance. The proposed problem is called the Green Vehicle Routing

Problem (GVRP). Moreover, weighted distance is defined by the product of vehicle weight and distance traveled (i.e., ton-miles or ton-km). In fact, fuel consumption is a function weighted distance. That is, a heavier truck uses more fuel than a lighter one when travelling the same route. Therefore, minimizing weighted distance minimizes fuel consumption, and consequently minimizes CO_2 emissions. A greener version for the TSP called the Green Single Vehicle Routing Problem (GSVRP) is discussed in [6]. Notice that a VRP with only one vehicle is reduced to the TSP.

The GVRP is computationally intractable since it is an extension of the VRP. Consequently, approximation algorithms such as tabu search and ant colonies are required to find good solutions in acceptable computational times. The remaining of this paper is a follows: section 2 formally introduces the GVRP and presents a Mixed Integer Linear Program (MILP) formulation; section 3 illustrates the problem using a small problem instance; section 4 provides a short discussion of GVRP difficulty; section 5 presents a Local Search algorithm (LS) for the problem; and finally, section 6 is conclusions and recommendations for future research.

2. PROBLEM DESCRIPTION

Since the GVRP is an extension of the VRP, the mathematical formulation for the GVRP is an expansion of the CVRP one. Consequently, a mathematical formulation for the CVRP is presented first, and then a Mixed Integer Linear Program (MILP) for GVRP is introduced. The CVRP is formally defined as follows: given a set of customers with given demands and a set of vehicles with limited capacities used to deliver demanded goods to customers, the CVRP consist of minimizing total distance traveled by all vehicles such that every customer is visited once. Following is a MILP for CVRP.

Indexes:

i, j Locations: $i, j = 1,\ldots, L$; where 1 represents depot, and L is the total number of locations visited

Parameters:

d_{ij} Distance between locations i and j

q_i Customer i demand in weight units

Q Vehicle weight capacity

Variables

x_{ij} 1 if a vehicle visits location j immediately after serving location i
0 otherwise

u_i Arbitrary real variable

Objective function:

$$\min \sum_{i=1}^{L} \sum_{j=1}^{L} d_{ij} x_{ij} \tag{1}$$

Subject to:

$$\sum_{j=2}^{L} x_{1j} = K \tag{2}$$

$$\sum_{i=2}^{L} x_{i1} = K \tag{3}$$

$$\sum_{i=1}^{L} x_{ij} = 1 \qquad j = 2,...,L; i \neq j \tag{4}$$

$$\sum_{j=1}^{L} x_{ij} = 1 \qquad i = 2,...,L; j \neq i \tag{5}$$

$$Q - \left(Q - \max_{j \neq i}\{q_j\} - q_i\right) x_{1i} - \sum_{j=2}^{L} q_j x_{ij} \geq u_i \qquad i = 2,...,.L \tag{6}$$

$$q_i \leq u_i \leq Q \tag{7}$$

$$x_{ij} \in [0,1] \tag{8}$$

$$u_i \geq 0 \tag{9}$$

Objective function (1) minimizes total distance traveled by all vehicles. Constraint set (2) ensures that *K* different routes start at the depot (i.e., one per vehicle). Constraint set (3) makes sure that exactly *K* routes arrive to the depot. Constraint set (4) guarantees that there is exactly one vehicle arrival to each location. Similarly, constraint set (5) guaranteed that there is exactly one vehicle departure from each location. Constrain sets (6) and (7) together ensure that vehicle capacities are not exceeded, and that vehicles routes include the depot location. Moreover, constraint set (6) is an extension of the Miller–Tucker–Zemlin sub-tour elimination constraint presented by [7]. Finally, constraint sets (8) and (9) define the nature of binary and continuous variables.

The GVRP can be defined as follows: Given a set of customers and a set of vehicles with limited capacities, the GVRP is to find the set of routes (i.e., one per vehicle) that minimizes total weighted miles while each customer is visited only once. The mathematical formulation for the GVRP is easily constructed by expanding the CVRP MILP presented above. That is, by adding a new variable set, a new parameter, changing the objective function, and adding three new constraints. These steps are showed below:

Additional parameter:

CW Vehicle Curb Weight (i.e., vehicle weight when empty)

Additional variable:

y_{ij} Total weight (CW + cargo weight) of vehicle traveling between locations *i* and *j*

New objective function:

$$\min \sum_{i=1}^{L} \sum_{j=1}^{L} d_{ij} y_{ij} \tag{10}$$

New objective function (10) minimizes total weighted distance (i.e., ton-miles, ton-km, etc).

Additional Constraints:

$$y_{i1} - CWx_{i1} \geq 0 \qquad \forall i \tag{11}$$

$$(CW + Q)x_{ij} - y_{ij} \geq 0 \qquad \forall i, j = 2,..., L \tag{12}$$

$$\sum_{i=1}^{L} y_{ij} - \sum_{i=1}^{L} y_{ji} = q_j \qquad j = 2,..., L \tag{13}$$

$$y_{ij} \geq 0 \qquad \forall i, j \tag{14}$$

Constraint set (11) ensures that vehicles arrive empty to the depot. That is, the weight of any vehicle arriving to the depot is *CW*. Constraint set (12) links route variables x_{ij} with vehicle weight variables y_{ij}. Constraint set (13) is a typical flow conservation constraint. Finally, constraint set (14) defines the nature of the additional variables.

3. PROBLEM INSTANCE

The GVRP will be illustrated using a small problem instance. The problem instance considers 10 customers that will be served from a single depot. In addition, the instance considers the usage of two vehicles, each with a capacity of 12 tons, and a curb weight of 8 tons. Table 1 includes depot and customer locations coordinates, customer demands in tons, and distances between locations in miles (distances between locations were round to integer values to facilitate the discussion). Figure 1 shows a chart with all locations. Notice that location 1 is the depot and it is represented by larger triangle in the chart. Also, numbers in parenthesis represent customer demands. For example customer at location 7 is expecting a delivery that weights 3 tons.

TABLE 1: PROBLEM INSTANCE DETAILS

L	**Coordinates**		***q_j***	***d_{ij}***										
	x	***y***		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1	15	6	0	0	84	75	90	23	59	57	42	33	100	74
2	85	54	2	84	0	50	43	61	61	39	43	61	23	81
3	90	4	2	75	50	0	89	54	89	66	42	72	73	111
4	56	87	3	90	43	89	0	74	38	34	63	57	31	48
5	37	15	1	23	61	54	74	0	51	40	18	25	79	71
6	24	65	2	59	61	89	38	51	0	24	50	27	63	21
7	46	54	3	57	39	66	34	40	24	0	30	25	46	46
8	53	24	3	42	43	42	63	18	50	30	0	30	62	71
9	26	38	2	33	61	72	57	25	27	25	30	0	71	45
10	86	77	4	100	23	73	31	79	63	46	62	71	0	78
11	8	80	1	74	81	111	48	71	21	46	71	45	78	0

FIGURE 1: GRID WITH LOCATIONS

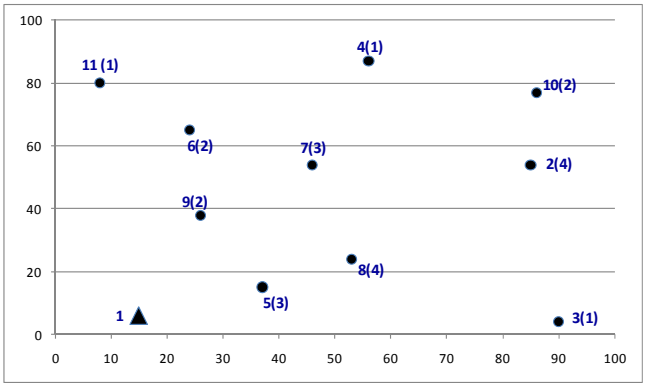
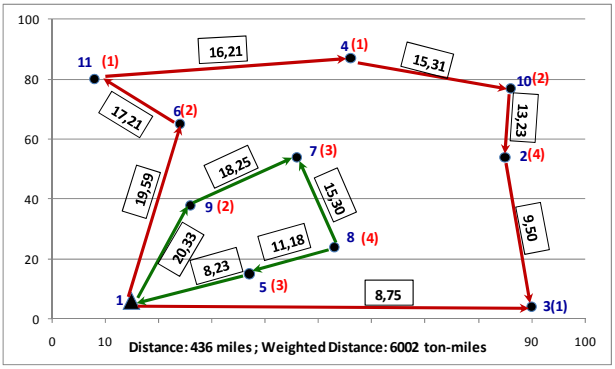
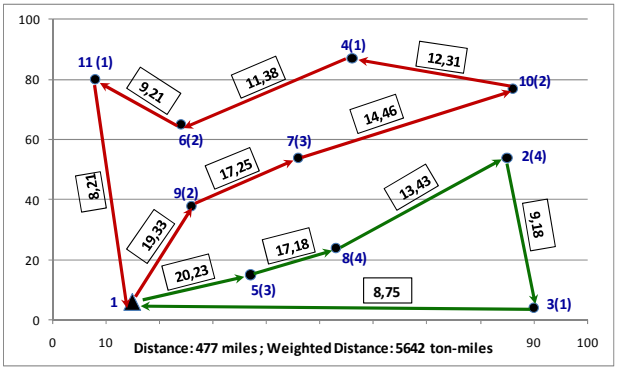


Figure 2(a) shows the optimal solution for the VRP version of the instance. The VRP optimal solution was obtained using the MILP described by equations (1) through (9). Moreover the model was coded using OPL and solved with the academic version of IBM ILOG CPLEX Optimization Studio 12.2. For the VRP optimal solution, the total distance traveled by both vehicles is 436 miles. Arrows indicate vehicle directions, and boxes next to arrows show miles traveled between locations followed by vehicle weights. Total weighted distance for this solution is computed by adding the products of all pairs in the boxes. In fact, weighted distance for this solution is 6,002 ton-miles. Similarly, the optimal solution for the GVRP was obtained by solving the MILP described by equations (2) though (14). As before, the MILP was coded using OPL and solved with the academic version of IBM ILOG CPLEX Optimization Studio 12.2. Figure 2(b) shows the optimal solution for the GVRP. Notice that the optimal solution has a weighted distance value of 5,642 ton-miles. Also, in the optimal solution for the GVRP, the vehicles traveled a total of 477 miles.

FIGURE 2: VRP AND GVRP OPTIMAL SOLUTIONS



(**a):** VRP Optimal solution



(**b): G**VRP Optimal solution

Notice that in the GVRP optimal solution the vehicles travel 41 additional miles than in the VRP optimal solution. However, weighted miles are 360 ton-miles less. Each ton-mile consumes around 3,350 BTU [9]. In addtion, a gallon of diesel generates approximately 129,500 BTU [10]. Therefore, saving 360 ton-

miles saves approximately 9.3 gallons of diesel. Moreover, consuming one gallon of diesel generates 10.1 kg of CO_2. That is, the GVRP optimal solution saves 9.3 gallons of fuel, avoiding the emission of 93.9 kg. (i.e., 205.3 lb) of CO_2 to the atmosphere.

4. PROBLEM DIFFICULTY

As it was mentioned before, the GVRP is an extension of the traditional CVRP. Consequently, the GVRP is harder to solve since it adds a new set of variables and more constraints. The VRP formulation has $L(L+1)$ variables while the GVRP has $L(2L+1)$ variables. Also, the number of constraints for the VRP is $L(2L+1)$, while the number of constraints for the GVRP is $4L^2$. In order to illustrate the effect of the problem complexity some test problems were solved to optimality using IBM ILOG CPLEX Optimization Studio 12.2. Table 2 shows the results of the experiment. Notice that distances are in miles, weighted distances in ton-miles, and time in seconds.

L	***K***	**VRP**					**GVRP**				
		Var.	**Const.**	**Dist**	**Wdist**	**Time**	**Var.**	**Const.**	**Dist**	**Wdist**	**Time**
6	**2**	42	42	**203**	**2455**	0.05	72	144	**207**	**2307**	0.05
11	**2**	132	132	**317**	**4442**	3.43	242	484	**320**	**3899**	109.8
11	**3**	132	132	**325**	**4063**	1.39	121	484	**333**	**3810**	10.92
16	**2**	272	272	**403**	**6985**	0.22	512	1024	**476**	**5635.5**	7268.43*
16	**3**	272	272	**501**	**7404**	0.58	512	1024	**507**	**7082**	1165.22
16	**4**	272	272	**432**	**7551**	1.89	512	1024	**443**	**6898**	274.67

CPLEX solution times for GVRP are considerably larger than CPLEX solution times for VRP. In fact, CPLEX was interrupted for the GVRP with 16 locations and 2 vehicles after 121 minutes of computational time. Therefore that solution cannot be guarantee as optimal. Also, it is important to mention that, in most cases of GVRP, increasing the number of vehicles (without changing L) reduces computational time. That can be explained considering that the average number of customer assigned per vehicle is smaller, making the problem easier (i.e., smaller TSPs). Finally notice the minimizing distance traveled by vehicles does lead to higher weighted distances, which translate in higher CO_2 emissions.

5. LOCAL SEARCH

Since the GVRP is computationally hard, approximation algorithms are required to find good solutions in acceptable computational times. Approximation meta-heuristic algorithms such as tabu search and simulated annealing uses LS algorithms to explore the solution space when searching for good solutions. LS consists of a solution representation and one or more mechanisms to explore the solution space. A solution for the GVRP can be represented as a set of vectors $\boldsymbol{S} = \{[s_1, s_i,,\ldots s_j, s_1]_1\ [s_1, s_n,,\ldots, s_m, s_1]_2 \ldots\ [s_1, s_o,,\ldots, s_p, s_1]_K\}$, where s_1 represents the depot, and s_i, s_j, s_n, s_m, s_o and s_p are customer locations. Notice that each vector represents a route that starts and end at the depot. For example, a possible solution for the GVRP instance discussed above is $\boldsymbol{S} = \{[1, 9, 7, 10, 2, 1]_1\ [1, 5, 8, 6, 3, 11, 4, 1]_2\}$. Initial solutions are generated using construction algorithms. A construction algorithm for the GVRP is to assign locations to routes randomly without exceeding vehicle capacities. It is important to mention that generating an initial feasible solution (i.e., assigning all locations to routes without exceeding vehicle capacities) can be

challenging since the construction algorithm is solving a BPP. Notice that $\boldsymbol{S}$ representation can be simplified by removing the depot from the solution since all routes start and end at the depot. The simplified solution is $\boldsymbol{S}$ = {[9, 7, 10, 2]$_1$ [5, 8, 6, 3, 11, 4]$_2$}. The OF value (OFV) for $\boldsymbol{S}$ is 7,301 ton-miles with vehicle 1initial cargo of 11 tons of cargo and vehicle 2 initial cargo of 12 tons.

Some of the most common moves used to exploring solution neighborhoods are 1^{opt} and 2^{opt}. The 1^{opt} mechanism simply takes one location in $\boldsymbol{S}$ and moves it to a different position in any route. An example of a 1^{opt} move is to remove location 11 from route 2 and to insert it in route 1 between locations 2 and 1(i.e., after location 2). The new solution is $\boldsymbol{S_1}$ = {[9, 7, 10, 2, **11**]$_1$ [5, 8, 6, 3, 4]$_2$} with an OFV of 7,156 ton-miles with vehicle 1 initial cargo of 12 tons and vehicle 2 with an initial cargo of 11 tons. Similarly, in a 2^{opt} move, two locations exchange their positions. Exchanging locations 2 and 6 in $\boldsymbol{S_1}$ will lead to $\boldsymbol{S_2}$ = {[9, 7, 10, **6**, 11]$_1$ [5, 8, **2**, 3, 4]$_2$} is an example of a 2^{opt} move. The OFV for $\boldsymbol{S_2}$ is 6,496 ton-miles with vehicle 1initial cargo of 10 tons and vehicle 2 with an initial cargo of 13 tons. Notice that the solution is infeasible since the maximum capacity of each vehicle is 12 tons of cargo. In many cases accepting infeasible solutions is recommended when they provide improvements to OFV. In fact, a 1^{opt} move applied on $\boldsymbol{S_2}$ that inserts location 4 between locations 6 and 11 lead to $\boldsymbol{S_3}$ = {[9, 7, 10, **4**, 6, 11]$_1$ [5, 8, 2, 3]$_2$} which is the optimal solution for the problem instance.

A LS algorithm applies all possible moves to a given solution $\boldsymbol{S}$ and selects the move that provides the largest improvement over $\boldsymbol{S}$ solution. Then, the move is applied on $\boldsymbol{S}$ and the process is repeated for the new solution. The process stops when LS is not able to find a move that improves the quality of $\boldsymbol{S}$.

6. CONCLUSIONS

This work presents an extension of the well known VRP called GVRP. The GVRP introduces a new objective function that minimizes weighted distance. Minimizing weighted distance reduces fuel consumption and consequently, CO_2 emissions. Moreover, this research introduces a mathematical formulation for the problem and a LS to find local optima. In addition, the problem is illustrated using a small instance and the GVRP difficulty is briefly discussed. Finally, areas of future research includes generating data sets for the GVRP; and developing more powerful meta-heuristics such as path re-linking, simulated annealing, and tabu search. These meta-heuristics are necessary to find good solutions to real size problems in acceptable computational time.

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PRODUCT ENTRANCE-EXIT STRATEGIES AND SUPPLY CHAIN STRATEGIES

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ABSTRACT

There are many strategies that companies use to manage their supply chain. This paper suggests that you take into account your product's lifecycle and your market entrance and market exit strategies when developing your supply chain strategy. The paper presents a review and overview of the development of supply chain strategies. The strategy development occurs as you include manufacturing strategies, entrance-exit strategies and the product life cycle to the supply chain strategy. This paper gives a basis for the building of a research model that includes these issues.

I. Supply Chain Strategies

There has been considerable amount of research done on the strategies that companies undertake to manage their supply chains. Underlying this research is the idea that companies would be advised to undertake different types of strategies depending on their product's production needs and the needs of their customer [1]. One of the better known strategies for managing supply chains is given in Hau Lee's uncertainty matrix. In this case the strategies are classified by the uncertainty contained in the supply of the product as well as the uncertainty contained in the demand for the product.

This yields four types of strategies for supply chain management. The first is an Efficient supply chain structure. The products would have with low uncertainty in both supply and demand. The products delivered in this type of supply chain would be functional products with a very well known and stable process. This would include products such as food and beverages. The second strategy classification would be the Responsive supply chain which would include innovative products made on a stable process such as fashion apparel and computers. The third supply chain strategy classification would be Risk Hedging supply chains. The product in this case is functional, but its production process is evolving and not well known. Examples of products in this classification would be ethanol production and other evolving green energy production types. The last classification would be an Agile supply chain. In this case the process of production is evolving and the product is highly innovative. Products in this classification would include telecom and high end computers and semiconductors.

The Hau Lee uncertainty framework is an example of how supply chains can be classified based on the type of strategy that is necessary for the better management of the supply chain process. In a similar fashion this paper highlights how the supply chain strategies that are chosen for managing the supply chain can vary depending on the strategies a company holds for its product life cycle and the entrance-exit strategy that it uses for its products. This research works to incorporate the product development field of research with the emerging study of supply chain management strategies [2].

II. Product Lifecycles and Entrance-Exit Strategies

Competitive issues change as a product moves through its life cycle. There are three distinct marketing strategies relative to the phases of the product life cycle that affect the company's corporate strategy with regard to planning for the marketing of each product. The rest of this section describes these three basic strategies.

a.) Enter Early and Exit Early

As a product enters the market place there are no real competitors. The product is unique and is sought after by early adopters of such products. The company has the ability in this first phase to develop marketing plans that exploit these issues. The product will be highly sought after and will allow the company to charge a premium price. Most market benefits will come to the company because of the product being new and innovative. In this strategy the amount of competition from other producers is low or nonexistent.

b.) Enter Late and Exit Late

In this strategy the company will enter the market place after most of the initial product development has been complete. When entering late the products will have become more rationalized in design and the customers are more certain about which and how much of each products they want. The product has "caught on in the marketplace" and the demand is becoming very large as compared to the early phase of the product lifecycle. The market benefits to the company working in this part of the product life cycle will be in capturing large sales volumes in a more certain marketplace. They do run the risk of having other competitors striving to capture a portion of their market.

c.) Enter Early and Exit Late

In this strategy the company will enter the market early, during the new product development phase. The strategy would have the company continue to produce the product after both the production process and costumer demand has become stable. The product's production would end when the product eventually becomes obsolete and vanishes from the market place. The company choosing this market strategy will gain benefits from being an early entrant into the marketplace developing market share and then exploiting the marketplace that is known and well understood. The strategy requires low production costs that will allow the company to profit even in a marketplace with many competitors and significant price competition.

III. Product Life cycles, Entrance-Exit Strategies and Manufacturing Strategies

The company's choice of an Entrance-Exit strategy will affect the type of production process that would be used in the production of their product. The correct choice of a production process or more precisely the match of the production process to the product's marketing strategy is capable of greatly increasing the competitiveness of the company within the market space it chooses to compete. This section summarizes what are typical strategies for each of the product life cycles' entrance-exit strategies with regard to their manufacturing process and need for the delivering of specific competitive priorities.

a.) Enter Early and Exit Early

In this strategy the company is focusing on first to market highly innovative products. These types of products will entail many design changes as they move through the introductory phases. In addition they will most likely experience uncertainty in sales volumes, but most likely will have a significant period of

time that has low sale volumes. These marketing characteristics will lead the company to strategically employ flexible manufacturing as well as general purpose machines that will allow flexibility in facilitating multiple and changing production designs. Since the product is going through its initial market exposure the amount of Research and Development in product design used in this product's development will be extremely high. Once higher volumes are reached the company will move away from this product with the purpose of creating and developing new innovative products.

b.) Enter Late and Exit Late

This strategy will lead a company to produce high volumes of similar products. The product's design will be set and only a few changes will be needed. The focus on production will be a reduction of cost and the production of a high volume of consistent and high quality products. The types of production equipment will be less flexible, highly automated, and highly specialized in the types of products that the production system will produce. The technology used under this strategy will be that of a follower of other competitors in this industry.

c.) Enter Early and Exit Late

In this strategy the companies will need to invest in the transition from a low volume flexible production processes to that of a high automated flow shop. The necessary production machines will change from that of being general in nature to very specific in nature. In order to perform under this type of manufacturing strategy a company will have to invest heavily in both product and process Research and Development. The company will have to compete in both the innovative new product development including its production as well as a production system that includes low costs, delivery, quality, and high production volumes. This requires the organization to be flexible enough to span from a focus on product development to that of a focus on process development.

IV. Product Lifecycles, Entrance-Exit Strategies and Supply Chain Strategies

This section extends the idea of the product life cycle strategy into the area of supply chain management. There are other research papers that look at supply chain strategies and the product life cycle [3] [4]. Similar to the need to have a different marketing and manufacturing strategy for each entrance-exit strategy, a need for a different supply chain strategy is proposed. The supply chain in this instance is the collaborative and cooperative relationships with a company's suppliers and customers. As more of the product's final value is added through outsourcing of production to suppliers, the more there is a need to implement a product and process strategy in the supply chain.

a.) Enter Early and Exit Early

In the enter early and exit early stage an emphasis is placed on production process's product and volume flexibility. In addition importance is put on a supplier's research and development skills in the new product design activities. Companies would strive to find supply chain partners that possess a high level of security with regard to confidential information and contain high quality production resources. In this strategy cost would not be a major consideration. To achieve this level of supply chain security and effectiveness firms would strive to develop long term relationships that include a high degree of cooperation and collaboration in product and process development. The supply chain partnership would have a long term focus and includes the development of firm spanning technologies.

b.) Enter Late and Exit Late

In the enter late and exit late marketing strategy phase the supply chain would have a focus on low cost production and reliable delivery. In this strategy supply chains members would be looking for firm's that compete on cost, using types of technology relating to more efficient material handling for cost reductions and better transparency of the location of inventory in the supply chain. Partnerships would be focused on operational issues such as inventory placement and planning for the use of more efficient transportation modes. Longer term partnerships would not be as highly valued as in the enter early and exit early strategy.

c.) Enter Early and Exit Late

In the enter early and exit late marketing strategy firms would be looking to enter into transitional types of supply chain relationships. This would require supply chain partners that are more able to handle changes in production strategies or a portfolio of suppliers for use at the most opportune times depending on which stage of the product life cycle the product is currently. The company would have to transcend from one supplier with a given set of skills to another supplier with another set of skills. The supply chain strategy of these types of companies would necessarily need to easily handle these types of transitions. A highly agile supply chain would be preferred and probably required to follow this type of strategy.

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SUSTAINABILITY AND CORPORATE SOCIAL RESPONSIBILITY IN BUSINESS SCHOOLS

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ABSTRACT

Sustainability has been a prominent topic is professional business meetings and in the media recently. This paper reports on a number of these meetings and highlights an exploratory study of business school deans regarding coverage and importance of sustainability in their schools.

INTRODUCTION

Webster defines sustainability as "Capable of being sustained;" "of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged;"and "of or relating to a lifestyle involving the use of sustainable methods." Many business schools are working to build the capability of students to be socially responsible as they train the next business leaders of the world. AACSB has commissioned studies on sustainability and made sustainability the focus of the International Conference and Annual Meeting. Schools around the country are placing emphasis on methods leading to sustainable practices.

As we expand the definition of sustainability, four primary areas seem to be the focus: the environment; people and communities; resources; and energy. The most prominent use of going green is protection of the environment. Quality of our air, water, and land is foremost. Research abounds on pollution reduction and renewable energy sources. To a lesser extent, lifestyle modification has been discussed as we work to make our planet livable for generations to come. Education, programs for the poor and hungry, and job creation help to build sustainable societies.

An even larger debate surrounds the definition and appropriateness of Corporate Social Responsibility (CSR). Should businesses be primarily concerned with creating products and services demanded by the public, creating jobs, and creating wealth for shareholders and other owners? Or, should CSR dictate the decisions of the board room and shop floor?

How much emphasis should business schools place on sustainability and CSR? This paper looks at initiatives and studies focusing on sustainability and CSR. Surveys were distributed to two groups of business school deans: the National HBCU (Historically Black Universities and Colleges) Business Deans Roundtable and the South Carolina Business Deans Group. Primary purposes of the surveys were to determine how business schools view sustainability and the emphasis placed on sustainability in the classroom and in practice.

The SC State Business Week Celebration discussed below provided an opportunity to dialogue about the role of students, faculty and staff in sustainability strategies on our campus. This week-long event and the immediate reflection on the outcomes, coupled with the work of the Sustainable Endowments Institute, AACSB International and other national college and university sustainability initiatives, were the impetus for this research. Specifically, the researchers wanted to determine the degree to which other business schools were embracing sustainability and CSR. The survey findings and analysis are reported below.

BACKGROUND

The Sustainable Endowments Institute [2]

The Sustainable Endowments Institute developed the report "Greening the Bottom Line: The Trend Toward Green Revolving Funds on Campus." The report looks at results of the College Sustainability Report Card project that followed the progress of 52 universities. Of the schools in the report, the median return on funds invested in sustainability initiatives was 32 percent, ranging from 27 percent to 47 percent. From light bulb replacement and other energy saving strategies to recycling, universities are seeing the bottom line business advantage to sustainable strategies. The report uses nine categories to judge a university's commitment to sustainability: administration; climate change and energy; green building; student involvement; transportation; investment priorities; endowment transparency; food and recycling; and shareholder engagement

Sessions at the 2011 AACSB International Conference and Annual Meeting [1]

1. What is the Social Responsibility of Management Education? – A Debate

This session presented a debate that centered on CSR versus Capitalism. The discussion indicated that the distinction is, at best, blurred. In many cases, the arguments supporting CSR simply are good management practices, with positive social results being beneficial side effects. The points in favor of CSR were presented by Dr. Ira Jackson of MIT. Dr. Jackson started by saying that CSR is relevant and important and is critical to competitive management. CSR is too important for business schools not to step up. The 10 primary points were:

1. There is a market for morality. We need to redefine business self-interest and build a new form of creative capitalism.
2. The boundaries between for-profit and not-for-profit organizations are fuzzy.
3. Values matter.
4. There is a new CSR, beyond philanthropy. We need to embrace value and values as we create a new strategy.
5. Government is incapable, incompetent, and corrupt (in many cases) and cannot regulate properly or enough.
6. We cannot have a healthy economy in a sick society.
7. In light of the economic meltdown, business schools may be at fault – it is our graduates who perpetrated the wrong doing. We need to get serious.
8. CSR is happening anyway. Practice is ahead of scholarship.
9. This is a wake-up call. We need higher aims. We can create a purpose driven school.
10. Every societal problem can be solved by entrepreneurial efforts. Do good and do well.

Dr. Aneel Karnani of the University of Michigan discussed points opposed to CSR. Dr. Karnani stated that CSR is confusing, irrelevant, ineffective, and dangerous. His major points included:

1. What is the role of business in society?
    a. To satisfy a need of society
    b. To create jobs
    c. To create wealth for stockholders
2. People think of Whole Food stores as being socially responsible because of the products they offer.
    a. They have very high profit margins
    b. They cater to people who will pay more
    c. This is just good management practice
3. Efficient markets produce social welfare and profits
4. There has been a shift in values to a political/economic ideology
5. We should stop demonizing the government and allow them to regulate where needed - deregulation cost us dearly in the most recent economic downturns
6. We need to move away from "triumphant capitalism"
7. The final point was to ask the questions, "What is CSR?" and "Who knows?"

2. Integrating People and Planet Themes in B-School Curricula [1, 3]

Dr. Pierre Tapie, President of ESSEC Business School Paris-Singapore, led the session that focused on the Principles for Responsible Management (PRME). The mission of the PRME initiative is to inspire and champion responsible management education, research and thought leadership globally. Dr. Tapie noted that the six principles of PRME are:

- Principle 1 **Purpose**: We will develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy.
- Principle 2 **Values**: We will incorporate into our academic activities and curricula the values of global social responsibility as portrayed in international initiatives such as the United Nations Global Compact.
- Principle 3 **Method**: We will create educational frameworks, materials, processes and environments that enable effective learning experiences for responsible leadership.
- Principle 4 **Research**: We will engage in conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value.
- Principle 5 **Partnership**: We will interact with managers of business corporations to extend our knowledge of their challenges in meeting social and environmental responsibilities and to explore jointly effective approaches to meeting these challenges.
- Principle 6 **Dialogue**: We will facilitate and support dialog and debate among educators, students, business, government, consumers, media, civil society organizations and other interested groups and stakeholders on critical issues related to global social responsibility and sustainability.

The PRME website indicates that the PRME can serve as a framework for systemic change for business schools and management-related institutions, on the basis of three distinctive characteristics of the initiative:

1. Continuous Improvement

   Any school that is willing to engage in a gradual but systemic manner is welcome to join the initiative. Implementation of the Principles should be understood as a long-term process of continuous performance improvement and the PRME can provide a framework of general principles through which to engage faculty and staff, and build institutional support.

2. A Learning Network

   The PRME initiative also functions as a learning network. By collecting and channeling good practices, it will facilitate an exchange of existing and state-of-the-art experiences within the PRME network.

3. Report to Stakeholders

   Adopting the PRME implies that the signatory school is willing to report regularly - annually - on progress to all stakeholders. Public reporting is the best way to ensure the credibility of the initiative and allows giving recognition to good performances.

Dr. Lydia Jean Price, Associate Dean, MBA Director and Professor, China Europe International Business School (CEIBS) discussed initiatives in her school:

- At CEIBS, the process of integrating sustainability in the business curriculum is ground up, a faculty driven process
- The faculty asks, "What is important to us?"
- The faculty create spaces for students to do what they want
- Responsible leadership projects result in Business Plans – some of the objectives are:
  - Carbon neutral campus
  - Poverty reduction
  - Rural education
- The CEIBS philosophy and motto is: BE, KNOW, DO
  - BE = attitude and character traits of faculty and students; recruit individuals with strong character and the attitude will be pervasive
  - KNOW = what should we teach our students?
  - DO = Service Learning
  - Doing drives Being and Knowing
- What is the right thing to do? Who are we training?
- Citizen of the World = Do social good = Do good

SC State Business Week Celebration Focuses on Sustainability

The 39th Annual Business Week Celebration in the Business Program at SC State focused on sustainability. Speakers and activities were centered on this theme. An administrator for the Nature Conservancy challenged the students in the kickoff address to apply for internships with the Nature Conservancy to gain valuable experience and knowledge about sustainable practices. A panel of experts from local businesses discussed sustainability initiatives of their respective

companies. One company has worked to preserve over 100 acres for a nature park to be used by employees, for local school field trips, and by other groups in the community. One company is looking into alternative energy sources. One company is looking for ways to reduce the use of energy. Student organizations participated in environmental sustainability projects including the Beta Alpha Psi survey to determine paper use on campus. The speaker in the Executive Speaker Series was President and CEO of Electric Cooperatives of South Carolina who spoke on the topic, "Renewable Energy Resources: Implications for Sustainability." A campus representative spoke at the University Sustainability Town Hall meeting discussing campus initiatives on sustainability.

THE SURVEY AND RESULTS

The survey listed in the Appendix was distributed to participants at the National HBCU Business Deans Roundtable in June 2011 and to the South Carolina Business Deans Group in July 2011. The National HBCU Business Deans Roundtable meets annually, attracts Deans from HBCUs around the country, and focuses on issues related to HBCUs. The South Carolina Business Deans Group meets twice per year and focuses on issues related to South Carolina Business Schools. The survey sought information from Deans regarding emphasis placed on sustainability at their Universities and in their business schools. Questions determined how schools include sustainability in mission statements and learning goals, and gained information on participation in sustainability projects. General summaries of responses and correlations among the responses are listed below.

Twenty-one deans responded to the survey. Less than 30 percent of the schools surveyed include an emphasis on sustainability in their University mission statements. Less than 30 percent of the schools surveyed include an emphasis on sustainability in their B-school mission statements. Less than 40 percent of the schools surveyed include sustainability in their University learning goals. Forty-three percent of the schools surveyed include sustainability in their B-school learning goals. B-school student knowledge of sustainability averaged just below 3 (2.8) on a scale of 1 to 5, 5 being very knowledgeable. The distribution for this knowledge variable was bell-shaped, but slightly negative. B-schools average 2.1 sustainability initiatives per semester. Very few B-school students participate in sustainability projects, with more than half of the respondents indicating that less than 25 percent of students participate and only 30 percent of the respondents indicating that between 25 and 50 percent of students participate in sustainability projects. Very few B-school faculty members participate in sustainability projects, with similar participation rates as students. Average enrollment at the schools surveyed is 4,943. Seventy-six percent of the participating schools are Public Institutions. Average B-school enrollment for these participants is 885.

Considering the 60 percent level as a high correlation, the following conclusions are drawn from the survey results:

1. if the University has sustainability in the mission statement, B-school students tend to have more knowledge of sustainability
2. if the University has sustainability in the mission statement, the B-school tends to have more sustainability projects
3. if the University has sustainability in its learning goals, so does the B-school

4. as the University tends toward having sustainability in its learning goals, the university tends to be Public
5. as knowledge of sustainability increases among students, so do the number of sustainability initiatives
6. as the number of sustainability initiatives increases, so does participation of students

CONCLUSIONS and FUTURE RESEARCH DIRECTIONS

Despite the increased emphasis on sustainability in the general media, the business press and from the most prestigious business school accrediting body, this exploratory research suggests that business schools have been slow to adopt sustainability as a significant component of their curriculum and day to day operations. As noted in the results section of this paper, only a handful of business deans in this sample acknowledged the presence of sustainability goals in their mission statements or in their learning goals. The deans, with the exception of two institutions, also reported that less than half of the students and faculty at their institutions have been involved in sustainability initiatives or activities.

Based on this small sample, it is apparent that much work needs to be done if the benefits of a focus on sustainability are to accrue to business schools and, by extension, to the future business leaders they help develop. This research further suggests that the initial step of including sustainability in the university's mission statement has the potential to increase awareness of sustainability issues as manifested by the relatively higher levels of knowledge of and participation in sustainability activities reported by the deans.

Future research should expand on the sample size reported here and also develop hypotheses related to the emphasis on sustainability based on some of the observations reported along with additional theoretical perspectives. For example, are smaller or larger institutions more or less likely to be able to motivate faculty and students to become involved in sustainability issues? To what extent does the direct involvement of the dean or other university administrators promote the development of sustainability activities and strategies on campus? Is the meaning, importance and goal of sustainability equally understood and appreciated by different institutional stakeholders including faculty, staff, students and administrators?

In general, as Universities and B-schools increase emphasis on sustainability, student knowledge and participation in sustainability projects should increase. This is certainly a logical conclusion and may be, for many institutions, may be a critical starting point. This emphasis can also provide guidance to universities and B-schools who would like their students to become more socially responsible in the sustainability arena.

REFERENCES

[1] AACSB International Conference and Annual Meeting, New York, NY, April 28 – 30, 2011.
[2] www.endowmentinstitute.org
[3] www.unprme.org

APPENDIX

SUSTAINABILITY SURVEY

The purposes of this survey are to determine the behaviors and perceptions regarding sustainable practices on college campuses and to identify activities of business programs in creating more sustainable campus environments. For the purposes of this survey, sustainability strategies refer to activities, programs and/or policies that seek to reduce the negative environmental impact of the organization on the global ecosystem. Examples of sustainability initiatives include energy conservation, the use of alternative or renewable energy, and recycling and waste management. Sustainability activities or initiatives may also be broadly defined as activities that audit or monitor negative environmental impacts and focus and educate stakeholders (students, faculty and the wider university community) on ways to improve organizational performance in these areas.

1. Does the mission statement of your university include an emphasis on sustainability?
   ____ Yes ____ No

2. Does your B-School mission statement reflect a commitment to sustainability?
   ____ Yes ____ No

3. Does your university include sustainability in its learning goals?
   ____ Yes ____ No

4. Does your B-School include sustainability in its learning goals?
   ____ Yes ____ No

5. Please indicate the sustainability knowledge level of your B-School students:
   Not very knowledgeable Very Knowledgeable
   1 2 3 4 5

6. How many sustainability initiatives does your B-School conduct per semester?
   ____ 0 ____ 2 ____ 4 _____ 6
   ____ 1 ____ 3 ____ 5 _____ More than 6

7. What percentage of your B-School students participate in sustainability projects in a semester?
   ____ 0 - 25% ____ 51 – 75% ____ Don't know
   ____ 26 – 50% ____ 76 – 100%

8. What percentage of your B-School faculty participate in sustainability projects in a semester?
   ____ 0 - 25% ____ 51 – 75% ____ Don't know
   ____ 26 – 50% ____ 76 – 100%

University Enrollment _____

Institution (check one) ____ Public School ____ Private School
B-school Enrollment _____
Do you offer graduate programs? ____ Yes ____ No
Dean's Academic Area _____ Dean's Years of Service _____

Online Travel Companies and Hotel Occupancy Taxes: Merely Syntax or a Question of Ethics?

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Abstract

This manuscript discusses the dispute between the Online Travel Companies (OTCs) and taxing authorities related to hotel occupancy taxes. It explains the business models utilized by the OTCs, which allows them to compete directly with the hotel companies to market and sell hotel accommodations, and quantifies the outstanding tax liability. Finally, the manuscript suggests that the OTCs, hotels, and taxing authorities work together toward an equitable resolution, which is ultimately in everyone's best interest.

Introduction

Online Travel Companies (OTCs) are engaged in litigation with taxing authorities in various jurisdictions throughout the Unites States—the dispute involves hotel occupancy taxes. Many tax authorities, including municipal, county, and state governments have filed claims against the OTCs alleging under-payment of hotel occupancy tax liabilities. In some cases, courts have ruled in the favor of the taxing authorities; in others, the OTCs have been found to not be responsible for any further tax payments; while in other instances, out-of-court settlements have been reached or are being considered and negotiated. The purpose of this manuscript is as follows:

1. Outline the two primary business models utilized by OTCs
2. Explain the reason for the tax dispute
3. Estimate the value of the liability

4. Discuss the legal and ethical considerations

Reach of the Online Travel Companies (OTCs)

In less than fifteen (15) years, Online Travel Companies (OTCs) have revolutionized the way that travel products and services are marketed, sold, and purchased. Travel is the ideal product to sell online since it is an information exchange, which requires 'no trucks'; physical products do not need to be stored in or shipped from warehouses since online marketers of travel services utilize e-tickets and electronic confirmations. Consequently, OTCs were some of the earliest e-commerce firms to operate profitably with Expedia and Travelocity reporting profits, before non-cash items, as early as the March quarter, 2001 (Zellner, 2001). Between 1998 and 2001, the use of the internet to aid in booking hotel rooms reached a 'flashpoint', experiencing a fifty-four percent (54%) increase (Gregory & Breiter, 2001). It was estimated that nearly thirty cents ($0.30) of every dollar ($1.00) spent on travel by U.S. consumers was spent online as early as 2001 (Zellner, 2001). The online exchange of travel products and services has continued to grow over the past decade with the OTC Expedia reporting that in 2010 OTCs controlled fifty-four (54%) of all travel sales in the United States and thirty-eight (38%) of revenue share in the U.S., Europe, and Asian-Pacific regions combined (Expedia, 2011). Smith Travel Research estimates that OTCs accounted for $8.64 billion or 7.2% of the $120 billion in hotel revenue generated in 2010 (King, 2011). Two different business models are typically employed by OTCs when selling hotel accommodations—the 'agency' model and the 'merchant' model.

Initially, many of the Internet travel websites operated as online travel agencies accessible to anyone with Internet access. With the agency model, OTCs allow travelers to access the hotel room rates and availability information, which the OTCs access through the Global Distribution System (GDS), originally developed by the airlines to serve the travel agency community, and to book hotel reservations online. In exchange for facilitating the transaction, OTCs receive commissions from the hotel like a traditional travel agent. Hotel room rates in this model are 'transparent', which means that

the hotel, travel website, and consumer are each aware of the room rate that is being charged to the consumer by the hotel; the applicable sales tax and hotel occupancy taxes are collected from the consumer and paid to the appropriate taxing authorities by the hotel on the retail room rate booked on the website.

OTCs also employ the merchant model. In the merchant model, OTCs take advantage of the perishability of hotel accommodations and negotiate extremely competitive wholesale guestroom rates, utilizing the large volume of customers that utilize their sites as leverage. The OTC marks-up the price of the room and re-sells the room at a higher price on their site; the margin on this room sale exceeds the traditional ten percent (10%) travel agent commission, typically running twenty-five percent (25%). Since the room rate offered to the customer through the merchant model is often competitive with the agency model guestroom rate, while the margin earned by the OTCs utilizing the merchant model is much greater, some OTCs are employing strategies to aggressively increase this source of revenue as a percentage of total revenue. For Expedia, Inc., the largest global OTC, hotel bookings represented sixty-three percent (63%) of the firm's total revenue in 2010 and the firm has identified a desire to grow hotel bookings, along with advertising and media charges, as a proportion of their total sales mix due to the strong contribution margin generated by this business model (Expedia, 2011).

Priceline.com popularized a variation on the merchant model through its 'name your own price' strategy. In this situation, the consumer bids on a hotel room within a specific category and then, based upon the bid that is received from the consumer, the travel website selects the specific hotel in which the consumer will stay and purchases the appropriate accommodations at the OTC's negotiated wholesale rate once the consumer has committed to purchasing the accommodations. For obvious reasons, it is not in the best interest of Priceline and OTCs employing the merchant model for the consumer to know the actual room rate that the travel websites are paying the hotel. As a result, guestroom rates under this model are 'opaque' and not shared directly with the customer; the OTCs

insist that hotels keep these rates strictly confidential. Any changes made to the reservation, including extending the guests' stays for additional nights, are to be referred by hotel personnel back to the OTC since hotel personnel cannot share or discuss the room rate and typically do not even have direct knowledge of what rate the guest has actually paid for the room. Room charges as well as sales and hotel occupancy tax charges are paid directly to the OTC at the time the reservation is made for the entire stay; the travel website then pays the hotel the wholesale rate and sales and hotel occupancy tax on the wholesale rate for each night of the guests' stay. Hotels are required to keep the rate confidential due to their contractual obligation and share a vested interest in maintaining its confidentiality since hotels do not want guests to know that they are often willing to accept far less than the lowest available published rate.

The tax dispute

The dispute between the taxing authorities and the OTCs concerns bookings utilizing the 'merchant model'. The OTCs utilize the gross, retail room rate charged to the customer as the basis for calculating the hotel occupancy tax liability owed for 'taxes and fees' on the rental of the room accommodations, while they forward to the hotels the hotel occupancy taxes based upon the wholesale room rate charged by the hotels to the OTCs for rental of the accommodations. For example, in a jurisdiction in which hotel occupancy taxes total fifteen percent (15%) of the room rate and the customer is charged a $100.00 retail room rate, the OTC will typically charge the customer $15.00 for hotel occupancy 'taxes and fees'. Yet, the OTC will forward to the hotel the negotiated room rate, which would typically run $80.00, assuming the OTC is taking a twenty-five percent (25%) mark-up, and taxes of $12.00 to be forwarded to the tax authority. The $3.00 difference between the 'taxes and fees' collected and the taxes forwarded to the hotel for payment to the tax authority is retained by the OTC as a "tax recovery fee" (Healy & Nelson, 2006). Many taxing authorities throughout the United States

have filed lawsuits against the OTCs, taking the position that hotel taxes are due on the full retail room rate charged to the customer by the OTCs as opposed to net rate charged to the OTCs by hotels.

Financial impact of the dispute

While the amount of the dispute, based upon the example provided above, may seem to be relatively small, the potential unpaid tax liability is actually quite substantial. In the example provided, a $3.00 increase in the $20.00 per room night margin that the OTC earns on the room represents a fifteen percent (15%) increase in the OTC's margin on the transaction. Hotel transactions generated over $2.1 billion of Expedia, Inc.'s revenue alone in 2010 (Expedia, 2011). If just this one OTC retains a portion of the taxes collected and increases their hotel revenues by only ten percent (10%) due to this strategy, this represents over $200 million in lost tax revenue by the various tax jurisdictions and an increase of equal amount in the OTC's profitability. Smith Travel Research, a hotel industry research firm, estimates that the OTCs cost hotels $2.5 billion in 2010, due to the 22% - 25% markups that the OTCs enjoy; this is the difference between the room rate charged to guests and the room rental charges paid by the OTCs to hotels (King, 2011). Based upon an average U.S. hotel occupancy tax rate of 13.4% (Sturken, 2011), the outstanding tax liability on this mark-up may total approximately $335 million.

Discussion

A variety of court rulings have favored litigants on both sides of the issue. The Supreme Court of the State of South Carolina upheld a decision that awarded the State's Department of Revenue $6.376 million in assessment and penalty (Anderson, 2011) while other jurisdictions have not been so fortunate. For example, courts in Arizona, Massachusetts and New York, have ruled in favor of Online Travel Companies (OTCs) (Healy & Nelson, 2006). Meanwhile, the OTCs have settled out-of-court with the City of Charleston, South Carolina for over $600,000 and Horry County, South Carolina was awarded over $1.7 million (Dickerson, 2011). One salient factor in the various rulings is related to the treatment of the mark-up—whether it is considered room revenue, which is subject to an occupancy tax, or a

service fee, which is not taxable (Healy & Nelson, 2006). In other jurisdictions, the primary issue centers on whether an OTC may be considered a hotel operator or innkeeper since tax ordinances in many jurisdictions specify that operators of hotels, motels, inns, and other lodging establishments are responsible for paying occupancy taxes on rents collected; the OTCs have successfully argued that they are not hotel operators or innkeepers. South Carolina appears to have been successful in collecting taxes due to the South Carolina Sales and Use Tax Act, which stipulates that taxes are to be paid on "the gross proceeds derived from the rental or charges for any rooms…or sleeping accommodations furnished to transients for a consideration" [S.C. Code Ann. Section 2336-920(A)]. The South Carolina tax code also specifies that "every person engaged…in the business of furnishing accommodations to transients for consideration" is subject to the tax [S.C. Code Ann. Section 2336-920(E)] (Anderson, 2011). Gross proceeds may be considered to include room rental as well as any additional fees or mark-up that may be collected in consideration for furnishing accommodations and the OTCs as a person engaged in the business of furnishing accommodations. Whether an OTC may be considered a hotel operator may be more debatable.

The OTCs are clearly in the hotel business and are engaged in many business activities that are typically reserved for hotel operators—the OTCs advertise hotel rooms, price hotel rooms, sell overnight accommodations, collect sales and hotel occupancy taxes on hotel rooms, compete with other hotel operators for market share, control access to hotel guestroom inventory, and even provide direction to hotel personnel. The OTCs' clients access the Internet travel websites specifically to book hotel rooms, to make other travel related purchases or arrangements, and/or to obtain travel related information (for which there is not a fee charged by the OTCs). Although OTCs earn income in other ways, through paid advertising on their site and the like, one of their primary sources of income is through the profits that they earn by renting hotel rooms and other overnight lodging accommodations to their clients. The clients that book hotel rooms via the Internet travel sites access the sites to purchase hotel

accommodations not to pay fees. The OTCs make it appear as though the bulk of the funds that they collect from their clients are for room charges since the bulk of the revenue collected by the OTCs is labeled on the Internet travel websites as room revenue. Many clients booking hotel rooms on the travel websites may not be aware that a portion of the room revenue collected by OTCs, utilizing the merchant model, is actually retained by the OTC, while others may assume that a commission is paid to the OTCs by the hotels. Taxes and fees that are collected closely mirror the actual tax liability that is incurred at the retail rate of the room. Consequently, some clients may be left with the impression that the fees collected by the OTC is merely the difference between the actual tax liability incurred due to the associated room charges and the tax recovery fee that the client pays on a per night basis to the OTC. As a result, clients may perceive that the bulk of the money that the client pays to an OTC to rent a hotel room is to pay the lodging property for the overnight accommodations and the associated tax liability, which leaves only a small fee that is collected by the OTC for their services; however, the previous explanations provide insight as to how this perception is not reality.

In reality, the OTCs receive a significant portion of the room revenue. One additional indication of the OTCs role as a hotel operator, as opposed to being strictly a travel intermediary that merely provides a service in exchange for a fee, is the fact that OTCs earn contribution margin for each night of a hotel guest's stay as opposed to earning a fee for each reservation that is provided to a hotel regardless the length of the guest's stay. Typically, the central reservation offices (CROs) for the hotel chains charge a fee-per-reservation since the CROs' cost of acquiring and transmitting a reservation is the same whether they are transmitting a reservation for a one-night or multiple-night stay. If the OTCs are operating strictly as online reservation centers, perhaps the OTCs would expect to be compensated on a fee-per-transaction basis not based upon the retail rate that the OTC is able to charge, less the wholesale rate that they are able to negotiate, for each night of the client's stay.

Hotel operators do not typically own the hotel real estate that they manage. Consequently, it is not a requirement that a hotel operator owns a hotel(s) or any other real estate asset(s), which eliminates this potential argument by the OTCs. As previously stated, OTCs advertise hotel rooms, price hotel rooms, sell overnight accommodations, collect sales and hotel occupancy taxes on hotel rooms, compete with other hotel operators for market share, and even provide direction to hotel personnel, which are all business activities typically reserved for hotel operators. In addition, OTCs control unsold hotel guestroom inventory in selected markets. Looking at each of these activities individually: Hotel operators engage in advertising and other marketing activities in an effort to attract customers to purchase the hotel rooms that they have available within their inventory—OTC's engage in this activity (e.g. an abundance of television advertising is aired each day by the OTCs to encourage consumers to utilize their sites to purchase hotel accommodations). Hotel operators price hotel rooms—OTC's engage in this activity when setting retail room rates on their sites, when operating under the merchant model, or even when they allow customers to "set their own price" since OTCs are making a pricing decision by allowing customers to suggest the price, which the OTC sometimes reject. The OTCs engage in selling overnight accommodations; the clients of the OTCs book and pay for hotel accommodations directly on the OTC's website. The OTCs also collect hotel sales and occupancy taxes via their Internet travel websites. The OTCs compete with the hotel chains for market share. As previously outlined, it is more profitable for the hotels to sell their accommodations directly to the consumer, through their propriety and/or branded website, in-house reservation office, or central reservation office, than to provide the room to an OTC at a wholesale rate for the OTC to re-sell. As a result, the hotel chains implement strategies to encourage guests to book reservations directly with them or on their brands' respective websites as opposed to utilizing an Internet travel site. The OTCs have countered these efforts by matching or closely matching the rates that are available on the hotel sites and by charging taxes and fees that are actually slightly below the tax rate that the hotel sites must charge, which the OTCs have

been able to do since the OTCs are only paying taxes on wholesale versus retail room rates; this actually makes the total purchase, for the combined room and tax charges, less expensive for the customer when the customer purchases the room from an Internet travel site as opposed to booking on a hotel's proprietary site at the exact same retail room rate. These practices, coupled with the aggressive advertising strategies employed by the Internet travel sites, illustrate just some of the ways that OTCs are engaged in competing directly with the hotel companies in attracting customers to their respective booking sites. The OTCs also provide direction to hotel personnel regarding their clients. The Internet travel companies' contracts with hotels require that the wholesale rates that the OTCs pay for accommodations remain confidential. In addition, for guests that purchase their accommodations through an Internet travel site, hotel staff members are instructed to direct customer requests for changes to the reservations, additional nights, as well as other inquires about room rates, refunds, and/or payment for the room directly to the Internet travel website's (OTC's) personnel. Additional nights, once the guest is in-house, are not to be extended at the OTCs' wholesale rate, but typically at the hotels prevailing rates for the given date. Finally, like other hotel operators, the OTCs control and manage unsold guestroom inventory. In high volume destinations, OTCs often have contracts in place with hotels and other lodging facilities to provide them with guaranteed access to a specific number of guestrooms at the negotiated wholesale rate; this ensures the OTCs that they will have room inventory available to re-sell in specific markets even during high demand periods. From this discussion, it is clear that the OTCs are not merely facilitating an information exchange between travelers and hotels for a small fee—OTCs are actively engaged as operators in the hotel business.

Obviously, the business model is different for the Internet travel websites as to how they are engaged in the hotel business. OTCs do not own, build, or develop hotels and they do not operate like more traditional hotel management companies; however, OTCs are clearly engaged in the sale, management, and control of hotel accommodations. Traditional hotel operators, such as hotel

management companies, typically control the hotel facilities by contracting to manage hotel properties for the owners of the hotel real estate. OTCs have created a new business model through which they actively engage in the hotel industry by controlling large numbers of consumers of hotel room nights. The OTCs merely pay others to provide, clean, and maintain the actual hotel accommodations. Once an OTC sells accommodations at a specific hotel, the OTC controls the hotel room. That reservation cannot be cancelled, changed, or refunded to the customer by the hotel; the customer must work directly with the OTC. In many cases, the hotel is not even aware of the actual room rate that the guest has paid for the room. In addition to controlling the rooms that have been sold by the OTCs, the OTCs often control unsold room inventory, of a specified quantity, in selected hotels as well through their contractual relationships with hotels. In exchange for access to a hotel's room inventory, the OTCs provide the hotel with incremental revenue and exposure on its website(s), which has been demonstrated to increase a hotel's bookings even on the hotel's own or branded website (King, 2011).

Semantics or ethics

Ultimately, the tax liability debate comes down to a question of semantics—what does the tax ordinance state and what is the meaning of each of the words utilized within the given context? When substantial funds are involved, each interested party tends to interpret the meaning of the words included in an ordinance in a manner that is most beneficial to their preferred position. In the preceding paragraphs, arguments have been made to justify the classification of OTCs as hotel operators, which the OTCs may wish to avoid in an effort to minimize their tax liability. In addition, it appears as though the OTCs may not fully disclose the details of a hotel transaction that occurs on their websites perhaps to camouflage the share of the room and tax transaction that they retain. Hotel companies, such as Intercontinental Hotel Group—owner of the Holiday Inn brands among others, pulled their inventory from OTC websites for a period of time due to the dispute (King, 2011) and has required that the OTCs indemnify them against any tax liability related to OTC transactions since they may be of the opinion

that the taxing authorities may be owed taxes on more than net rate charged by hotels to the OTCs. And hotel companies and OTCs are now involved in lobbying efforts related to laws that may provide the OTCs with cover on the issue (Serlen, 2011). Many taxing authorities may respond to the recent South Carolina hotel occupancy tax rulings by re-writing their tax ordinances to ensure that OTCs pay their fair share.

Any student of business ethics is aware that firms must obey the law; however, it is sometimes a challenge to do what is right. As firms work to gain competitive advantage, it becomes easier to justify or rationalize a position based upon the semantics of an ordinance or debate; however, a truly ethical business leader consistently strives to do what is right. Hotel occupancy taxes are collected to assist in funding many of the services needed to support travelers. In addition, a portion of many hotel taxes are utilized to promote travel to the given market and/or to fund convention centers as well as visitor and convention bureaus. Ultimately, hotel occupancy taxes are paid by the consumer—not the hotels or OTCs. Hotel taxes add to the overall cost of travel and, if they are too high, may discourage travel. Therefore, it is in the best interest of hotels, OTCs and taxing authorities to work together to ensure that hotel occupancy taxes are responsibly established and fully disclosed so that all parties, including the consumer, understand the amount, purpose, and rationale of the tax.

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PROMOTING ETHICAL PRACTICES AND ESTABLISHING A STRONG ETHICAL CULTURE IN BUSINESS ORGANIZATIONS

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ABSTRACT

This paper examines research focusing on the ethics of business managers The paper proposes a number of practical steps that can be implemented by organizations to promote ethical practices and establish a strong ethical culture.

INTRODUCTION

The ethical standards and social responsibilities of managers have been two of the principal issues confronting business and society for many years. Of particular interest to educators, practitioners, and regulators is the extent to which businesses are responsive to the expectations of shareholders and society. While businesses have always been responsible for maximizing long-term value for the shareholders, they are increasingly expected to recognize the importance of their responsibilities toward society and to faithfully adhere to certain ethical standards.

HISTORICAL PERSPECTIVE

Writers and philosophers have long been interested in business ethics or, as many classicists called it, "justice" (Cavanagh et al., 1981). Business ethics as an academic field has a more recent history. Research on business ethics began in earnest three decades ago. It emerged principally due to the efforts of Archie Carroll. Until that time, business ethics was little more than an obscure debate among some scholars, philosophers, and theologians. In his seminal article on the obligations of business toward society, he suggested that total corporate social responsibility consists of four distinct components: economic, legal, ethical, and discretionary concerns (1979). Carroll contends that these four dimensions address the entire spectrum of obligations business has to society.

MANAGERS' ETHICS

One of the earliest calls for investigating the ethics of managers and executives was an article by Raymond Baumhart in 1961 aptly titled: "How Ethical is Business?" When he presented managers with some hypothetical situations, he found important differences between what they said they would personally do and what they thought the average manager would do. That is, business executives tended to attribute significantly higher ethical standards to themselves than they did to their associates. He concluded that actual business practices are likely to be closer to what these managers said the "average" business person does than to what they said they would personally do.

Similar results were obtained by Newstrom and Ruch (1976). They found that managers rated their colleagues to be more unethical than they themselves claimed to be. These same managers, however, had a propensity to capitalize on opportunities to be unethical, if those situations arose. This view was later supported by Fritzsche and Becker (1984) who reported that decision makers show a pragmatic orientation when presented with ethical dilemmas and are "likely to take action that would pollute the environment when a competitive advantage could be gained" (p. 174). When one generation of business managers was compared with another, Brenner and Molander (1977) found that "ethical standards have...fallen in business so that practices once considered unethical are now not viewed as such" (p. 60). A decade later, Longenecker et. al (1989) reached a similar conclusion. They noted that younger managers are more permissive than older ones in what they accept as ethical behavior.

A related stream of research is in response to calls by a number of writers for the study of a person's demographic characteristics as antecedent variables. As increasing numbers of women enter business schools and assume managerial and executive positions, the ethics literature has recognized the value of incorporating the gender dimension in particular into ethics research. Thus a number of researchers have examined differences and commonalities of responses based on gender.

In their study of 1,875 business people, Weeks et. al (1999) found that females assumed a stricter ethical stance than their male counterparts on 7 out of 19 vignettes. Males, on the other hand, adopted a more ethical stance on 2 out of 19 vignettes. Kidwell et al. (1987) concluded that female managers were more ethical for one of seventeen situations. Interestingly, they reported that, when asked to estimate the ethics of the opposite sex in each of the situations, respondents almost universally perceived the opposite sex to be more unethical than themselves. When Harris (1990) examined ethical values of individuals at different levels in the organizational hierarchy, he found that females were more ethical for one of five dilemmas that were presented to them. Similarly, Simga-Mugan et al. (2005) reported that gender does have a significant impact on ethical sensitivity and Deshpande et al. (2000) found that compared to male managers, female managers perceive questionable business practices as more unethical. However, a study by Barnett and Karson (1989) found that, among business executives, gender had no impact on ethical beliefs. Also, a more recent study of senior executives found no significant differences between the genders regarding their ethical preferences (Das, 2005).

Other studies have sought greater homogeneity among the respondents by focusing on practitioners within certain business areas. The overall findings have been inconclusive. For example, in a study of marketing professionals that used scenarios to measure a person's ethical score, Akaah and Riordan (1989) reported that females had higher scores for 3 of 11 scenarios. When practicing accountants were surveyed by David et al. (1994), males rated 3 of the 12 components of the AICPA's "Code of Professional Ethics" as more important than did females. When ethical differences in the sales profession were studied, Dawson (1997) concluded that females were more likely to agree that behaviors described in twenty scenarios were unethical. Amore recent study (Lund, 2007) of marketing professionals found that females demonstrated significantly higher ethics judgment than their male counterparts. Among insurance employees, Serwinek (1992) reported that females were more ethical for one of the four factors that were examined. On the other hand, two recent studies of accountants (Jones & Hiltebeital, 1995; Radtke, 2000) concluded that no significant differences between the genders regarding the appropriateness of ethical conduct. Similar results were obtained by Browning and Zabriskie (1983). In their study of industrial buyers, they found no significant differences between men and women. A meta-analysis conducted by Jaffee and Hyde (2000) did not find any gender-based differences in moral orientation.

TOWARD IMPROVING ETHICAL BEHAVIOR

A classic quotation states: "Ethical business is good business." Several steps can be implemented to promote ethical practices and establish a strong ethical culture. Each of these, individually, will not have much of an impact but when all or most of them are applied as part of a comprehensive program, they can greatly improve an organization's ethical climate.

The organization's selection process (interviews, tests, background checks, references, etc.) should be used to weed out ethically undesirable applicants. Although this is not a simple task, particularly for entry-level positions, it is much easier to administer for upper-management positions since more is known about them because of their longer professional lives and the availability of a "paper trail". Various tests have been developed to assess job candidates' trustworthiness, honesty, and integrity (Sackett and Wanek, 1996).

Codes of ethics are an increasingly popular way for reducing ambiguity. These are formal documents, expressed in language anyone can understand, that state an organization's primary values and the ethical rules and principles it expects its employees to follow. They help a business to show to all internal and

external constituents the standards that govern its conduct. Codes of Ethics are probably the most visible sign of a company's ethical philosophy. They are particularly helpful when an individual's self-interest is incompatible with acting in accordance with his or her ethical standards. However, it must be remembered that they have limits because they cannot anticipate every situation that may arise. In some cases, codes of ethics are principally public relations statements. Their effectiveness depends heavily on whether they are current and robust and on how employees who break the codes are treated. Most importantly, they require management's explicit and unequivocal support (Paine et al., 2005).

Business scholars and ethicists have developed frameworks for ethical decision making (Bastons, 2008). They consist of a series of chronological steps that guide a person facing an ethical dilemma. Unfortunately, many decisions involve "gray areas," where there are no apparent solutions. In these cases, the recommended maxim is: "When in doubt about an action to be taken, don't do it."

There must be a high degree of commitment to business ethics from top management. They set the tone; they are the role models in terms of words and actions. Managers must embrace ethics and continually reaffirm their support for ethical conduct (Aguilar, 1994). A number of writers contend that ethical behavior is an important component of leadership (Morgan, 1993), and that the perceived ethical standards of a leader can affect the ethics of subordinates (e.g., Fulmer, 2004; May et al., 2003). Ambrose and Schminke (1999) argued that "the greatest influence on an individual's ethical behavior may be the ethical behavior of one's immediate supervisor" (p. 469).

Perceptions of poor leader ethics might promote unethical behaviors among subordinates in at least two ways. First, subordinates that perceive the behaviors of leaders to be unethical might act unethically themselves in order to retaliate. A number of studies (e.g., Fisher & Baron, 1982; Greenberg & Scott, 1996) have concluded that employees often feel justified in engaging in unethical behaviors when they believe that their leaders have acted unethically toward them. Second, the behaviors of leaders often set precedents for employee behaviors (Kemper, 1966). The employees will believe that unethical behaviors are tolerated in their organization and may, therefore, act less ethically than they otherwise would.

A recent development in the study of leadership and ethics is a focus on authenticity among leaders. Authentic leaders are "transparent with their intentions [and have] a seamless link between their espoused values, actions, and behaviors" (Luthans and Avolio, 2003, p. 242). They are aware of their values and beliefs concerning what is or is not ethical and behave in ways that are consistent with those values and beliefs (Harter, 2002). These leaders can create a climate of authenticity in which all members of an organization are empowered to behave in ways they feel are ethical (May et al., 2003).

Employee goals must be reasonable and capable of being accomplished. Goals which are impossible (set too high) to attain can be conducive to unethical behavior. The use of goal-setting to place unreasonable pressures on employees can have the unintended side effect of encouraging performance misrepresentation by the employees. In addition, goal-setting techniques could promote unethical behaviors if adequate controls are not used. Those who fail to achieve a pre-set goal by a small margin are likely to falsify their performance reports in order to make it seem that they had achieved their goals even when there was no monetary reward for achieving the goal (Schweitzer et al., 2004).

Many organizations are setting up seminars and workshops in ethics training. Typically, their code of ethics is used as a guide or standard. The purpose of such training is to sharpen the written ethical code, demonstrate its relevancy, and bring it to life (Valentine and Fleischman, 2008). Unfortunately, much of ethics training is little more than "admonishment" or "lecturing". Ethics training is more effective when it involves a discussion of real-life ethical issues or dilemmas commonly encountered on the job, followed by an exploration of the various actions that can be taken, and who and what will be affected (positively and negatively) by each alternative. The intent is to raise the consciousness of the participants, to show that "there is more than one alternative", and discuss the probable consequences of each course of action. Ethics training is "perishable" because individual and organizational memories are imperfect. Therefore, regular refresher courses are necessary.

An organization's culture sets the norms that guide employees' behaviors. Employees of organizations characterized by a strong ethical climate tend to feel a greater responsibility to act in ways that conform to ethical standards than employees that work in a relatively unethical climate (Victor and Cullen, 1988). According to Social Cognitive Theory (Bandura, 1997) employees often learn certain behaviors vicariously through observation and modeling. Thus, a culture's norms might promote unethical behaviors among existing employees, while the social learning process might facilitate the adaptation of these behaviors by new employees.

Working conditions characterized by high levels of stress and rigid and/or unfair rules can cause employees to blame external factors for their problems at work. This might then promote the use of unethical behaviors such as theft or violence toward the external stimuli (e.g., supervisors, co-workers, etc.) as a form of retaliation (Martinko et al., 2005).

A comprehensive performance appraisal should focus on "economic" outcomes but also should consider whether the means for reaching those outcomes were ethical. An organization which requires its managers and employees to uphold high ethical standards must incorporate the means (the "how") into its appraisal system. A central question should be: "How does your decision compare to our code of ethics?" (see Lovicky et al., 2007).

Research on organizational justice and equity theory indicates that individuals who perceive that they are under-compensated are often able to justify unethical reactions such as reducing the quality and quantity of their efforts (Skarlicki & Folger, 1997).

Rewarding unethical activities encourages and reinforces unethical behavior among employees. Individuals will generally adopt behaviors if they witness other people successfully using them to obtain valued rewards Bandura (1978). Thus, if an organization's members are rewarded for using unethical behaviors, their co-workers might adopt such behaviors as well. Similarly, expectancy theory (Vroom, 1964) predicts that individuals will act in ways that they believe will result in the obtainment of valued rewards. Thus, if employees are made to believe that they will be rewarded, and not punished, for the use of unethical behaviors, such behaviors may occur frequently.

An independent social audit that evaluates decisions and management practices in the areas of ethics and social responsibility increases the probability of identifying unethical behavior and, subsequently, taking remedial measures. Similarly, programs of social responsibility should be reviewed for effectiveness. These audits can be performed at regular intervals (as one would do with financial statements), or at random (with no prior announcement), or both. The auditors should present their findings directly to the Board of Directors (see Gond & Herrbach, 2006).

The board's role of paramount importance. They are the shareholders' representatives and bear the ultimate responsibility for supervising management's performance. As overseers of a firm's strategic decisions, they have a clear obligation to conduct themselves in an ethical manner and ensure that the organization promotes and maintains the highest standards of ethical behavior (Minkes et al., 1999). However, there is general agreement among organizational researchers, governance experts, and business executives that, traditionally, boards have tended to simply legitimize proposals from corporate executives. Harold Geneen, the former CEO and Board Chairman of ITT, estimated that, among the boards of directors of *Fortune* 500, 95% are not doing what they are legally, morally, and ethically obligated to do (Geneen, 1984).

Nevertheless, there has been a heightened interest in recent years in ensuring that the activities of the board are conducted with integrity and adherence to the highest ethical standards. Many businesses have adopted codes of ethics for their directors and specified that the primary duty of board members is to oversee the CEO and other senior management in the competent and ethical operation of the corporation (Schwartz et al., 2005).

CONCLUSION

The terms "business ethics" and "corporate social responsibility" have become firmly entrenched and an established part of our vocabulary. The concern for ethics in business continues, and all evidence points to a growing emphasis on business ethics in the future. The many high-profile scandals have added urgency to this issue. The public is constantly reminded of the important role business decisions play in their lives and, consequently, expects a business to exhibit a very high degree of ethical performance. Managers' real challenge is to treat ethics as a corporate asset by creating an environment that develops, sustains, and advances an unambiguous commitment to ethical behavior. When fully integrated into the organizational culture, the moral fabric created will have a potent and durable influence on day-to-day behavior.

In conclusion, business ethics is neither "a frivolous, transient, fanciful fad" nor "a temporary, utopian, impractical notion" as some declared early on. Certainly, it is not, as others allege, an oxymoron. It is a vibrant, potent, and complex undertaking developing on many levels.

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Globalization: Strategies and Techniques for Respecting Diversity and Cultural Differences

Abstract

Diversity refers to the differences between individuals and the value that those differences have upon individual cultures as they attempt to gain respect within the society in which they live. This paper will examine several articles that explore the need to respect the cultural differences of others. If you look around your community, your workplace and even your family, you will probably see that America has indeed become a melting pot with a tremendous diverse population. In view of this phenomenon, there is a critical need to become aware of the cultural differences of others and to respect these differences.

> America is becoming more diverse. More than 50 million U.S. residents regularly speak languages other than English in their homes, according to the U.S. census Bureau. The U.S. population in 2001 accounted for over 30 percent of U.S. residents, by 2020 this could increase to 39 percent (Carr, 2006)

The nature of globalization in today's world requires that deliberate and specific approaches be considered when communicating with groups of individuals, especially when you are aware of the presence of individuals of various cultures within the conversation. Our society is keenly aware of the economic, political, technical and social climates which are drastically changing and affecting the way in which we communicate and interact with each others on a daily basis. We must learn to respect the cultures of others.

Today's educational and business settings typically consist of individuals from many different cultures, not just within the U.S. but from all over the world. People with different customs, beliefs, ways of thinking, and different languages must learn to work together without offending each other. In order to be able to relate effectively to a variety of audiences, there is a need to get to know how to communicate with them without disrespecting the values that they hold dear and their way of living. It is, therefore, critical that educators, trainers, and managers alike be aware of cultural backgrounds in order to effectively communicate with others. Understanding those with whom you interact on a daily basis will do more to demonstrate the respecting you have for the rights and cultures of others.

INTRODUCTION

This research paper will examine and explore several strategies and techniques for dealing with diversity and cultural differences at home, at school and at work. These strategies and techniques will be helpful to professors, trainers, and mangers who are responsible for teaching and training diversity and multicultural courses to individuals who interact with a variety of different cultures. The paper will also reflect the need to be knowledgeable of the many learning styles of different cultures while communicating on a daily basis or while making presentations to groups.

Businesses can potentially improve their customer base by learning specific strategies that will affect their employees' motivation to do a great job which in turn will assist in expanding the business. One of the more smart ways to grow a business is to hire a diverse workforce which will in turn attract a more diverse customer base. Business should do more than hire and retreat; businesses should hire individuals of diverse backgrounds and give them the opportunity to represent them in the forefront. Diversity is easily recognized in the ethnic and cultural makeup of the workforce today and is continuing to expand each day. There must be respect for all cultures.

While the total acceptance of diversity of mankind does pose a number of challenges, the factor of communication remains the most challenging of all issues. Through continued group work in educational settings and teamwork in the classroom can do more to assist individuals in becoming more comfortable and familiar with each other and thusly grow to see that they are more alike than different. It is anticipated that through diversity, doors will be opened, language barriers will closed, and individuals will make the added attempt to better understand each other.

Today's businesses and classrooms consist of individuals from many different cultures and it is not always easy to understand them. Leaders must do all that they can to bridge the gap that divide.

> "Most of the time the technical vocabulary is understood, but other parts of communication are missed. Up to 90% of any communication is nonverbal, and gestures, postures, and expressions vary widely from one culture to another, as does intonation and phrasing (Dunn, 2011).

Purpose of Study

The purpose of exploring this phenomenon is to identify and examine the factors that affect diversity in the classroom and in the workforce. Professors, trainers, and managers alike will benefit from focusing on specific strategies and techniques that will assist in providing cultural information to the changing world.

The impact that educators as well as managers can have upon a body of students can be life changing, especially for individuals who find themselves "thrown" into positions of leadership having no formal diversity training or knowledge related to the very group of individuals to whom they will be supervising. It is quite possible that a graduating student could actually attain a leadership position of employment over individuals of various cultures with whom she/he have not been trained to communicate. In such situations, the leader may have difficulties communicating and interacting simply on a cultural level. It is quite possible that if a supervisor had some general knowledge about the culture background of their employees, his/her daily responsibilities could be very productive; some leaders generally attempt to handle awkward situations without counsel which typically leads to more frustration and confrontations. Leaders and managers must know when to ask for help in situations that demand more understanding and knowledge.

> "We allow ignorance to prevail upon us and make us think we can survive alone, alone in patches, alone in groups, alone in races, even alone in genders. (Maya Angelou)

There appears to be more studies that are being conducted relative to the multiculturalism because of the increased number of individuals of varying cultural backgrounds with whom we must interact on a daily basis. Organizations are beginning to slowly realize the benefits of knowing, understanding and valuing the beliefs of others. It is becoming more evident that we have come to depend on each other in more ways than one and we that we must demonstrate this fact through our actions and deeds.

Literature Review

This study examined the literature of several articles related to diversity and multiculturalism as well as interviewed several individuals from varying backgrounds regarding their perceptions of diversity and the importance of the role of employee, professor or trainer in providing positive cultural information to others.

Diversity is a good thing because it provides us with many opportunities to learn about one another. We realize that there are gender differences, now more than ever; while work was once majorly a field for men and there are now more women of various cultures who are a part of the workforce.

According to Holt (2011) diversity serves as a bridge between all types of people; in business it opens doors through language, culture and understanding.

Respecting the differences in the generations, cultures and genders is our key to managing and leading successful organizations of the future (McDonald 2009). While people often think about diversity when a multicultural issue arises, but it is about the way a person feels about oneself and the internal interpretation of these perceptions by those who work within and around his/her space.

> "Diversity is more than simply demographics. It's also about the Prospective we each bring to the table through our unique experiences. Any truly successful organization values diversity, promotes inclusiveness and appreciates the benefits diversity brings to strengthening a community (Trueheart, 2010)."

Many of the readings appear to suggest that there are strategies that can be tried in an effort to get bring groups of people together while encouraging diversity. Such efforts as using inclusive language, making eye contact, smiling, conversations and participation in cultural events will serve as an incentive to spread the word. The development of informative data for use in the dissemination of cultural and diversity sessions will be an ongoing process. During the summer of 2011 additional surveys will be distributed to gain additional perceptions of this phenomenon. A descriptive write up will be designed to explore and obtain information relative to multiculturalism. It is hoped that the responses obtained will be analyzed to obtain the perceptions of professors, managers and trainers to determine which specific strategies may be most affective for spreading information relative to culturalism.

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A Review of Iranian Aviation Industry:
Victim of Sanctions or Creation of Mismanagement?

By:

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Abstract

Motivated the present conditions of Iranian aviation industry this paper studies the history of Iranian aviation in the past three decades and its evolution from a public franchise to a mixed industry encompassing private, semi-private and public airlines. Exploring its different aspects, it demonstrates how commercial aviation has become accessible in many parts of country through ambitious projects to construct airports in many provinces and regions. It also shows that how increasing demand for domestic air travels has made commercial aviation industry self reliant and in no need to compete in international markets. It exhibits that how government interferes in the industry daily activities through pricing policies, fuel subsidies and granting licenses to fly different routes.

Keyword: Iran, Aviation Industry, Commercial Airlines

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- Must be done:
  - Define an index for accidents
  - Create benchmarks for comparisons
  - Study demand for: airlines, airports, routes, aircraft type
  - Explaining the growth better

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❖ Introduction

In 12 months that elapsed from March 2009 to March 2010 Iranian aviation industry experienced five accidents and three different heads of civil aviation. 186 people, all civilians, were killed in these crashes, with four aircrafts becoming unserviceable. Iranian public opinion of aviation safety and Russian airplanes dropped to such a low point that forced civil aviation authorities banned any new acquisition of Russian manufactured aircraft. They even vowed that the remaining aircraft would leave Iran's skies. The weeks following the incidents witnessed an outburst of opinions and analysis as well. The usual culprits according to Iranian media were "profit seeking executives" and "aviation dealers". Iranian Civil Aviation Organization (IR-CAO) official position was what it has been for the last three decades. It maintained that none of the airplanes involved in the accidents had any technical issue. It also announced that the airplanes had passed IR-CAO inspections and all were in good conditions[2]. These procedures were never questioned or investigated. The often cited cause of incident has been "pilot's error". However there have been 10 air crashes in Iran involving Russian-made commercial aircraft since year 2000, nine incidents had fatalities (see Table 1).

For their part Iranian aviation executive blame the sanctions. Iranian aviation industry is facing multiple series of sanctions currently. Originally imposed by the United States these sanctions have denied Iranian airliners access to modern technology, recently manufactured aircraft, maintenance for their fleet and other services. However for the most part of 1990's such transactions were possible through third country. Recent Security Council resolutions have put a virtual end to these dealing and have restricted Iranian airliners access to parts significantly difficult[3]. Indeed this has increased the average age of operational aircraft in Iran. Iran Air, county's flag carrier airline, fleet average age is 22.8 years according to IR-CAO sources. However Iranian authorities usually downplay the role of sanctions. In December 2009 then the head of IR-CAO, Mr. Nakhjavani, told Iranian medial "The U.S. embargo on the import of planes to Iran has been the cause of no plane crash in Iran by now since all planes start their flight based on standard procedures" he reminded reporters that in these procedures would prevent faulty planes from flying.[4] This has not stopped Islamic Republic of Iran (IRI) government from complaining to international organizations about the safety deficiencies caused by these sanctions.[5]

While the role of sanctions and inferior technology is becoming prominent in public media, some observers highlight the part played by regulators and mismanagement. According to them the fault rests mainly with politically driven regulators who fail to do their job. These observers ask how it is possible the main cause of close to thirty aviation incidents to be "pilot's error". When in August 2010 a Fokker 100 airplane ran out of runway in Tabriz International Airport and fall into a trench, many started to question IR-CAO regulators and the airport authorities' performance.[6] Only six month earlier Taban Airlines directors had officially complained to the transportation committee of Iran's parliament about

[2] Mr. Ilkhani's interview

[3] Author's interviews with pilots and former executives of several Iranian airlines.

[4] "Official plays down U.S. sanctions on Iran's aviation industry", Tehran Times, December 20th, 2009.

[5] International Civil Aviation Organization (ICAO), Economic Commission, Working Paper A36-WP/275

[6] "Aseman Airplane Went off Runway" BBC Persian, August 27th, 2010.

the management of Mashhad International Airport and IR-CAO 's leadership and accused them of incompetence.[7]

Despite the ongoing public debate the question still remains that what is the true cause of the present perilous conditions of Iranian commercial aviation industry; Sanctions, Russian aircraft or mismanagement? These questions have motivated the present studies.

While a comprehensive study of Iranian airlines has yet to be done, aviation industry and commercial airlines have a place of prominence in the existing literature. Many authors have investigated different aspects of the industry from operational challenges to the mergers and pricing policies. These studies are divided into two major categories; one group is dedicated to the industry itself, its internal dynamic and its operations. Another group of researchers explore its economic aspects and implications. Most recently a growing number of authors become interested in aviation industry role in economic development and its contribution to sustainable growth.

From the first group of authors we should mention Spence (1975 and 1976), Mayer and Sinai (2003a and 2003b), Mazzeo (2003) and Rupp, Ownes, and Plumly (2003) who study the relationship between service quality and competition in airline markets. Morrison and Winston (1989) estimate the airline demand, Kostiuk, Gaier, and Long (2000) study the costs of air traffic control systems, airlines and airports. Suzuki (2000) shows that market shares are positively correlated with airlines' performance. Januszewski (2004) estimates the price responses to the flight delays differ in competitive and non-competitive markets. He shows that the prices fall sharply in competitive markets but not in non-competitive markets.

Numerous studies are conducted on implications of competition, pricing, strategic behavior and other economic concepts in aviation. We only can name a few here. Zimmerman and Borenstein (1988) study demand for airlines after their accidents and find finds little indication of a change in demand in response to crashes. Borenstein (1989 & 1992) investigate the relationship between hubs and market dominance as well as the evolution of airline industry in the United States. Borenstein and Rose (1994) address the question of pricing. More recently authors such as Goolsbee and Syverson (2008) study how airlines respond to the threat of entry.

A growing body of literature is focusing on the role of aviation industry and commercial airlines in developing urban areas and economic growth and their relationship with employment. Nunn and Schoedel (1995) find out that cities often pursue airport-based projects that promise employment gains and multiplier impacts on business and fiscal development. They noted that airline maintenance operations centers (MOCs) offer these benefits but frequently require massive capital investment by cities and commercial airlines. Brueckner (2003) provides new evidence on the link between airline traffic and employment in US metropolitan areas. He confirms the common view that good airline service is an important factor in urban economic development and increases business opportunities for local industries. Micco and Serebrisky (2004) confirm that transport costs still can be considered as

[7] "IR-CAO Chief and Taban CEO Clashed in Majlis" Khabar, March 25, 2010.

barriers to trade as liberalization continues to reduce artificial barriers to trade. They suggest that in order to eliminate this barriers countries need to adopt policies to "get closer" to global markets. Their empirical results demonstrate how improving air transportation infra structure indeed reduces transportation costs and facilitates trade between countries. Green (2007) finds out that passenger activity is a powerful predictor of growth in a metropolitan area while cargo activity is not.

Given the success of airlines such as Emirates and Qatar Airlines in recent years authors study the aviation market in Middle East in general and in Iran in particular. Feiler and Goodovitch (1994) study the challenges faced by the management of the national airlines in the Middle East. They suggest that the liberalization of the European civil aviation industry embody risks but also enormous opportunities for Middle Eastern airlines. The structural shift in international aviation industry improves the long-term prospects for Middle East air transport significantly. Adler and Hashai (2005) estimate potential inter-regional passenger flows for air transport in the Middle East under open skies polices, once deregulation agreements are reached between neighboring countries. They follow the example of European markets. They include population size, gross domestic product (GDP) per capita, absolute difference in GDP per capita between two countries, great circle distance and membership of the European Union and World Trade Organization. After their estimation, surprisingly, they suggest that under conditions of peace Cairo and Tehran consistently achieve hub status, along with Istanbul and Riyadh. Carnery and Farashahi (2005) narrate the embedding process of the emergent international aviation regime, ICAO and IATA, in post-World War II Iran. They characterize the rise and decline of these regimes as a double process of institutionalization and de-institutionalization, and identify political and technical factors that drive institutional change. Dehbashi and Nahavandi (2007) study using internet as a new channel for ticket reservation in Iran and Jenatabadi and Ismail (2009) study the load factor as for six major Iranian airlines as an index of their performance. They suggest that companies should increase their investment in computerized reservation systems, improve on their operation planning, change in management style and have more control in managing their airlines. The government of Iran should also maintain or continue giving subsidy in order to improve load factor. They do not address either the issue of pricing or market entry.

The present study is organized in five sections. The second section summarizes the present conditions of Iranian aviation industry, the level of government interferences and the challenges Iranian airlines face. It is followed with a review of data and the fourth section tests for the seasonality and finds that demand for airline varies across the season. The fifth section summarizes the findings and conclusions.

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Table 1. Iranian Airlines Incidents[8]

	Date	Airline	Aircraft	Location	Fatalities
1	December 25, 1952	Iran Air	Douglas DC-3	Tehran, Iran	27
2	January 21, 1980	Iran Air	Boeing 727-86	Tehran, Iran	128
3	July 3, 1988	Iran Air	Airbus A300B2	Persian Gulf	290
4	April 26, 1992	Iran Air Tours	Fokker F-27 Friendship 400M	Saveh, Iran	39
5	February 8, 1993	Iran Air Tours	Tupolev Tu-154	Tehran, Iran	131
		IRIAF[9]	Sukhoi Su-24		
6	October, 1994	Aseman Airlines	Fokker F-28	Natanz, Iran	66
7	March 17, 1994	IRIAF	C-130 Hercules	Ballıca, Azerbaijan	32
8	March 14, 1997	Iranian Military		Mashad, Iran	80
9	February 2, 2000	IRIAF	C-130 Hercules	Tehran, Iran	6
10	May 18, 2001	Faraz Qeshm Airlines	Yakolov Yak-40	Tehran, Iran	29
11	February 12, 2002	Iran Air Tours	Tupolev Tu-154	Khorramabad, Iran	118
12	December 23, 2002	HESA[10]	IrAn-140	Isfahan, Iran	45
13	February 19, 2003	IRGC[11]	Ilyushin Il-76	Kerman, Iran	302
14	February 10, 2004	Kish Air	Fokker-50	Sharjah, UAE	43
15	April 20, 2005	SAHA Air Lines	Boeing 707-300	Tehran, Iran	3
16	December 6, 2005	IRIAF	C-130E Hercules	Tehran, Iran	128
17	January 9, 2006	IRGC	Falcon	Orumieh, Iran	11
18	September 1, 2006	Iran Air Tours	Tupolev Tu-154M	Mashad, Iran	28
19	November 27, 2006	Iranian Military	Antonov An-74	Tehran, Iran	36
20	January 2, 2008	Iran Air	Fokker 100	Tehran, Iran	0
21	August 24, 2008	Iran Aseman Airlines	Boeing 737	Bishkek, Kyrgyzstan	68
22	February 15, 2009	HESA	IrAn-140	Isfahan, Iran	5
23	July 15, 2009	Caspian Airlines	Tupolev Tu-154	Qazvin, Iran	168
24	July 24, 2009	Aria Air Flight	Ilyushin IL-62M	Mashhad, Iran	16
25	January 24, 2010	Taban Air	Tupolev TU-154M	Mashad, Iran	0
26	August 26, 2010	Aseman Airlines	Fokker 100	Tabriz, Iran	0

[8] Gathered based on information available in media, ICAO websites and IR-CAO authorities interviews.

[9] Islamic Republic of Iran Air Force (IRIAF)

[10] Iran Aircraft Manufacturing Industrial Company (HESA)

[11] Islamic Revolutionary Guard Corps

1. Data

There is no single organized data bank for Iranian aviation industry. IR-CAO publishes an annual report called "Air Transportation Statistics Annual Report". This annual report includes the monthly statistics for air travel passengers, air cargo and air mail for Iran. Data includes monthly observation of passenger, cargo, mail in different airports across the country. The data is often reported at airport and airline level and aggregated nationwide. Unfortunately the format of these annual reports has not been consistent.

For 1979-1984 IR-CAO reports included monthly data at airport level on passengers, cargo and airmail, however they lack definitions and in many places are not consistent. IR-CAO also reported international airlines activities in Iran. Since often the operator was either Iran Air or Aseman Airlines, the monthly data for the number of passengers and cargo carried by these two airlines was reported as well for a number of the years and not always. IR-CAO annual reports also include summary tables on performance, growth and distribution of passengers and cargo across Iranian airlines and airports.

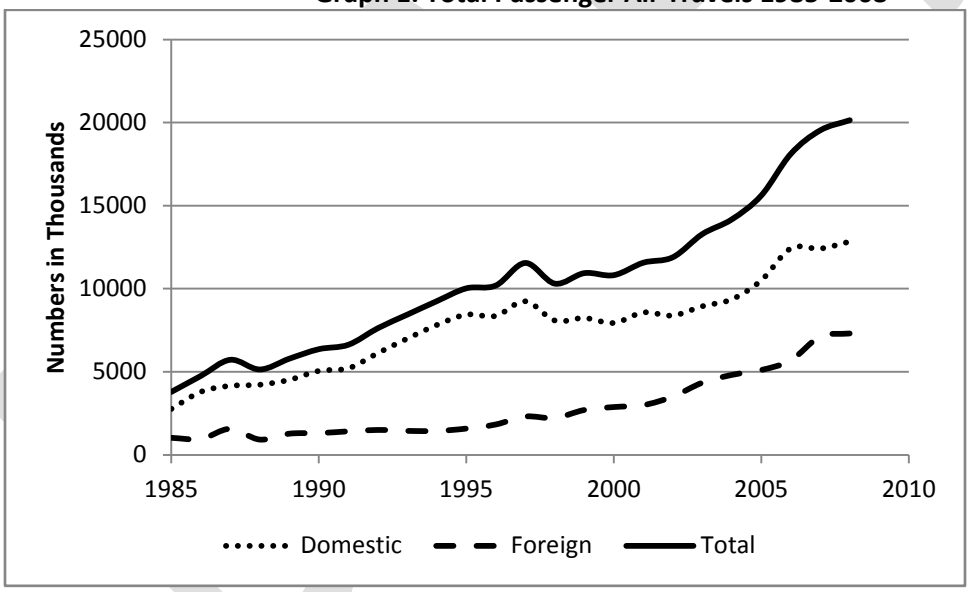
As the industry grew the reports began to be more elaborate. The data for private airlines appear in these reports in 1990. Since then the annual reports began to include the monthly data for passenger and cargo at airline level as well as airlines' rank and market share. Since 2000 a separate part has been added on the performance of domestic airlines. Its sections include domestic airlines performance at domestic airports, domestic airlines performance at international routes and international airlines performance at domestic airports. This sector includes passenger and cargo data at airline-airport and airline-route level. The data at airline-airport and airline-route level is usually available annually; there are also observations at airline-month level. These includes all active operational airlines in Iran, however it does not include Aseman Airlines reports for a number of years for reasons unknown to the authors. The data reports observations on year, month, airline, airport, number of incoming passengers, number of outgoing passengers, volume of incoming cargo in kilogram, volume of outgoing cargo in kilogram, volume of incoming mail in kilogram, volume of outgoing mail in kilogram, number of incoming flights and number of outgoing flights. Most recently the reports include detailed information on international airlines activities at Iranian airports, including number of departure and arrival flights, number of passengers, cargo tonnage and mail.

It must be noted that IR-CAO collects the necessary data using ICAO reports airlines have to file with its offices. These reports are filed according to ICAO calendar using months of January through December. However IR-CAO annual reports are according to Iranian calendar in which a year runs from March 21st to March 20th of the next year. Recent annual reports actually cover from the first day of April to the end of March next year. Thus it leaves out the first ten days of Iranian year for every year and includes the first ten days of the next Iranian year. For example data for year 1387 does not include the first ten days of Farvardin, the first month of Iranian calendar, but it includes the first ten days of year 1388. This omission is significant since the first two weeks of Iranian year are usually New Year vacations. One way to adjust for this distortion is to transfer data back to Gregorian calendar; however we do not have access to Iranian airlines' ICAO monthly data presently.

As mentioned earlier the data is not available in electronic format, although reports are available in the pdf or doc formats for the years after 2004 and in hardcopies for years before that. We have collected most of the reports and scanned them into electronic pdfs. The annual data then was into Microsoft Excel files. We have constructed the panel data for years 1997, 1998, 1999, 2000 and 2001 at airline-departure airport-month level by scanning the hardcopies. We also have extracted the data for years 2001 to 2008 and are in process of transferring to panel data.

Monthly tables are constructed for three major Iranian airports: Mehrabad (Tehran), Mashhad and Kish to include total number of passengers, outgoing and incoming together as well as the volume of cargo. These three airports constitute 57% of total passenger traffic in Iran for the period of 2001 to 2008. Mehrabad is Tehran's main domestic airport and was considered Iran's main international gateway until 2007. Mashhad is the home of Imam Reza, a holy Imam for Shi'ees and many other Muslims and thus a favorite destination for pilgrimage. Kish Island is Iran's major holiday resorts and the most popular free trade zone. Across these airports we test for the seasonality of air travel demand to see if the official fixed pricing approach would be validated.

Graph 1. Total Passenger Air Travels 1985-2008



2. Past and the Present

In an economy known for its volatility it is difficult to single out one industry as the most volatile industry. Still Iranian aviation industry is a nominee for the most volatile industry award. Both its history and its dynamics merit this nomination. During the past year this industry has been subjected to many ups and down. In post war era it experienced a large in increase in domestic air travels due to the ending of hostilities. Then it grew constants since then. The total number of domestic air travel passengers rises from 4.2 million in 1988 to 12.8 million in 2008, demonstrating a threefold increase. However the path was anything but eventless. The initial growth rate in demand for air travel fall down to less than 10

percent in late 1980's and bounces back in early 1990's. Iranian commercial aviation experienced a decline of 13 percent from 1997 to 1998, where the total number of air travel passengers falls down from 9.2 million in 1997 to 8 million in 1998. The number of air travel passengers did not reach 1997 peak until 2005 (See Graph 1. & Graph 2.). This section offers a brief summary of historical events surrounding Iranian commercial aviation since its beginning.

3.1. Beginning

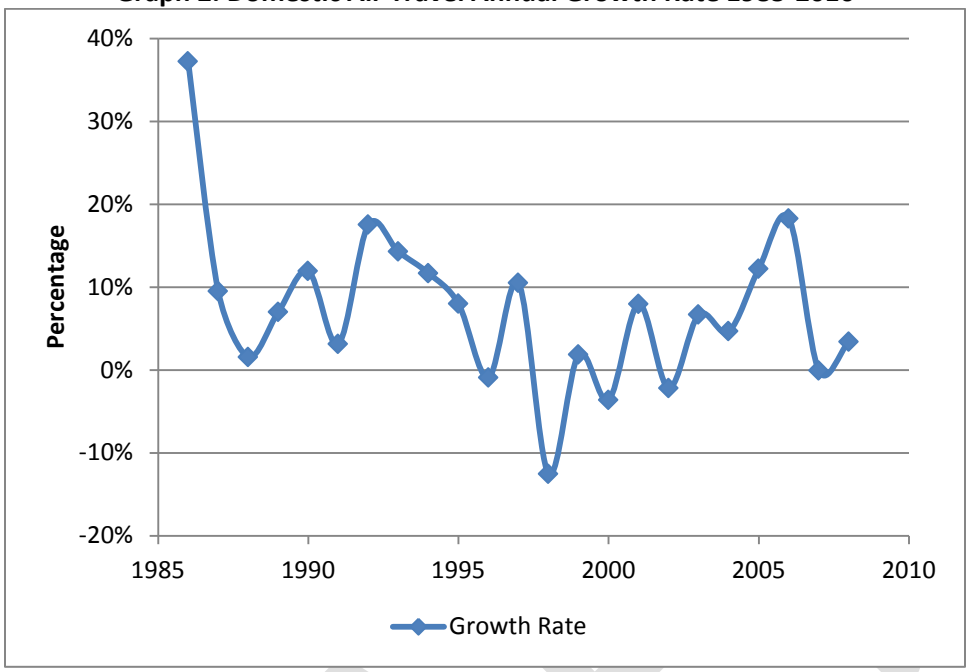
Revolutions and wars have come and gone, and yet it can be said the institution of aviation has experienced little structural change since its beginning in Iran. Since its very beginning Iranian aviation has been divided into two separate spheres: military and civil. Like many other modern and industrial establishments Iranian aviation can be rooted back to post WWI era and Reza Shah Pahlavi modernization efforts. In 1922 Iranian government purchased its very first aircraft from Germany[12]. By 1925 Iranian Air Force was operational. In the meantime German operated aircraft flied airmail and cargo missions between different Iranian cities. 1930's witnessed further development. A flight academy and a technical school were established. In 1938 the first Iranian aircraft assembly line came into existence in the form of Shahbaz factories, where biplanes were manufactured. It must noted that both training and manufacturing began as military entities, thus both sections were under the ultimate control of military commander in chief and rarely subject to the civilian government.

Iran's first flag carrier became operational in 1946, when Iranian Airways was established by a group of private businessmen using a fleet of American made Douglas DC-3's, mostly WWII decommissioned military aircraft. Like many other private endeavors, such as power stations and utilities, after its initial success government took over the enterprise. In 1962 Iranian Airways merged with Persian Air Service, another private firm to form Iran Air as a public entity. In 1964 Iran Air became a member of IATA. In 1965 it received its first jet aircraft, a Boeing 707. During 1970's further deliveries of Boeing 737, 727 and 747 followed with an order for Airbus 300. In 1973 Iran Air established Iran Airtour as its low cost subsidiary.

By 1978 it was serving 35 international destinations and was hoping to become the region's primary transit airline, a plan successfully pursued by Emirates later. The air force commanders with appointed by commander in chief, then Mohammad Reza Shah Pahlavi, while the chief executives of Iran Air were appointed through the ministry of transportation. In the meantime Iran ministry of defense was constructing industrial plants to support air force fleet. There is little evidence that either Iran Air or civil aviation played any significant role in ministry of defense plans. There also were a few private airlines in existence who were serving domestic routes mainly.

[12] This was a Junkers F-13 airplane.

Graph 2. Domestic Air Travel Annual Growth Rate 1985-2010



3.2. Revolution and New Realities

As history shows both civilian and military aviation segments had notable parts in Islamic Revolution of 1979. Iran Air personnel went on strike in winter of 1979 and Iranian air force dissatisfied technicians were the first in Iran's military establishment to embrace the revolutionary fervor. Ironically both sectors were the very first to experience the realities of Iran's new international situation. United States imposed an embargo on exporting airplanes and parts to Iran early on, which has been intensifying during the past three decades in both implementation and coverage of items and aircraft. According to the United States, manufacturers or other United States firms cannot sell and export aircraft, engines and spare parts, CNS and security equipment etc. to Iranian air carriers or Iranian companies or government agencies, whether the equipment is new or used. Nor can firms in Europe, the Middle East and other countries worldwide re-sell (re-export) most United States-origin equipment to Iranian air carriers, even if they owned the equipment for years. Firms in the United States cannot sell parts to firms in Europe if they know that those parts will be resold to Iranian air carriers. Firms (including airlines in Europe), which provide maintenance for Iranian air carriers cannot provide such maintenance if it involves the installation or replacement of United States parts.

In aftermath of revolution all Iranian international airports except for Mehrabad lost their international status. Mehrabad became Iran's only international gateway. This decision might have rooted in revolutionary government's need to control all borders closely. A nationalization of all airlines and private flying clubs took place. Like its predecessors in 1962, Islamic Republic established a new

public airline by merging all existing private ones called Aseman Airlines[13]. Iran Air continued its operation on a reduced scale after gaps because of revolution and later on war. In the meantime Aseman Airlines began serving domestic routes within Iran. War with Iraq as well as several hijacking attempts by the elements of MKO during 1980's made the flight security a matter of national security. This amplified government and military presence in the industry. A special branch of Islamic Revolution Guards (IRGC) was established to protect and to control county's airports called Airports IRGC. The hijacking attempts also prompted the authorities to form flight security teams from IRGC and other revolutionary military organizations.

By the end of 1980's Iranian aviation maintained its dual military-civilian nature. However the role of government, or political establishment, in controlling it had reached new significance. It was a completely public run industry with no private played of any significance or size. The US imposed sanctions had prompted both Iran Air and Aseman Airlines to seek and purchase European manufactured aircraft such as Airbus, Fokker 50 and 100 and ATR 72.

3.3. Expansion and Private Airlines

The late 1980's and early 1990's marked the expansion and transformation of commercial aviation in Iran. First a semi-private sector came into existence. As part of its post war reconstruction program Iranian government embarked on an ambitious expansion of domestic airports network. Both Iran Air and Aseman found it difficult to serve all the new airports and new routes. On the other hand the success of some of government plans depended on the availability of air transportation. For example development plans included establishing free trade zones in Kish Island and Qeshm Island in Persian Gulf and Chabahar port on Oman Sea. Hakimian (2009) suggests that Iranian government used these free trade zones for experimenting with liberalization policies such as relaxing the labor code. This seems to be the case for the Iranian commercial aviation industry. The administrations of these free trade zones argued that having an aviation branch, or an airline of their own, is a necessity for their success. This was particularly true in the case of Kish Free Trade Zone, the first of free trade zones to be established. It was designed originally as a domestic hub for tourism and a gateway for imported products and goods for domestic households. In 1988 Kish Free Zone Organization (KFZO) established Kish Air to operate both passenger and cargo from and to Kish Island. In the meantime Iranian air force reactivated SAHA airlines to use its transport aircraft such as Boeing 707 and 747[14] in commercial activities. In the same year Safiran Airlines started its cargo operations out of Mehrabad airport using leased and chartered airplanes. More entries happened in early 1990's. In 1991 Mahan Airlines became the first private

[13] The notable exception to this merge was the aviation branch of National Iran Oil Company, N.I.O.C., known today as Naft Air.

[14] SAHA had been founded before revolution as an air service for the military personnel and their families but never had been intended as a major player in commercial aviation. It is one of the last airlines to operate a Boeing 707.

airline[15] in post revolutionary Iran. In 1993 Caspian Airlines began its flights. These efforts resulted in an unprecedented increase in domestic air travels in Iran. By 1995 total number of domestic air passengers doubles from 4.2 million in 1988 to 8.4 million. The total number of foreign air travel passengers increases also from 918'000 passengers to 1.6 million in 1995 demonstrating a 72% increase, although foreign air travels share of total air travels shrink to 16% from a previous 18%.

The changes were not limited to new airlines. In 1988 Iranian government established Iranian Airports Holding Company (IAHC). To this new entity the government transformed all of administrative and the executive powers and administrative duties of IR-CAO in regards to the airports. IAHC became responsible for the provision of airport services, aeronautical services, and airport design services and construction services. It became part of department of transportation, but run and managed as indicated by the code for public firms. In the same period several Iranian airports received international status. The most notable ones are Mashhad, Shiraz, Isfahan, Kish and Tabriz. In 2008 there were international to and from no less than 26 airports in Iran[16].

Iranian authorities also did not give up on the dream of becoming the transit hub for cargo and passengers operations in the region. Construction works were resumed at Imam Khomeini International Airport (IKA), in southwest of Tehran. IKA was opened in May 2004 and since October 2007 all international flights are directed to this airport. Iran's Ministry of Information & Communications Technology (ICT)[17] also went ahead with its plan to construct an international airport for airmail and cargo operations. In 1991 it opened Payam Airport, 55 km west of Tehran. Later in 1992 Payam became an international airport. In 1997 Payam Air, Payam Aviation Services Company, was established to operate airmail and cargo flights out of Payam Airport. Payam Airport area became a free economic zone in 2001 to facilitate its cargo activity and operations.

The expansion efforts also included plans to manufacture airplanes domestically. Having self sufficiency in mind and determined to somehow by pass sanctions Iranian government announced in late 1990's its plan to construct an assembly line to manufacture a version of Antonov AN-140 under license from Ukraine[18]. The task was assigned to Iran Aircraft Manufacturing Industrial Company (HESA) a ministry of defense entity[19]. So the dual nature of aviation in Iran was well preserved even during the

[15] Although Mahan Airlines is a private airline, it did and still does enjoy vast political support. It was the first airline to secure a government edict for a large sum of hard currency in 1997 to purchase its first Airbus aircrafts.

[16] Mostly flights to neighboring countries.

[17] Then Ministry for Post, Telegraph and Telephone.

[18] The HESA IrAn-140 or Iran-140 is a short-range twin-turboprop airliner based on the Antonov An-140 and built under license by HESA of Iran. The Iran-140 is able to seat 52 passengers, land on a dirt airstrip and fly almost 3,000 km (1,865 miles) before refueling. It can be configured to carry passengers, cargo, or a combination of the two. It already has experienced 2 crashes with fatalities (see Table 1).

[19] Located in Shahin Shahr, Isfahan, HESA was established in 1976. It belongs to the Iran Aviation Industries Organization (IAIO). The original factory was built by Textron.

expansion period with ministry of transportation in charge of airports and commercial airlines and ministry of defense in charge of manufacturing and production.

Table 2.
Incidents Summary Statistics

Year	Incidents	Fatalities
1992	1	39
1993	1	131
1994	2	98
1995	0	0
1996	0	0
1997	1	80
1998	0	0
1999	0	0
2000	1	6
2001	1	29
2002	2	163
2003	1	302
2004	1	43
2005	2	131
2006	3	75
2007	0	0
2008	2	68
2009	3	186
2010	2	0
Total	**23**	**1351**

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3.4. Present Conditions

If the 80's were time of firm control and limited expansion, commercial aviation expanded exponentially in 1990's. However the rapid expansion came at a price; and compromising the quality. Almost all the new airlines began their operations with leased aircraft and the majority relied on Russian manufactured aircraft provided by Russia, Ukraine and other former Soviet Union countries. Kish Air launched its operations using a TU-134 and Caspian leased TU-154 M airplanes. These airplanes were new to Iran and few Iranian crews were available to operate them originally. Thus wet leasing, or leasing an aircraft with flight crew became the norm of the industry. Also most of new entries acquired their own fleet later, however companies such as Iran Air Tours, Caspian Airlines and Kish Air purchased TU-154 M aircraft and not western made aircraft. As Russian aircraft entered Iranian airspace the number

of airplane crashes began to rise, making Tupolev a synonym of air insecurity. There have been 23 incidents involving passenger aircraft. 1351 individuals, mostly civilians, were killed in these accidents.

Sanctions restrained the expansion of Iranian airlines significantly as new Iranian airliners had access to neither western aircraft nor parts for their existing fleet or investments. Thus they have affected the flight safety and endangered the lives of passengers according to international observers. In 2005 after discussing the issue ICAO concluded: "the United States sanctions against the Islamic Republic of Iran have adversely affected the safety of civil aviation. The findings of ICAO should be upsetting to anyone, who is committed to the safety of civil aviation and the safety of air transport." However the situation became even worst with Security Council's tightening the grip of sanctions to control Iran's nuclear program. The recent sanctions have prompted companies such as Fokker Services to cut back on their support systems and requesting Iranian airliners to stop working on any part that could be American made.[20] This has created great difficulties for Iranian airlines whose fleets include Fokker 100 and Fokker 50 airplanes. Ever finding the middle way recently Iranian airlines have employed British made BAE and MD-88. Although both are western made airplanes, they are not manufactured any longer.

Despite sanctions past two decades witnessed a dynamic aviation industry in Iran with airlines coming and going. At least 30 airlines entered the market in Iran since 1988 (see Table 3). Not all of them were successful. Tara Airlines[21] and Safat Airlines were active for less than a year. Bonyad Airlines announced bankruptcy two years after starting its operations, then resumed its operations, then ceased them. Taftan Airlines announced bankruptcy in 2006 and its Fokker 50 fleet was requisitioned by the court. Ilam Airlines, Atlas Airlines, Tehran Airlines and TA-Airlines were founded and received necessary approvals, but never became operational. There are also several other companies who have received the initial permit, but never received an Aviation Operator's Certificate (AOC) from IR-CAO. In 2006 IR-CAO announced that no more AOC would be granted however President Ahmadinejad's administration has overruled IR-CAO since then and granted permission to three new airlines to start operations out of which Ata Airlines is already operational and Sahand Airlines has just begun its operations. There is talk of more airlines and government agencies such as Iran Cultural Heritage and Tourism Organization (ICHTO) are seeking necessary permits and funds to start an airline.

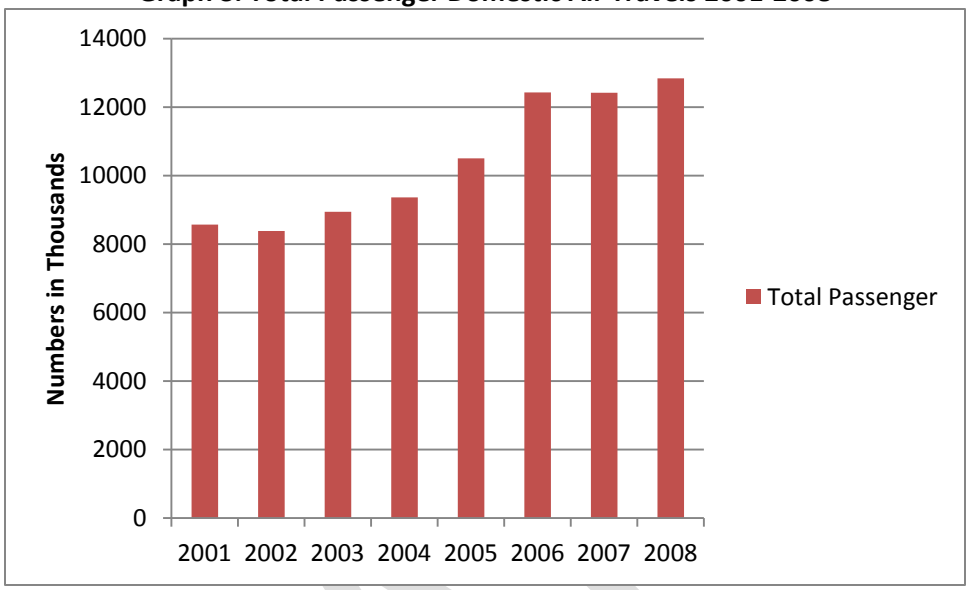
The large number of airlines in Iran could be misleading about the entry barriers. Borenstein (1989) defines an aviation market as the route between an origin and a destination. During the past years the process to enter a market has not been eased and the barriers to entry remain significant in Iran. Thus entering the markets does not end by receiving an AOC. It also requires entering the routes. In Iran having an AOC does not permit an airline to fly in routes it finds profitable. Every new flight and its schedule must approved by IR-CAO authorities. After receiving IR-CAO's approval different bodies must be coordinated and agree upon the new schedule. These include, but not limited to, airports authorities', airports security and local government agencies. Any new service also requires investment.

[20] Author's interview.

[21] Since 2009 Tara Airlines is active in helicopter and cargo services.

A travel agency must be found who would be willing to pre-purchase enough seats to make the service financially sustainable. After all these expenses the continuity of service remains in the hands of authorities, who can withdraw their support as they see fit.

Graph 3. Total Passenger Domestic Air Travels 2001-2008



Graph 4. Foreign to Total Air Travel Ratio 1985-2008

In the same time the market has been growing both in the size and in the scope. The number of domestic air travel passengers increased from almost 8.6 million in 2000 to 12.8 million in 2008 demonstrating an overall growth of 50% (see Graph 3). It must be noted that this trend has slowed down significantly from 2007 to 2008, where the number domestic air travel passengers increased from 12.4 million to 12.8 million exhibiting a slight increase of 3%. Both the number of foreign air travel

passengers and their market share have been increasing as well. The total number of foreign air travel passengers increased to 7.3 million in 2008, which is 36% of total air travels in Iran and demonstrates a 108.2% increase in the size of foreign air travels in Iran (see Graph 4). Of course it might be argued that this increase is caused by high demand for traveling to UAE, however this must be tested in further studies.

Table 3.
Names and Status of Iranian Airlines

	AIRLINE	BASE(S)	REMARKS	Founded	Operational
1	Aria Air	Bandar Abbas	Pax	2000	Yes
2	Arvand Airlines	Abadan	Pax & Cargo	1999	No
3	Ata Airlines	Tabriz	Pax	2009	Yes
4	Atlas Air			NA	No
5	Bonyad Airlines		Bankruptcy	1995	No
6	Arsh Air		For Asian routes	NA	No
7	Caspian Airlines	IKA	Pax	1993	Yes
8	Chabahar Airlines	Chabahar	Acquired by Iran Air	1998	Yes
9	Eram Air		Pax	2005	Yes
10	Fars Qeshm Air	Qeshm	Pax & Cargo	2003	Yes
11	Ilam Airline	Ilam	Pax	NA	No
12	Iran Air	IKA	National Flag Carrier	1962	Yes
13	Iran Air Tours	Mashhad	Pax	1973	Yes
14	Iran Aseman Airlines	Tehran	Pax & Cargo	1980	Yes
15	Kish Air	Tehran	Pax	1988	Yes
16	Mahan Air	IKA	Pax & Cargo	1991	Yes
17	Naft Air	Tehran	Pax	1993	Yes
18	Payam Air	Payam Airport	Airmail	1997	Yes
19	Qeshm Air	Deyrestan	Pax	1996	No
20	Safat Airlines		NA	NA	No
21	Safiran Airlines	Tehran	Cargo	1988	Yes
22	SAHA Air Lines	Tehran	Pax & Cargo	1988	Yes
23	Sahand Airlines		Pax	2010	Yes
24	Simorgh Air		Pax	2010	No
25	TA-Air Airline		NA	NA	No
26	Taban Air	Mashhad	Pax & Cargo	2006	Yes
27	Taftan Airlines	Zahedan	Pax	NA	No
28	Tara Airlines		Helicopter	2009	Yes
29	Tehran Airlines	Tehran	NA	2001	No
30	Zagros Airlines	Abadan	Pax	2007	Yes

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It must be noted that there is no market based approach to pricing in Iranian commercial aviation. Pricing has been and still is a matter of government's decision and changes as seen fit by the authorities. Head of IR-CAO announces the official airfare for the different routes and airlines are obliged to charge a fixed price for the flight, independent of the season, time, weekday and all other demand determinants in aviation market. Government also determines the operational costs of airlines. It decides the subsidy it pays them on fuel, the parking rate they should pay for their space in the airports, the usage fee for navigation and transit services as well as the mandatory security services. Thus an airline receives bills from IR-CAO, NIOC, IAHC and IRGC, to mention a few. It should pay taxes to the municipalities and government. It must keep its fleet in good standing and pass periodic inspections to renew its AOC. In order to survive, few private airlines in Iran sell their own tickets to customers. Most Iranian airliners pre-sell the seats in a flight blocks to travel agencies at a discounted rate, sometimes up to 30% below the government's nominal fare. Their flights are usually chartered by a group of travel agencies, who later on sell them to their consumers. The question is if the fixed price approach reflects the realities of air travel demand in Iran[22]. To show the fallacy of this assumption we test for the seasonality of demand for air travel in Iran.

3. Analysis

There are several questions we should like to investigate, however we must take notice of the structural changes in the market, the increasing role of foreign air travels, and the expansion of airport network. At this stage we examine the seasonality of demand for air travel in Iran to demonstrate that the official fixed pricing approach does not reflect the realities of demand for air travel in Iran. We focus on the data for March 2004 through March 2005, Iranian calendar year 1383. This is one of more accurate reports available and it has passed our QA tests. Tables 4 through 6 summarize the results for seasonality tests at Mehrabad, Kish Island and Mashhad airports.

According to table 4 for air travels to and from Tehran both coefficients are significant. On average 315'000 passengers have arrived in Mehrabad airport per month. However an extra number of 49'000 passengers have arrived during the summer. Since Tehran is both the political and business capital of country seasonality alone cannot explain all the variation in the air travel demand at this airport, however using seasonality dummy variable alone model has an R^2 of .52 which is significant.

Table 5 summarizes the results for Kish Island, which is a major resort and free trade zone. Here too seasonality coefficients are significant. On average more than 32'000 passengers have arrived in Kish island airport per month with extra 15'000 passengers during summer and winter, demonstrating a 50% increase in the monthly traffic to the Island. For the holy city of Mashhad similar results hold according to Table 6. On average 74'000 passengers have arrived in Mashhad airport per month with an extra 42'000 passengers during summer. This is even more than half of the regular traffic and signals an

[22] As this paper was being finalized Iranian government finally agreed to a %30 increase in airfares in October 2010.

increase of 58.3% in demand for air travel during the summer. Although both models are simple seasonality models however both have a high R^2 , .72 for Kish Island and .82 for Mashhad.

Table 4. Seasonality Analysis for Mehrabad Airport

No of Obs.	F(1,10)	P > F	R^2	Adj R^2
12	10.84	0.0081	0.5201	0.4721
Indep. Var.	Estimated Coefficient	Standard Error	t Stat	P > | t |
SeasonalDum	49086	14909	3.29	0.008
Constant	315090	7455	42.27	0.000

Table 5. Seasonality Analysis for Kish Island Airport

No of Obs.	F(1,10)	P > F	R^2	Adj R^2
12	25.11	0.0005	0.7151	0.6867
Indep. Var.	Estimated Coefficient	Standard Error	t Stat	P > | t |
SeasonalDum	14595	2913	5.01	0.001
Constant	32330	2060	15.7	0.000

Table 6. Seasonality Analysis for Mashhad Airport

No of Obs.	F(1,10)	P > F	R^2	Adj R^2
12	46.79	0.0000	0.8239	0.8063
Indep. Var.	Estimated Coefficient	Standard Error	t Stat	P > | t |
SeasonalDum	42182	6166	6.84	0.000
Constant	73726	3083	23.91	0.000

The pattern of demand is more apparent when we look at the histograms for air travels in these three locations. In all three places number of passengers declines sharply after the 6th month in Iranian calendar, which marks the end of summer and the beginning of the school and academic year. Demand stays low for the 7th and 8th months and then it begins to rise from the 9th month in Persian calendar and it reaches another peak as Iranian New Year approaches. It falls down in the first month of Persian calendar but it begins to increase as summer approaches and it reaches its annual peak in the middle of summer.

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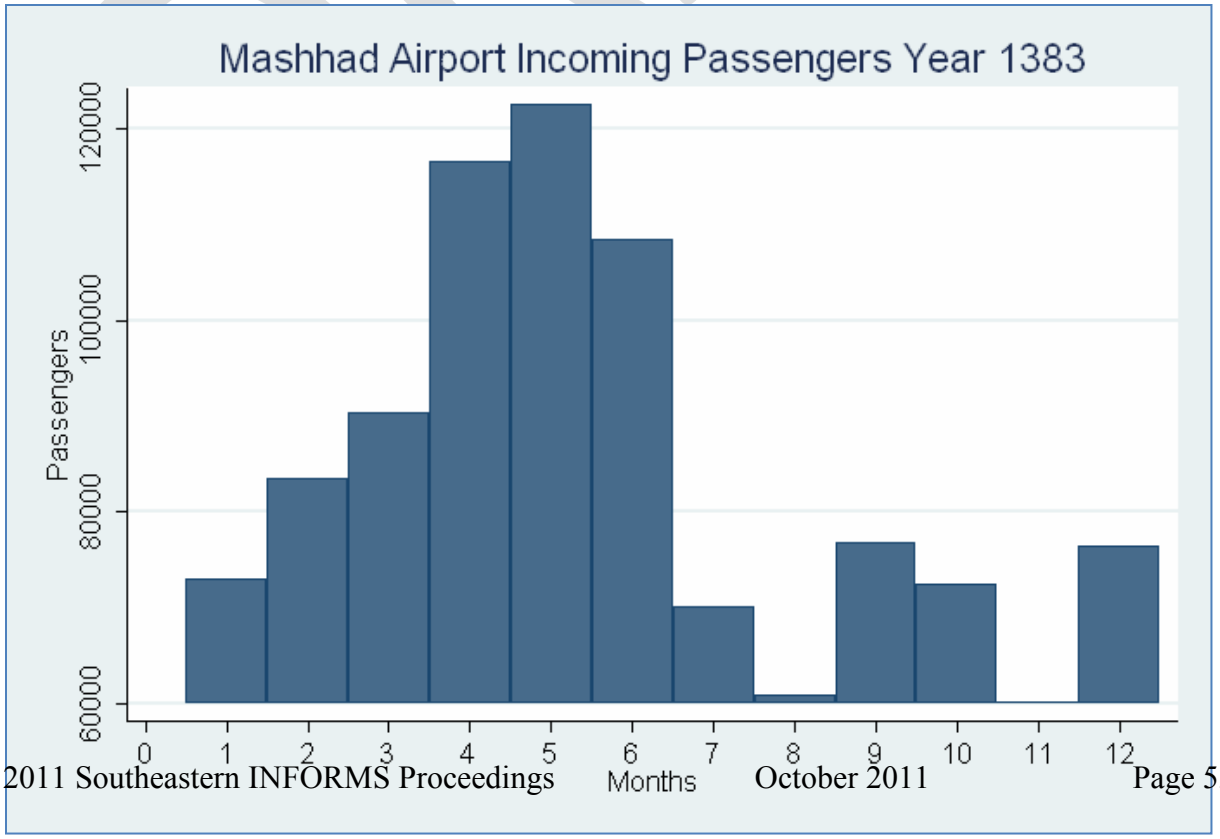
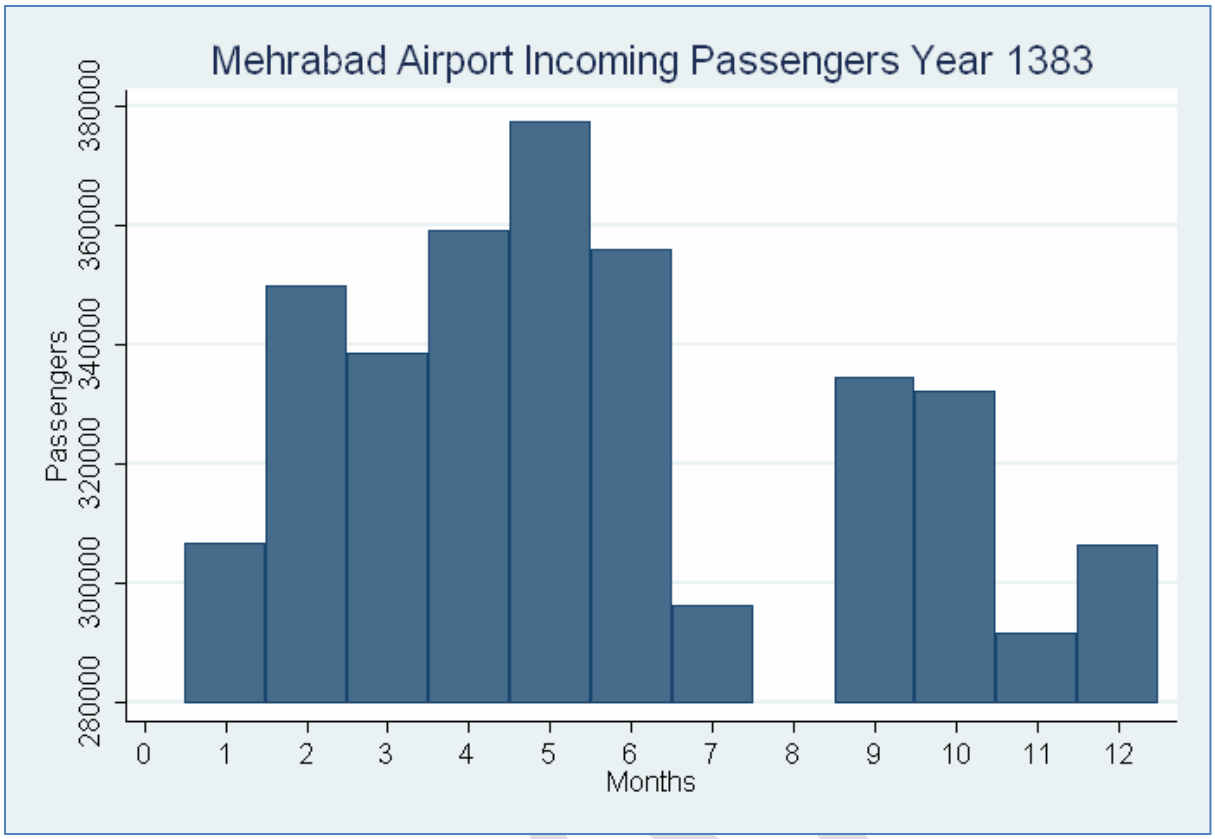
Kish Airport Incoming Passengers Year 1383
Passengers
20000
30000
40000
50000
60000
0
1
2
3
4
5
6
7
8
9
10
11
12
Months


Mashhad Airport Incoming Passengers Year 1383
Passengers
60000
80000
100000
120000
0
1
2
3
4
5
6
7
8
9
10
11
12
Months



4. Conclusion

We establish that demand for air travel in Iran is indeed seasonal and increases during months of summer and last month of winter. Based on this evidence the official fixed pricing approach in this market seems unrealistic and provides travel agencies and not the airlines to practice price discrimination freely. Using charter flights travel agencies combine air tickets with hotels, meal plans and other travel items. By adjusting the total price as demand fluctuates travel agencies benefit from increases in demand and protect their windfalls when demand declines. On the other hand airlines have to oblige these agencies when demand for air travel declines by offering blocks of the seats on their flights at an even more discounted price. As the demand for air travel increases in Iran, the airlines do not benefit from it as much as travel agencies do. This has resulted in a paradoxical situation, while demand for air travel has been increasing in Iran, Iranian airlines continue to suffer losses.

True sanctions have been hurting Iranian commercial aviation by denying Iranian airlines access to safe and modern aircraft, however the present pricing regime denies them the ability to afford freshly manufactured aircraft. It does not leave them with many resources to challenge the sanctions or offer higher prices for the forbidden aircraft. It only makes them more dependent on the government's

subsidies. Surprisingly while IR-CAO expects the number of air travel passengers increases to xxx by 2015 there is no hope for a change in pricing regime.

Further studies should investigate the internal dynamics of aviation industry in Iran. There are many questions unanswered, was there enough demand for the new airports? Is the increase in demand for air travel to GCC countries has helped Iranian airlines or hurt them by increasing the competition from neighboring countries' airlines? How Iranian airlines are faring in foreign air travel markets? And so many other questions, this is just the beginning and not the end.

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THE DETERMINANTS OF SCORING IN 2010 NFL GAMES AND THE OVER/UNDER LINE

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ABSTRACT

We collected data on a wide range of team statistics for the full 2010 National Football League season in order to compare estimates from 2010 to results obtained in prior research for the 2008 season. Based on regression analysis, we present evidence on the determinants of total points scored and the betting line for total points. The estimates for the 2010 season are similar to those obtained in 2008, especially for the betting line. Measures of how teams "match up," points scored in the immediately preceding game, and whether the game was played indoors play important roles in determining the betting line. A much smaller subset of variables are important in determining actual points scored. Most results are consistent across the two seasons.

INTRODUCTION

Many authors have investigated the market for betting on NFL games (see [1-8], for examples). Nearly all of these studies (except [7]) focus on the point spread, i.e., the difference between the points scored by the winning and losing teams.

In this paper we attempt to predict the total points scored and the over/under for National Football League (NFL) games played in the most recently completed NFL season, 2010-2011. We have collected and created variables that have been shown in prior research to be relevant to determining both the betting line and total points scored in a particular game. We estimate separate regression equations with the over/under line and actual points scored serving as dependent variables. These equations may be useful in confirming the results of research for earlier NFL seasons suggesting that variables measuring the ways teams "match up" against each other are important determinants of the "line" and total points scored.

DATA AND METHOD

The variables collected for this research include:

TP = total points scored for the home and visiting teams for each game played
PO = passing offense in yards per game
RO = rushing offense in yards per game
PD = passing defense in yards per game
RD = rushing defense in yards per game
TA = "takeaways" (turnovers gained per game)
GA = "giveaways" (turnovers lost per game)
D = a dummy variable equal to 1 if the game is played in a dome, 0 otherwise
PP = points scored by a given team in their prior game
L = the betting point spread (line) on the game

Match-ups Matter

The general regression format is based on the assumption that "match ups" are important in determining points scored in individual games. For example, if team "A" with the best passing offense is playing team "B" with the worst passing defense, ceteris paribus, team "A" would be expected to score many points. Similarly, a team with a very good rushing defense would be expected to allow relatively few points to a team with a poor rushing offense. In accord with this rationale, we formed the following variables:

PY = PO + PD = passing yards
RY = RO + RD = rushing yards

For example, suppose team "A" is averaging 325 yards (that's high) per game in passing offense and is playing team "B" which is giving up 330 yards (also, of course, high) per game in passing defense. The total of 655 would predict many passing yards will be gained by team "A," and likely many points will be scored by team "A." Subscripts are indicative of the visitor or home status of the variables, e.g., PY_v will represent the passing yard variable for the visiting team.

The dome variable will be a check to see if teams score more (or fewer) points if the game is played indoors. The variables on takeaways and giveaways will also be tested for relevance in scoring and setting the line.

The variable for points scored in the prior game (PP) is intended to check for streakiness in scoring. That is, if a team scores many (or few) points in a given game, are they likely to have a similar performance in the ensuing game?

The estimated equations may be useful in confirming (or contradicting) the results of the prior research, and may provide useful information applicable to wagering strategies.

RESULTS

All regressions reported in Table I are for individual games based on information known prior to the game. For example, if two teams are playing in week ten, only information known through week nine (rushing yards per game, passing yards per game, etc.) are utilized in the estimations for week ten.

The results of the regressions for 2008 and 2010 (we did not collect data for 2009) are contained in Table I. The second (2008) and fourth (2010) columns in the table are the regression with the line as the dependent variable. Every coefficient estimate for each year is correctly signed according to our expectations, statistically significant, and $\bar{R}^2 = .671$ for 2008 and $\bar{R}^2 = .665$ for 2010. Notice that the standard error is slightly lower for the 2010 season's betting lines, and the dome effect seems somewhat smaller for the 2010 line.

With the same set of explanatory variables, the third and fifth columns in Table I contain the results for actual points scored in the games. While regressions for the line explain fully two-thirds of the variance in that dependent variable, the equations for the actual points explains only 5.2 percent of the variance in total points for 2008 and only 5.7 percent for 2010. Further, only four of the seven explanatory variables meeting the test for statistical significance at traditional levels for 2008, and only three for 2010. The F-test for overall significance of the equation for total points does indicate, however, that a significant portion of the variance in the dependent variable is explained by the regression equation for 2008, but not for 2010. More parsimonious specifications of the 2010 regression for points scored does indicate overall

statistical significance. For these regressions on total points, notice there is no dome effect for the 2010 regression. The line is, as expected, much easier to predict than actual points scored. That is, the outcomes of the games and points scored are not easily predicted, which is "why they play the games."

At least two further observations are in order. First, consider the coefficients for points scored in the previous game. Those variables matter in determining the line for the game for both the 2008 (PP_h would pass a test of significance at the 90% level of confidence) and 2010 seasons. However, they seem to play an insignificant (statistical or practical) role in determining the actual points scored. This particular result may mean that bettors place too much emphasis on recent information, as other authors have suggested. Second, for the 2008 results, we tentatively suggested that the "line" underestimated the dome effect as compared to the actual points scored (the coefficient is larger for actual points equation in 2008). That conclusion is not supported by the results for the 2010 NFL season.

Table I: Regression Results for the Line and Total Points, 2008 and 2010 Seasons

Explanatory Variable	2008 Dependent Variable = Line	2008 Dependent Variable = Total Points	2010 Dependent Variable = Line	2010 Dependent Variable = Total Points
Intercept	-21.03 (-5.29)	-10.58 (-0.59)	-5.79 (-1.90)	-16.09 (-0.75)
PY_h	0.0476* (12.10)	0.0166 (0.94)	0.0380* (12.74)	0.042** (1.98)
RY_h	0.0507* (6.87)	0.0559** (1.69)	0.0310* (6.22)	0.038 (1.08)
PY_v	0.0442* (11.52)	0.0376** (2.18)	0.0378* (12.47)	0.038** (1.79
RY_v	0.0450* (5.93)	0.0576** (1.69)	0.0253* (4.94)	0.088* (2.44)
PP_v	0.0669* (2.86)	0.0766 (0.73)	0.0531* (3.61)	-0.029 (-0.276)
PP_h	0.0343*** (1.53)	0.1100 (1.09)	0.0348* (2.38)	-0.077 (-0.744)
D	2.21* (4.01)	5.17** (2.09)	0.99* (2.86)	-0.096 (-0.039)
$\overline{R}^2$	0.671	0.052	0.665	0.057
SEE	2.84	12.76	2.012	14.13
N	194	194	192	192
F-stat	57.2*	2.51**	52.22*	1.588

(The numbers in parentheses are t-statistics)
*** represents significance at the 90 percent level of confidence or better,
** represents significance at the 95 percent level of confidence or better, and
* represents significance at the 99 percent level of confidence or better for one-tailed tests.

The variables for turnovers (giveaways and takeaways) played no statistical role in predicting either the line or total points. The number of (expected) turnovers in a particular game is an ambiguous determinant of points scored in a particular game, and we found no statistical role in any of the 2010 regressions.

CONCLUSIONS

Employing explanatory variables known prior to game time, this research presents successful equations for predicting the betting line on individual NFL games. Across two seasons, we are able to explain two-thirds of the variance in the betting lines for individual games. Importantly, we make no allowance for injuries, weather in outdoor games, or any other variables of that sort. The regressions for the line are very consistent across the two years, with the exception of a reduced estimate of the effect of playing "indoors." The regressions for actual points scored, an admittedly difficult variable to predict, explain a much smaller portion of the variance of that variable.

The data collected for the 2010 season will be employed in a future project to predict scoring for the visiting and home teams separately, and attempting to use those predicted totals to test the efficient markets hypothesis for the wagering lines for NFL games.

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LEADERS' SKILL OF INNOVATION AND RELATIONSHIP TO PREFERENCES FOR HANDLING RISK & UNCERTAINTY

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ABSTRACT

Intrapreneurship, or entrepreneurship inside of an organization, has had a rich history in literature (Pinchot, 1984). The qualities (Honig, 2001; Seshadri & Tripathy, 2006; Amo & Kolvereid, 2005,) and context (Feyzbakhsh, Sadeghi & Shoraka, 2008; Willison, 2006; Amo, & Kolvereid, 2005; Koen, 2000) supporting intrapreneurs in an organization have been well studied. A goal of intrapreneurship is to increase the innovativeness of organizations (Luchsinger & Bagby, 1987). Given that this research and call for intrapreneurs began in the 1980s, and the high amount of innovation that has been incorporated into organizations (especially technological innovation, Howell & Higgins, 1990), it seems that acting entrepreneurially within an organization is useful for organizations. This paper examines the relationship among a leader's style with regard to innovation, risk, and product innovation. The questions and provides an answer based on several organizations found in the southwestern part of the United States.

INTRODUCTION

Entrepreneurship inside of an organization or intrapreneurship has been around for over a quarter of a century (Pinchot, 1984). Several scholars have looked at the qualities of a successful entrepreneur (Honig, 2001; Seshadri & Tripathy, 2006; Amo & Kolvereid, 2005,) and the context that supports having intrapreneurs in an organization (Feyzbakhsh, Sadeghi & Shoraka, 2008; Willison, 2006; Amo, & Kolvereid, 2005; Koen, 2000). The general goal of implementing intrapreneurship was to increase the innovativeness of organizations enabling them to be successful (Luchsinger & Bagby, 1987). Given that this research and call for intrapreneurs began in the 1980s, and the high amount of innovation that has been incorporated into organizations (especially technological innovation, Howell & Higgins, 1990), it seems that acting entrepreneurially within an organization is useful for organizations. Indeed, one model of leadership and managerial behaviors, the competing values framework, has being innovative as a descriptor of a master manager (Quinn, Faerman, Thompson, & McGrath, 2003).

Have the behaviors of the intrapreneur migrated into our expectations of what it means to be a leader within an organization? If the answer to this question is yes, then there are a number of interesting questions to ask. Are there any differences between a leader's skill set with regard to innovation and, say, a professional's approach to innovation? Intrapreneurs are risk takers. When we look at leaders with a skill set related to innovation, are they also risk takers? Are there any differences between the risk taking preferences of a leader with high innovation and those with low innovation? This paper examines these questions and provides an answer based on several organizations found in the southwestern part of the United States.

We begin by detailing the qualities of innovation as a skill of a master manager as proposed by the competing values framework. We follow this by reviewing some of the qualities of an intrapreneur especially those related to risk and innovativeness. A framework for risk orientation called entrepreneurial conation is summarized from the literature. After detailing our hypotheses, we present our methods and results. We conclude with a discussion about our findings and their implications for our understanding of leaders, organizations, and intrapreneurs.

LEADERS & INNOVATION

We choose to use the term "leaders" to refer to those organizational employees that are in formal positions of leadership or management no matter the level in the hierarchy that they are populating. While we acknowledge that there are those who will argue that managers and leaders are not the same thing (beginning with Zalenik, 1977), we are taking the balanced perspective that argue they are at least complementary (Bass, 1985, Kotter, 1990, Black, Oliver, Howell & King, 2005). As a reflection of this perspective and explicitly building on existing literature, we will base our summary of leaders and innovation on the competing values framework (CVF) (Quinn et al., 2003). We chose this framework because it explicitly includes elements that may traditionally be associated more with one or the other between leader behaviors and managerial behaviors.

CVF assembles eight managerial roles that a master manager can successfully handle even when they may cause cognitive dissonance. The four roles are: Mentor, Facilitator, Producer, Director, Coordinator, Monitor, Broker & Innovator (Quinn et al., 2003). Subsequent scholars have demonstrated the validity of the operationalization (Denison, et al., 1995) and found that effective leaders are associated with higher skill levels in the behaviors associated with each of the roles (Hart & Quinn, 1993; Hooijberg, 1996). Thus, part of being one of the best managers is being innovative which is also integral to being an intrapreneur.

Other common attributes between managers and intrapreneurs include having effective communication skills (presentation, oral and written), good organizing skills, sound interpersonal skills, quick responses but being goal oriented and resourceful (Davis, 1999). Personally, both manages and intrapreneurs are smart high achievers who are approachable optimistic and resourceful (Davis, 1999). An interesting attribute in the light of more recent corporate scandals is that both are ethical (Davis, 1999). Perhaps not so surprising given the most recent recession is that both can handle stress and are willing to take well-calculated risks (Davis, 1999).

INTRAPRENEURS

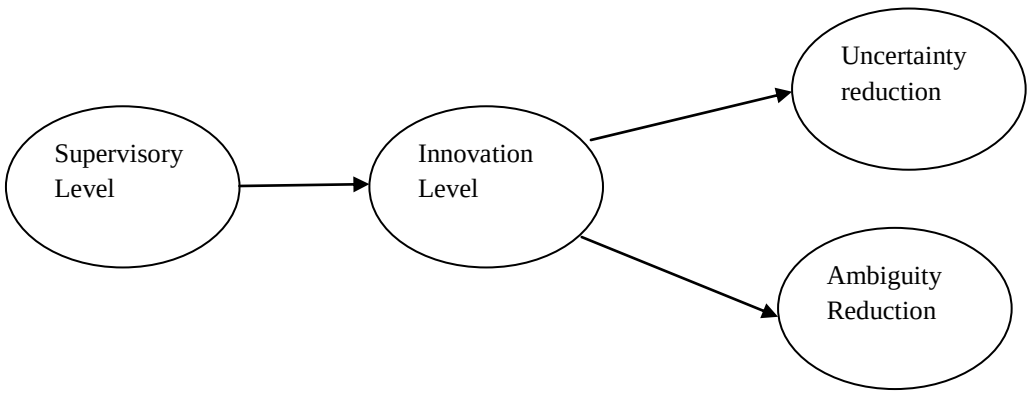
While in 1999 there was a lot in common between leaders and intrapreneurs, at that time some scholars also found differences. Unlike administrative managers, intrapreneurs tend to be visionary with a sense of urgency and unconventional innovative with creativity and resilience (Davis, 1999). Added to the previous list was being sensitive to the current corporate culture with respect to starting new ventures and establishing a supportive network within the corporation (Koen, 2000, Honig2001). Because of the focus on innovation within a corporation, the intrapreneur is expected to have creativity, as mentioned above, but to also bring the project to a successful conclusion (Luchsinger & Bagby, 1987). The intrapreneur tends to problem solve

to effect change and innovation (Luchsinger & Bagby, 1987) in a social environment and thus also has the potential for high levels of ambiguity (Czernich, 2003).

Even more recently, this idea of intrapreneurs being idea generators and nurturers to successful implementation is confirmed (Seshadri & Tripathy, 2006). When we realize that contrary to most risk adverse perspectives of established organizations, the intrapreneur is expected to promote risky ideas that may only tangentially relate to the firm's established base, it is evident that the intrapreneur must be not only persuasive but dedicated and persistent. This persuasive aspect is linked to the intrapreneurs' ability to frame the entrepreneurial idea so that is can be accepted by the corporation (Czernich, 2003). This does not mean that the ideas being promoted or the proposed new venture is certain to succeed; on the contrary, they are highly risky and often fail (Czernich, 2003). Thus, the ability to take action in the face of risk is important and integral to the intrapreneurial focus.

Intrapreneurs were, then, organizational members who arise from the general population of employees in response to corporate innovation initiatives (Amo & Kolvereid, 2005). They are given a corporate culture in which they engage in relatively low risk entrepreneurial activity since they have room to fail but still remain employed (Seshadri &Tripathy, 2006). Since the conditions which sparked the interest in intrapreneurship have not dissipated but rather intensified (global competition, ongoing technology innovation and so forth), innovation behaviors found in both intrapreneurs and leaders remain an important area of research.

Model



INNOVATION AND LEADERS

Some have found that managers in the United States of America have been shown to be a laggard in innovation (Latta & Twigg, 2008). This lag suggests either markets are not as receptive to U.S. innovations as business leaders might think, transformational leaders are not as effective as thought in fostering successful innovation, or the leaders just don't have innovation skills. A leader tends to engage in coaching, mentoring, and facilitating the work of others; whereas, a manager engages in planning, directing, organizing, and controlling (Bass & Riggio, 2006; Twigg, 2008). Neither of these styles of leadership explicitly includes a focus on innovation.

In the classical view, organizational innovativeness includes two sources; innovation (Baker & Sinkula, 2009) and product innovativeness (Wang & Ahmed, 2004) as strategies to improve an organization's effectiveness. Intrapreneurs, on the other hand, are responsible for much larger scale innovation (Czernich, 2003). Innovation requires a break with in status quo of the culture, processes, developments, and delivery of products and services (Baker & Sinkula, 2009) to have any success in the innovative initiative. Leaders thus need to be supportive of divergent thinking. Supporting change and innovation thus becomes an important part of the leadership's tool set when striving for increased innovation within a firm.

Therefore, if we expect that the innovative expectations embodied by an intrapreneur have become embedding in the general construct of what it is to be a leader; then we anticipate that it is found in this dimension of innovation as posited by the competing values framework. By definition, a top performing manager will have high levels of innovation behaviors; however, we would anticipate that in general, given the current conditions faced by U. S. businesses that a transactional leader (one with skills high in planning, directing, organizing and controlling) will also have relatively high levels of innovation skills.

H1) *Individuals in a leadership position with high transactional skills will have higher innovation skills than those with high transformational skills.*

RISK TAKING AND LEADERS

Innovation can be defined as an idea, practice, or object viewed by a market, a business, or an individual as new. Innovation implies risk. A transformational leader challenges followers through intellectual stimulation to challenge assumptions and take risks (Bass & Riggio, 2006; Judge & Piccolo, 2004). Questioning the status quo is a basic prerequisite for creativity and innovation. Being willing to put something out for the market to judge is an example of risk taking. Addressing a problem in a new way is another example.

Rogers (2003) postulated that there are individual members of a social system who are predisposed to be innovative and will adopt an innovation sooner than those who are not. The tendency of members of a social system to adopt innovations was classified into five categories according to the amount of time passing from innovation availability to adoption: 1) Innovators (2.5%), 2) Early Adopters (13.5%), 3) Early Majority (34.0%), 4) Late Majority (34.0%), 5) Traditionalists (16.0%). The proportion of members of a social system falling into each of these categories appears in parentheses above. Note that Rogers' label for the fifth category is actually Laggards, but Traditionalists has been used in prior research at the behest of research participants (Latta & Twigg, 2008). At one end are the risk takers or pioneers who adopt innovations early; while, at the other end are those who resist adopting innovations for a long time, if they ever adopt.

These categories of market adoption have a mirrored side with the entrepreneurial endeavor offerer (typically an entrepreneur but in this instance the intrapreneur and by extension the leader) willingness to proffer market innovations called entrepreneurial conation (Berry, 1996; Black & Farias, 2005). Conation means the volition to take action (Berry, 1996). Entrepreneurial conation means the volition to take entrepreneurial action. This latter category is based on each entrepreneurial entity's action taking preferences with regard to ambiguity and uncertainty (Black & Farias, 2000). At the market level, an investigation of new businesses reported in popular entrepreneurial magazines like *Inc. and Entrepreneur* showed that the

majority reported at this national level were oriented to preferring to deal with high levels of uncertainty across all levels of ambiguity.

Ambiguity and uncertainty were conceived of as separate dimensions. One dimension had ambiguity reduction as a preference and the other had uncertainty reduction as a preference (Black & Farias, 2000). Those with high levels of ambiguity reduction preferences are those that respond favorable to the idea of "defining the problem or market structure". Moderate levels are those that respond to "modify or redefine the problem or market structure". Those with low preference levels of ambiguity reduction prefer to "adopt the existing problem or market structure". Those three levels with uncertainty reduction have the corresponding orientations of "proactively seek ways to solve the problem", "react to other's attempt to solve problem", "maintain the status quo". These in combination fit nicely with Roger's five categories but are at the individual level. At the market level, an investigation of new businesses reported in popular entrepreneurial magazines like *Inc. and Entrepreneur* showed that the majority reported at this national level were oriented to preferring to deal with high levels of uncertainty across all levels of ambiguity (Black & Farias, 2005). Local organizations found from examining local newspapers were found in all levels of uncertainty reduction preferences and low to moderate levels of ambiguity reduction but rarely found in high levels of ambiguity reduction (Black & Farias, 2005).

Recognizing that many organizations that supported intrapreneurship were also larger national and international organizations, we expect that our expectations of leaders would more closely reflect those found in these larger organizations. Thus, we believe that leaders with higher levels of innovation will have high levels of uncertainty reduction but a variety of ambiguity reduction levels.

> **H2A)** *Leaders with high innovation scores will also prefer taking action in conditions of high uncertainty (high uncertainty reduction scores of 5 or greater).*

Alternatively, those new ventures reported in national magazines may have been chosen for their "radical" nature. In which case, there may be a pattern that more closely resembles those found in local publications. In this case, we expect that the main pattern would be a lack of high ambiguity reduction preferences.

> **H2B)** *Leaders with high innovation scores will have a pattern of preferring to take action in conditions of low to moderate levels of need for ambiguity reduction (average of low and moderate ambiguity reduction preference scores that are 5 or higher).*

METHODS & RESULTS

Sample

Leaders from a county government, the nursing division of a hospital, and from privately owned utilities in the southwestern part of the United States were surveyed from 1999 through 2001. There was a response rate of 84.69% with 83 of 98 solicited questionnaires returned.

Procedure

A pencil and paper questionnaire was given to selected participants to complete during work hours or an emailed link to the site where the questions are be located was used to distribute the questionnaires. Completed questionnaires and paper versions of declined to participate were gathered in a locked submission box located in the staff cafeteria areas of the larger organizations. The leaders of smaller organizations were emailed the link to the online questionnaire. Submissions were dropped directly into the database upon completion of a section of the questionnaire.

Variables

The main variables included in the model were measured with well established multi-item scales that exhibited good psychometric properties (Dennison, Hoojberg & Quinn, 1995; Black & Boal, 1997; Black & Farias, 2005). Responses to all items were made on 7-point Likert scales (1=strongly disagree to 7=strongly agree) or converted to a 1 to 7 scoring. This means that a neutral response was possible.

Leadership position. This questionnaire was only administered to those the organization had identified as being supervisors, managers or administrators.

Transformational Leaders. These leaders are defined as those with high leadership skills in the competing values framework of Mentoring and Facilitating (which include coaching behaviors). This will include all leaders with a score of 5 or better on either mentoring or facilitating scales.

Transactional Leaders. These leaders are defined as those with high leadership skills in the competing values framework of producer, director, coordinator and monitor. Again, given the tendency to award one's self with credit, the average score was above 5 so we used those who scored 1 standard deviation above the mean for each area. This resulted in 10 transactional leaders identified.

Innovation. This variable was measured by the innovation scale from the competing values framework. The scale has three subscales: leading change, leading innovation and implementing change.

Uncertainty reduction. This variable was measured by the entrepreneurial conation preference scale. It consists of the identification of the preference to handle three business issues with respect to simply solving well-understood issues at a project, strategic business unit, or company level.

Ambiguity Reduction. This variable was measured by the entrepreneurial conation preference scale. It consists of the identification of the preference to handle three business issues with respect to making sense of or engaging in business activities in spite of a lack of full specifications at a project, strategic business unit, or company level.

Descriptive Statistics

Table 1 shows basic statistical information about the variables. This particular sample has more people scoring high on transformational leadership skills than on transactional leadership skills either in

an absolute sense or in a relative sense. There appears to be sufficient variation to support additional analyses.

Table 1: Statistical Profile of Variables			
Variable	**Number of Responses**	**Mean**	**Std Dev**
Transformational Leadership Scores	87	5.44	0.86
Transactional Leaders Scores	87	5.07	1.11
Relative Transformational Leaders	75	5.47	1.05
Relative Transactional Leaders	12	5.33	1.87
Innovation	87	5.26	0.89
Uncertainty Reduction Preference	87	4.59	1.74
Ambiguity Reduction Preference	87	4.59	1.73

Hypothesis Testing

There will be more than one testing method used for the hypotheses. Each hypothesis and its testing method are presented next.

HYPOTHESIS 1. This hypothesis calls for looking at transactional leaders and transformational leaders and comparing their associated innovation scores. The innovation score for transactional leaders is proposed to be higher than the innovation score for transactional leaders. This will be tested in 2 ways. Those leaders with transactional scores above a 5 will be groups and the average of their innovation scores will be taken. This average will be compared to those leaders with transformational scores above a 5. These two innovation averages will then be compared using a t-test.

HYPOTHESIS 2A. In HYPOTHESIS 2A, we are looking to see if those with a high innovation scores also have high scores for high uncertainty reduction preferences. We begin by identifying all those with high innovation scores (i.e. a score 5 or higher) and look to see if the average score for high uncertainty reduction preference is also 5 or higher. We then look at the block of individuals with innovation scores less than 5 and determine if their uncertainty reduction preference score is also less than 5.

HYPOTHESIS 2B. In HYPOTHESIS 2B, we are looking to see if those with a high innovation scores also have high scores for high ambiguity reduction preferences. We begin by identifying all those with high innovation scores (i.e. a score 5 or higher) and look to see if the average score for high uncertainty reduction preference is also 5 or higher. We confirm this by then looking at the block of individuals with innovation scores less than 5 and determine if their uncertainty reduction preference score is also less than 5.

Results

HYPOTHESIS 1. The block of leaders with ability scores above 5 on transactional leader skill sets have mean score of 5.7 with a standard deviation of .49. There were 46 of these leaders. Their mean on innovation skills was 5.78 with a standard deviation of .5.

The block of leaders with ability scores above 5 on transformation leader skills have a mean score of 5.79 with a standard deviation of .55. There were sixty-three of these leaders. Their mean on innovation skills was 5.61 with a standard deviation of .57.

When a t-test is done that is single tailed and comparing two samples with unequal variance, we get a 0.11. This is just shy of the traditional cut off of .10. Thus there is an 89% chance that the two means are indeed different. We find weak support for Hypothesis 1.

HYPOTHESIS 2A. The results for the second set of hypothesis testing are found in Table 2. LIL stands for low innovation leaders and is information from the block of leaders with innovation scores less than 5. HIL stands for high innovation leaders and is from the block of leaders with innovation scores of 5 or greater. Note that for low innovation leaders conditions needing a moderate level of either uncertainty reduction or ambiguity reduction are preferred.

Table 2: Means and Standard Deviations by Block

	Conation								Leader Skill
	Average Low & Moderate	**ARLow**	**AR Mod**	**ARHigh**		**URLow**	**URMod**	**URHigh**	**Innovator**
LIL: Mean	5.08	4.77	5.25	4.66		4.75	5.32	4.70	4.01
LIL: S- Dev	1.38	1.79	1.49	1.76		1.99	1.44	1.79	1.17
HIL: Mean	4.39	4.03	4.74	4.74		4.22	4.01	5.29	5.71
HIL: S-Dev	1.16	1.82	1.29	1.61		1.77	1.46	1.59	0.50

For high innovation leaders, a high level of uncertainty reduction is preferred but either a high or moderate level of ambiguity reduction is desired over low levels. The preference for the moderate levels of ambiguity versus low levels is statistically different (t-test = .007 for single-tailed paired test). The preference for high levels of ambiguity versus low levels is also statistically different (t-test = .02 for single-tailed paired test). Now, we turn to the hypothesis testing.

The block of leaders with high innovation scores (those 5 or higher) have a mean innovation skill score of 5.71 with a standard deviation of .5. Their preference score for high levels of uncertainty reduction is 5.29. This provides partial support for HYPOTHESIS 2A.

Next, we examine the high level of uncertainty reduction preferences for those with low innovation scores. This block of leaders has a mean innovation skill score of 4.31 with a standard deviation of .75. Their average preference score for taking action in conditions requiring high levels of uncertainty reduction is 4.78. This also provides support for Hypothesis 2a.

We now look at the single-tailed t-test for these two means and get a t-test of .11. Again this is just shy of the .10 strong confidence of difference cutoff. This measure provides weak support for there being a difference in the means between the two groups. However, given this weak support for differences and because both groups of leaders provide support for HYPOTHESIS

2A, support is found for HYPOTHESIS 2A. Next, we look at HYPOTHESIS 2B which focuses on a leaders' orientation towards ambiguity.

HYPOTHESIS 2B. The same two blocks of leaders are used for this hypothesis test as for HYPOTHESIS 2A test. The average score for preferring the two preferences for using lower levels of ambiguity reduction skills is 4.39. This is below the 5 cut off point for high levels of preferences. The preference for using high levels of ambiguity reduction skills is 4.74 which is also below the 5 cut off for high preferences. This does not provide support for a choice among ambiguity preferences for those with high innovation skills. The other block of leaders must also be assessed.

For the block of leaders with lower innovation scores, the average score for preferring the two preferences for using lower levels of ambiguity reduction skills is 4.77. This is below the 5 cut off point for high levels of preferences. The preference for using high levels of ambiguity reduction skills is 4.62 which is also below the 5 cut off for high preferences. This does not provide support for a choice among ambiguity preferences for those with low innovation skills.

Since neither the high innovation skill leaders nor the low innovation skill leaders had a high preference for using ambiguity reduction skills in contexts that only need it at a low or moderate level and also did not show a strong preference for contexts where high levels of ambiguity reduction skills would be needed, HYPOTHESIS 2B is not supported. There doesn't appear to be any pattern of preference in dealing with ambiguity reduction based on innovation skill levels of leaders.

DISCUSSION & CONCLUSION

We began this paper by noting that some have found that innovation is lacking in US firms. We explored the link between innovation and transactional or transformation leadership behaviors. We found that those with high skill levels in transactional leadership behaviors were slightly more likely to have high levels of innovation leadership skills as suggested initially by Latta and Twigg, 2008. We also found that those with high innovation skill sets no matter if they were from a transactional perspective or a transformational perspective preferred taking action in high uncertainty conditions but really had no preference with respect to ambiguity reduction conditions.

When conditions for a firm are relatively known or knowable, leaders with high innovation skill sets are comfortable taking action. However, when those conditions become hypercompetitive or in startup conditions of a new industry, the managers with higher innovation levels in this study were not so eager to take action.

LIMITATIONS

This study reports on leaders from the southwestern part of the United State from industries either highly regulated or governmental in nature. It may be that this set of leaders are those that have these particular relationships between transaction and transformational leadership skills and innovation skills. It may also be that they are the only ones with relationships between the innovation skills and uncertainty reduction or ambiguity reduction preferences. Further research is needed to examine these current boundaries.

CONCLUSION

We found weak support for our first hypothesis that transactional leaders might have stronger innovation skills than transformational leaders. We found support for our hypothesis that leaders with strong innovation skills will also have high preferences to use uncertainty reduction in conditions of high uncertainty. We did not find support for a link between preference for ambiguity reduction use and high innovation skill levels.

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Customer Relationship Management and Intercollegiate Athletics: Opportunities and Benefits for Smaller Institutions

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Abstract

Customer relationship management (CRM) strategies have been proven of significant benefit to sports teams and organizations in their attempts to attract and retain fan loyalty as well as maximize profits. Single game and season ticket sales, merchandizing, sport and program information and communication, and athletic giving can each be increased through the adoption and utilization of CRM. Although primarily leveraged by professional sports teams and some larger (NCAA Division I) university programs, CRM strategies can also be of direct and considerable benefit to smaller institutions.

Customer Relationship Management

Customer Relationship Management or CRM, is a business enhancement strategy designed principally to reduce costs and increase profitability by establishing and building upon customer loyalty. CRM brings together information from various data sources within an organization (and where appropriate, from outside the organization) to give one, clear view of each customer in real time (Reinartz, et al, 2004). This allows employees who work directly with customers, in such areas as sales, customer support, marketing, and athletics, to make quick yet informed decisions on everything from up-selling and cross-selling opportunities to target marketing strategies and competitive positioning tactics.

Once thought of only as a business marketing software application, CRM has evolved into a customer-centric philosophy that can permeate an entire organization. There are three key elements to a successful CRM initiative: people, process, and technology. The people throughout a company-from the CEO to each and every customer service representative need to embrace and support CRM. An organization's business processes must be reengineered to support its CRM

initiative, often from the standpoint of, “How can this process better serve the current and potential customers?” Organizations must select the right technology to drive these improved processes, provide the best data to the employees, and be easy enough to operate. If one of these three foundations is not sound, the entire CRM structure and its potential benefits will be compromised.

Customer relationship management is also a strategy used to learn more about customers' needs and behaviors in order to develop stronger relationships with them (Verhoef, 2003). Good customer relationships are critical to business growth and success. There are many technological components to CRM, but considering CRM in solely technological terms is problematic. The more useful way to think about CRM is as a process that will help bring myriad pieces of information about customers, sales, marketing effectiveness, responsiveness, and market trends.

CRM is best suited to help businesses use people, processes, and technology to gain insight into the behavior and value of customers. This insight allows for improved customer service, increased call center/telemarketing efficiency, added cross-sell and up-sell opportunities, streamlined sales and marketing processes, improved customer profiling and targeting, reduced costs, and increased share of customer and overall profitability (Chen, I.J, 2003).

CRM and Athletics

Street & Smith's Sports Business Journal estimates that the total sports industry is a more than $213 billion market including advertising, equipment, retail trade, and travel, to name a few categories. By comparison, banking is a $266 billion business and transportation is a $256 billion enterprise (Brown, 2003). Finding more effective and efficient ways to leverage fan loyalty helps sports teams, both professional and amateur, increase market share, and thus, maximize profits.

A national or conference championship, winning season, or a star athlete are often enough to maximize season ticket sales or draw a packed house, but most sports organizations and athletic departments are finding that they need help to keep filling the stands when team performance is less than stellar. In these tough times its takes more than foam fingers, coupons, or other promotion gimmicks to gain and retain fan loyalty. This is where customer service relationship strategy is most effective.

One of the principle goals of a sport organization is the generation of revenue. A sports organization can achieve growth through many different revenue streams. Among these revenue streams are multi-media rights, donations, ticket sales, television contracts, apparel, and concessions. The athletics conference or league typically controls television revenue, if there is any such revenue realized. Many schools outsource multi-media rights, concessions, and apparel sales to a third party. Ticket sales remain the dominant revenue stream over which a sport organization has direct control. As such, these organizations are consistently striving to increase season and single game ticket sales. Ticket sales also account for the dominant portion of both professional sport franchises and college athletic department budgets. In many cases, these sport organizations must handle information regarding thousands of season ticket and individual games ticket sales purchasers. Many have chosen to handle this information using database marketing techniques. Over time, CRM strategies have emerged to aid in this process.

CRM and Professional Athletics

For many professional teams, including the Arizona Diamondbacks, the Carolina Hurricanes, the Phoenix Suns, the Pittsburgh Pirates, and the San Diego Padres, the key strategy to obtaining and keeping fan loyalty is driven by customer relationship management. Many

teams have leveraged this technology to the benefit of not only fans, but for their bottom line – market share and organizational profitability.

In 1995, the San Diego Padres were one of the first professional teams to implement a CRM program and was the first to start a fan-loyalty rewards program. Since then, attendance has not dipped below 2 million per year, according to the Padres' manager of fan programs and new ball park technology. The Padres also have seen the average number of games attended by loyal fans increase to 10.7 per season in 2002, up from 6.5 in 1995. Recent trends indicated a similar growth trajectory.

As the economy began to decline from the recessions of the late 2000s, Padres' fans became the biggest fair-weather fan base. The novelty of Petco Park wore off and so did attendance but important information is gained through CRM about the fans that do show up to the games (Ball, 2010).

Through its fan/customer reward program, the Padres give fans a card to swipe at stadium kiosks. Those fans earn discounts on future tickets, food, beverages, and items from the team store. Discounts are dependent upon points accumulated by game attendance and specific purchases. In return, the Padres get detailed demographic information about fans, and can track spending habits at the game. As a result, the organization says it is able to deliver a more enjoyable fan experience, while attempting to increase its revenue.

The Padres database has approximately 185,000 members. Via its data collection strategy, the Padres also found that a significant percentage of its 681,000-strong fan base is just over the border, in Mexico. The Padres now offer a special reward card for residents of Mexico, and target Hispanic fans on both sides of the border with radio and television campaigns. On

average, the Padres get a 6 percent return for each email campaign it offers, which is twice what the team experienced using direct mail.

Although CRM is helping to increase revenue for some teams, many of those efforts begin strictly as a service to fans. Recently, the Suns began allowing its ticket holders to resell tickets via the team's Web site, where the team sold 60 percent of its mini-package plans in 2003.

Initially, some organizations are seeing only gradual changes, but for the Chicago White Sox implementing CRM has dramatically changed the way the team does business even though they have to continue to look up to their cross-town rival Cubbies. Now they are generating birthday, anniversary, and holiday cards that are automatically sent to season ticket holders.

The White Sox (who rank 17th in MLB attendance) use CRM in community relations, marketing, and suite-holder relations departments, and manages season ticket holder relationships by using CRM to transfer information stored in the Ticketmaster ticket sales system. Today there are more than 30,000 records in the main ticket sales database, and more than 100,000 in the direct mail database. The Sox' inbound and outbound call teams use these databases to solicit season tickets, group sales, company outings, suites, and events for the stadium party areas.

The CRM system also helps keep track of the thousands of lost items that are left at the stadium every year. Their CRM system now allows them to track the date an item was found, what it looks like, and where staff picked it up. The items are then labeled and stored in a bin. The White Sox estimate that since CRM deployed, their organization has been able to return 50 percent more items than in previous years.

The Carolina Hurricanes are also finding creative ways to capitalize on CRM. The Hurricanes are using wireless technology to boost fan interest in the National Hockey League

team. The Hurricanes (ranked 20th in NHL attendance) and the RBC Center are billed as the "home of wireless hockey." The program comprises wireless access to the team's Web site and an interactive wireless hockey game played during the live games from fans' personal PDAs or cell phones. Currently, Hurricane staff are working on bringing wireless prepaid parking and wireless order placement for in-seat food and beverages to the stadium and team.

Most organizations are willing to share their CRM strategies, because other sports franchises are not really their rivals for fan dollars. In fact, most cited television, movies, dining out, and other forms of entertainment as the biggest competition to filling the stands. Still many teams have yet to recognize and appreciate the unique fan and customer leverage that CRM can provide.

Benefits of CRM to College Athletics

CRM helps colleges and universities build databases about their customers that describe relationships in sufficient detail so that sales personnel can access that information to potentially match fan and customer needs with products offered, remind customers of specific ticket offers, and help the sport organization track what their customers have purchased. For most sport organizations, it starts with some simple questions: how do we increase fan attendance and revenue with the given budget that we have? Are we selling and servicing as efficiently as possible? How are we tracking sales leads? How can we convert single game ticket purchases into season ticket holders? How can get those individuals holding season tickets or purchasing single game tickets in one particular sport to purchase tickets for other sports? How can we increase fan/customer purchases of athletics and/or university/college apparel? And finally, how

can we increase the number of single game and season ticket holders that contribute financially to the University's athletic department?

There are a number of important goals that would appear most appropriate for CRM utilization in college athletics. These include: identification of profitable/repeat customers; understanding online/offline customer behavior; increasing sales and affinity though real-time, one-to-one marketing campaigns; helping retain the "right" customers; helping increase fan loyalty and affinity; maximizing overall revenue generated per customer through all channels; and targeting and increasing value for sponsors through data mining.

Without question, the first step to increasing the fan base and elevating fan/customer loyalty is to understand more fully the needs and purchasing behavior of customers. This knowledge base will drive the strategies by which institutions move to address the increased ticket sales, loyalty, and economic activity.

CRM Utilization by NCAA Division I Institutions

Arizona State University (ASU) was the first major athletic department to embrace and successfully implement this strategy. ASU's CRM program, called the Devil's Domain (after the school's Sun Devil mascot), includes a Web site, a rewards program, screensavers with customized messages, discounts at the team store and on future ticket purchases, and coupons for free or discounted food and beverages.

A number of other large (NCAA Division I) colleges and universities constitute examples of how they are leveraging the technology to their advantage in value and profit maximization. Two are particularly noteworthy. In early 2011, the University of Denver partnered with a major CRM firm to implement ticketing, marketing, and fund raising solutions in their athletics

department. DU will be able to more efficiently cultivate new donor relationships, while providing important opportunities for online fundraising as well. DU plans to leverage the CRM system to help fuel athletic donation revenues as well. The University of Minnesota also has adopted a fully-integrated CRM focused on ticketing, game day information, fan/customer appreciation, and fundraising. The school's newly developed online portal will benefit fans directly with the following added features: complement the existing University athletics brand; integrated game day information; full access to manage their account online; full history of past purchases and donations; recommended purchases based on consumer behavior; and a full calendar listing of Golden Gophers games and events.

Given the sheer size of current and potential fan/customers for athletics programming at the larger colleges and universities, the scope and complexity of their administrative operations, and the potential economic benefits derived from increased attendance, merchandizing, and personal and corporate fundraising, affords the opportunity and benefit of employing full-scale CMS applications. However, the cost associated with software procurement, modification, and implementation is non-trivial, often extending into the several hundred thousand dollar range.

Potential Leverage by Smaller Institutions, Conferences, and Divisions

Many smaller institutions, conferences, and divisions simply do not have the critical mass in existing or potential fan base, nor do they have the resources (people, time, and money) to adopt, plan, and implement a comprehensive customer relationship management system. For many smaller institutions, individual and season ticket sales, apparel sales, individual giving to athletics (outright gifts, scholarships, operating support) are minimal.

Without question, an increase in the athletics fan/customer base as well as increase in existing fan loyalty can have significant benefit for the athletics department, the institution, and the communities in which the institutions are located. Many smaller institutions, both public and private, experience significant difficulty in balancing their athletics budget, particularly in tough economic times. Even modest increases in ticket sales can have a direct and positive impact on the athletic programs bottom line.

Increased season and individual game ticket sales can also have profound benefits on fan loyalty. When college athletic events become the marquee community "must attend" social events, the increased attendance leads to increased loyalty. Increased fan loyalty can and does result in increased giving to athletics departments and athletic scholarships. With even the most modest benefits derived from an appropriately leveraged Customer Relationship Management system, the local college team can become "our team".

There is a substantial research literature which clearly establishes the direct economic impact that college athletics has on its surrounding community(ies) (Lentz & Laband, 2008). Particularly during home athletic contests, there is a direct economic benefit derived by hotel and restaurant sectors from visiting athletic teams, season and single game ticket holders, and students. The service industry, including gas stations, convenience stores, and local retail have also been shown to benefit. This issue is particular important for athletics programs located at smaller institutions as well as those schools located in smaller rural areas, where the institution is often the single largest economic driver in the immediate area.

There are elements of CMS that can prove inordinately useful to smaller athletic departments and their teams, including but not limited to; increased fan/customer loyalty through email and SMS marketing; increased student moral (including prospective students); athletic and

institutional branding and image enhancement; cross-selling to increase recognition and attendance at other college or university sporting events; up-selling to increase fan/customer engagement from individual/season ticket holder to athletics donor; and the integration of an athletics CMS with existing college/university donor database.

Leveraging the Power of Customer Relationship Management

Clearly, one of the biggest benefits to CRM is the ability for the organization to capture and strategically leverage data about current and potential customers. Having access to data allows organizations to improve their customer response by offering personalized and customized marketing campaigns (Neslin & Shankar, 2009). Personalization focuses on building a meaningful one-to-one relationship with each customer by understanding their needs and helping them satisfy those needs efficiently and effectively. Customization makes customers stakeholders in the buying process by giving them a proactive role in the product selection process CRM allows sport organizations to "design, deployment, and evaluation of channels to enhance customer value through effective customer acquisition, retention, and development" (Nelsin, Grewal, Leghorn et al., 2006, p. 70). This has allowed the organization to own the information that it spends money to generate.

The process in deciding whether or not to invest in a CRM initiative is significant; therefore it is essential that the organization as a whole has bought in to the idea of database marketing. Unlike some departments that operate autonomously, a CRM strategy relies on numerous departments being able to communicate to be effective.

This commitment is more difficult at the collegiate level than in professional sport organizations. A professional sports organization, which by definition is a for profit firm, can

hire a long-term employee exclusively to oversee the CRM initiative. This is more challenging within a university setting, where typically employees are more transient in nature. The employee hired needs to able to bridge the gap between the technical aspects of the software and the sales related function of the system. In addition, the employee needs to have a key understanding of the main function of the system, which is to increase sales and service.

Ultimately, the organization needs to embrace an analytical approach towards attracting potential customers. The advancement of interactive technology, information processing, and CRM systems has made personalized marketing campaigns a tangible model for sport organizations to gain a competitive advantage in the marketplace. One-to-one marketing employs an extreme form of segmentation that creates a virtual dialogue where the customer touch points are two-way: I act and I expect the retailer to (re)act in a certain way (Adamson, 2008).

Implementing a CRM system is a long, potentially expensive, and challenging process. The organization needs to allot time to decide on a system, implement that system, and realize the rewards of this approach. Organizations need to take their time and make sure that they have a good understanding about the front end cost of CRM.

The marketing challenges that sport organizations face are still present. What has changed is the way these organizations choose to market their programs. Implementing a CRM strategy has allowed organizations to target specific fans within the marketplace that would be receptive to attending a specific sporting event. This allows them to better determine where to allocate their marketing dollars. However, a caveat is warranted; once a database is built, organizations can be tempted to overuse the system for short term sales gains by pushing too many offers and communication to fans (Knowledge, 2005).

CRM will also help sport organizations define their consumers' buying patterns. Understanding these buying patterns will be more important as organizations learn how to track the spending patterns of consumer auxiliary revenue such as concessions, parking, and merchandise. Thus, sport organizations can utilize CRM as the core database and move customers up the value chain.

Conclusion

Customer relationship management is an integral component of any administrative strategy in developing athletics program support and increasing revenues. From increasing ticket sales, merchandizing, and fan loyalty, to increased financial giving to athletics programs and student athletic scholarships, CRM can be of direct benefit to all sports programs, regardless of size, in obtaining their goals and objectives. The three most important considerations in adopting a CMS are the impact on people, processes, and technology.

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MELDING TEAM ROLES AND LEADER ROLES INTO ONE SKILLS DEVELOPMENT PROGRAM

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Abstract

Teamwork is widely employed in upper-level business courses as a way to accomplish large-scale projects while developing effective team skills that are thought to be important in the students' future work settings. Good teamwork requires the development of leadership skills and effective team member skills. This paper discusses a way to provide both leadership skill development and practice in developing effective team role skills concurrently. We detail the skills involved in both leader and team member roles in the context of an undergraduate Strategic Management class. We conclude with a report of the resulting quality of the team level deliverables.

MELDING TEAM ROLES AND LEADER ROLES INTO ONE SKILLS DEVELOPMENT PROGRAM

Team-based work is still widely used by United States firms [51]. However, firms faced with a hypercompetitive environment must act aggressively [14]. Such an environment does not allow firms the freedom to build effective and efficient work teams and leaders gradually. Furthermore, this type of environment also requires effective manager-leaders.

Work teams have uneven skill sets especially in team roles since they may have members with seniorities that range from a few months to many years [37]. By definition, novices have not yet acquired the tacit knowledge of how to perform effectively and efficiently [34]. However, experientially gained knowledge is often parochial and very context specific. Thus, even when put into situations that require teamwork and/or leadership, individuals may not acquire a sufficient understanding to move beyond a novice level. It is a mistake to assume that even team members who are professionals will know how to behave ethically within a team [17] let alone to expect that novices will understand how to play effective team interpersonal roles [37]. In fact, there is a recognized growing need for more leader development [16].

This recognition suggests that for individuals to acquire a good base of ethically rooted team behaviors and leadership behaviors, they need to be taught such behaviors and/or allowed to discover and practice them in an optimal learning environment [22]. Thus, it is not sufficient simply to put people into teams or even to engage in team building activities and expect good teamwork processes to happen. Indeed, individuals must be taught ethical team member behavior explicitly. Similarly, it is not sufficient merely to expose people to good leadership behaviors; people must be given opportunities to practice those behaviors themselves [22][34]. Finally, an explicit understanding of individual team roles has been shown to be a value added dimension when striving for higher team performance levels [37]. We conclude that there is a need to have training methods designed to develop positive and appropriate team and leadership behavior quickly.

When we can develop both an individual's leadership or managerial skill set and effective team skills through the same set of experiences, we decrease the amount of time required to prepare individuals for team membership and leadership. This paper discusses a way to provide leadership skill development and practice while developing an understanding of effective teams simultaneously. Our paper begins with role definitions for both leaders and team members. We then describe an integrated set of roles, which enables the development of both the team member and leader skills previously discussed. Next, we describe several contextual requirements for high performance for teams and leadership skill growth. Our focus then turns to the learning context, which is detailed sufficiently to be duplicated in either a training environment or an academic environment. We conclude with a report of these processes and their results at the team level.

ROLE DEFINITIONS AND PROCESS ISSUES

A role can be considered as an expected set of behaviors during an interaction with others [31][46]. Roles are referenced in the research on leaders and managers [4][40] as well as the research on teams [8][38]. Skillful role portrayal is a requirement of team action taking [31] and performance [45]. However, not all roles are equally important for performance [53].

A good approach is to focus initially on the most important roles whether they be leader roles [52] or team member roles [51]. It is important to recognize that differing perceptions of roles and expectations about those roles can impact the results of enacting those roles [19]. The timing of role assignment also may affect team performance [37]. Those caveats aside, we now turn to defining the roles used in this study.

Leadership Skills

Over the years researchers have examined a wide range of activities and behaviors of leaders and managers. In 1991, over 65 separately developed systems existed [24]. These different systems can classified as either task-focused or people-focused. Indeed, at that coarse level, we have confirmation that both task-focused and people-focused behaviors are critical for successful teams [11]. However, contemporary teamwork is not only focused on accomplishing today's tasks well, it is also concerned with improvement and innovation to determine future tasks that will need to be accomplished. It seems that increasingly teams are being asked to

solve problems that simply cannot be anticipated [20]. This observation suggests that focusing on innovation and creativity is also a needed class of leader behaviors. Thus, when choosing a set of leader roles upon which to focus, we can see that it needs to be comprehensive and include elements of innovation. One such comprehensive categorization of leader behaviors can be found in the competing values framework [6][12].

In the competing values framework, leaders are considered master managers if they possess high levels of skills in eight roles which require the ability to switch between foci. These roles are producer, director, coordinator, monitor, facilitator, mentor, innovator and broker. Each of these roles has associated behaviors and collectively they enable leaders to think differently about value creation, clarify purpose, integrate practices and lead people [12]. Each of these roles and their associated behaviors will next be described.

Producer According to Quinn and his colleagues [40], as a producer, a leader is expected to know how and be able to work productively, effectively and efficiently at a designated work task. The leader in a producer role can manage time and stress that arises during task accomplishment.

Director The director role of a leader [40] is a task-oriented role that requires a manager to decide the direction of the organization and to design the organization in a way that enables the pursuit of that goal. This role includes on the ability to plan how to accomplish the work flow at a macro level as well as the ability to organize people, including appropriate delegation.

Coordinator As a coordinator [40], a leader must understand the various functions found within a company and be able to manage across these functions. This requirement also encompasses the ability to discern the tasks needed to accomplish each part of the work while acting as a director and designing an effective task flow. It also means being able to manage all aspects of a project from task sequences, to required resources, to needed skills sets and to identification of those who possess the required skill sets. It, thus, requires that the coordinator be able to access , manage and employ the resources required to complete the project.

Monitor The monitor role [40] requires that a leader understand organizational performance criteria and be able to manage these organizational performance components when they conflict. It also means that the leader must understand team-level performance criteria and what is needed to meet those performance goals. Thus, this role includes monitoring the performance levels at a personal level.

Facilitator A facilitator [40] knows how to help teams form and become effective. One specific tool that is used by a facilitator is participative decision making so that individuals can understand goals and recognize how their efforts enable the achievement of personal, team and organizational goals. A facilitator is also responsible for controlling the level conflict so that it engenders creativity and productivity without sacrificing effectiveness.

Mentor To act as a mentor [40], a leader must understand him/herself as well as others. This role requires effective communication because using that knowledge and helping people, subordinates in particular, grow in knowledge, skills and abilities is an integral part of this role.

Innovator To enable innovations and to support the creativity needed in today's organizations, the innovative role [40] requires that the leader be able to live with and manage change. Change can consist of narrowing and polishing an existing skill set, or it can be novel and new which requires the ability to think creatively.

Broker The final role, broker [40], is a boundary spanning role wherein the leader builds or maintains his/ her power base within a company and/or the industry. The leader must be able to negotiate commitments successfully between his/ her team and the organization, between departments, and between the organization and outsiders such as customers or suppliers. The Broker role thus requires the ability to present ideas effectively to a variety of constituencies.

It is evident from the above descriptions that this set of roles addresses both task and people issues and includes issues related to innovation and future changes. Research has confirmed the usefulness of these skill sets by leaders for over 25 years and across a variety of organizations [12]. However, not all roles are appropriate all the time. Specific use of the roles may depend upon the style or personality of the leader [7] or

the quality of the followers [5]. This list is a good one from which to draw specific skills required for the development of novices. We next look at the roles found within effective teams.

Team Roles

Over 120 team member roles have been identified in the literature [38]. Mumford and his colleagues [38], in a meta-analysis on group roles, reduced these 120 to 10 distinct roles considered critical in effective teams. These roles were contractor, creator, contributor, completer, critic, cooperator, communicator, calibrator, consul, coordinator. Main characteristics of these roles will be discussed next.

Contractor Mumford and associates [38] indicated that this role is responsible for recommending and coordinating tasks needed to be accomplished. It includes setting deadlines and motivating members to meet them. The contractor also summarizes accomplishments and handles team meetings efficiently.

Creator The creator team role [38] helps to provide an initial structure to a team project. Those who play this role provide new ideas and share compelling visions of either the objective, the method for reaching the objective, or the strategy for accomplishing a task. The Creator can reframe things and provide a link to the big picture.

Contributor A contributor role [38] is critical in providing the necessary information or expertise to accomplish an assigned task. Contributors will be assertive in their areas of specialty and yet are willing to share their knowledge with the team. The Creator clarifies team member abilities, resources and responsibilities while sharing his/her background through self-promotion.

Completer When examining the completer role [38], the first thing that arises is the level of personal responsibility that this role requires. Performing this role means completing one's task assignment before the meeting in which it is needed and following through on commitments made to team members. It also includes helping others to complete their tasks and being willing to volunteer to take personal responsibility for additional needed tasks during the task work times or regular meeting times.

Critic Taking on the role of being the critic [38] may require opposing the majority opinion found in the team setting. The goal of this role is to be able to evaluate the team's ideas, decisions and results critically. For example, this role ensures that worst case scenarios as well as best case scenarios are considered during a decision making process. A team member functioning in this role points out flaws in thinking or assumptions and has the courage to present unpopular and negative information to the team.

Cooperator As a cooperator [38], a team member proactively acknowledges the expertise of others and supports them in their fields and directions. Once a team decision has been made, the cooperator supports it and enables the team to move forward. However, play this role does not mean that the individual does not provide input proactively even when it counters another, but it does mean that no animosities persist once a team decision is made.

Communicator In the communicator role [38], a team member helps to craft a team context or culture that supports collaboration. Being a Communicator requires being sensitive to the emotions and feelings of others, listening to the opinions or other contributions of others and using humor to defuse tense situations. Playing this role does not imply social engineering, but rather enacting collegial behaviors through normal communication processes [37].

Calibrator The calibrator role [38] requires that the team member be sensitive to team processes and act to keep these processes aligned with societal norms that enable the team to function. Assuming this role could include helping to set new team norms if dysfunctional processes have emerged during the project undertaken. The role may also require initiating conversations about power plays, tensions between team members, or personal behaviors that may be eroding the ability of the team to accomplish its tasks. This member helps to settle disputes and is capable of summarizing team feelings and soliciting feedback.

Consul The team member in the consul role [38] acts as a boundary spanner representing the team to outsiders. A Consul collects information and resources from relevant others and then shares those resources with the team. The person in this role also acts to present the team in a positive light in an attempt to influence others regarding the results of team's efforts and the success of the team. This member makes persuasive presentations and represents the team positively and with integrity.

Coordinator The final role presented by Mumford and his associates [38] is the coordinator. Players in this role do not exhibit the internal task-focused coordination of the contractor but rather they have an external coordination focus that requires interaction with constituents or users of the team's products/deliverables. This role involves soliciting timely feedback on the team performance and sharing it with the team.

Contractor, creator, contributor, completer & critic are task-oriented roles. These task roles facilitate the accomplishment of the team's main task. From the contractor who sets up the organization and structure to accomplish the immediate task to the critic who provides feedback on the quality of the deliverable, all contribute to a successful task outcome. Communicator, cooperator and calibrator roles are social roles which are used to help maintain the team's culture. Coordinator and consul are boundary-spanning roles that enable the team to communicate with and influence outsiders. Knowledge of the roles and their component behaviors helps to predict how well these roles were performed within a team whether the team was in an academic or work setting [37].

Integration of Leadership Behaviors & Team Roles

If, as stated in the introduction, our goal is to provide a simultaneous team and leader development program, then we need to ascertain three things: 1) What individual-level assumptions impact both role sets? 2) What specific skills support both leader-manager role development and team role development? 3) Are there any process issues that should be considered? We address these areas in that order below.

Individual Level Assumptions Both of the sets of roles above make some assumptions about the individuals involved in teamwork

(1) IS WILLING AND MOTIVATED TO DO THE WORK. The first assumption indicates that the individual is not lazy and is willing to work and will work when given the resources (Leader Roles: Producer; Team Roles: Contributor and Completer).). For academic work teams, the first assumption is often asserted both through the prerequisite structure of either the program as a whole (baseline academic potential tests such as SAT or ACT or GMAT at the masters level) or through course prerequisites and passing grade requirements for major courses within a program. For work teams, this assumption is asserted through periodic performance reviews of individual team members.

(2) KNOWS THE TASKS/WORK TO BE DONE AND HOW TO DO IT. The next assumption is that the individual knows what to do in a task or project effort, is able to do it, and has some sense of when it should be done (Leader Roles: Coordinator, Monitor; Team Roles: Completer, Critic).). For academic work teams, this assumption is often asserted through detailed assignments provided to the individual team members which describe the task to be completed and instructional planning which provides access and exposure to the tools to complete the respective assignment. For work teams, this assumption is asserted through the project management delegation and initial project management meetings.

(3) IS ABLE TO SHARE NEGATIVE INFORMATION SENSITIVELY. The individual is willing to share negative information or be the bearer of bad news. (Leader Roles: Monitor, Facilitator, Mentor; Team Roles: Critic, Coordinator). For academic work teams, this assumption is asserted through instructor-driven focus on sharing group progress issues and challenges for both the task and the process of the assignment, including in many cases team member evaluations, interim reports, etc.

(4) TAKES CORRECTION AND POSITIVELY RESPONDS. A fourth and final assumption is that individuals are willing to receive feedback whether positive or negative and take action to correct anything that is amiss (Leader Roles: Mentor; Producer; Team Roles: Cooperator, Completer).). For academic work teams, this assumption is verified through feedback on team efforts/reports and the individual and collective efforts to resolve problems. For work teams, this assumption is tested through repetitive project management

iterations in which individual efforts at change can be verified. These assumptions must be acknowledged and addressed for any developmental program to be successful. At the very least, there must be an assessment of the individuals to be involved in the program to determine if these assumptions hold true. It may be that steps will need to be taken to insure that the assumptions are met either before the actual developmental program or incorporated into the fabric of such a program.

Common Skill Areas Needed In addition to these general assumptions, some common general skills areas are also needed to support leader-manager role development and team role development. For each individual, in all team settings, these skills include the following:

1) KNOWS HOW TO PLAN. A clear and overarching assumption is that individuals know how to plan to accomplish a work task (Leader Roles: Director, Coordinator, Monitor; Team Roles: Contractor and Creator).

(2) KNOWS HOW TO ASSESS PROGRESS. Another basic skill is that the individual can see when milestones need to be assessed, can gather needed information and conclude whether progress is sufficient and appropriate (Leader Roles: Monitor, Facilitator, Mentor; Team Roles: Critic, Calibrator, Coordinator).

(3) ASKS FOR FEEDBACK AND PROVIDES FEEDBACK. A third basic skill is that the individual knows how to assess quality and to provide feedback and /or proactively solicit feedback. (Leader roles: Monitor, Mentor, Facilitator; Team Roles: Critic, Communicator, Calibrator, Coordinator).

(4) KNOWS TIME MANAGEMENT TECHNIQUES. A fourth basic skill is that the individual understands how much time a project will require and how to manage commitments and other work so that tasks are accomplished in a timely manner and with appropriate attention to priorities (Leader Roles: all roles; Team Roles: All task roles, Calibrator)

(5) BUILDS CONSENSUS. A fifth basic skill is that the individual knows how to gain agreement and generate motivation to accomplish team goals (Leader Roles: Facilitator, Director; Team Roles: Cooperator, Coordinator).

(6) PRESENTS PERSUASIVE ARGUMENTS. A sixth basic skill is that the individual knows how to present a persuasive argument to bring people to a particular perspective (Leader Roles: Broker, Innovator, Director, Mentor; Team Roles: Calibrator, Consul, Coordinator).

(7) COORDINATES AND PROVIDES RESOURCES. A seventh basic skill is that the individual can identify needed resources, determine where to obtain them, decide how to gain access to them and distribute them as needed (Leader Roles: Coordinator, Broker, Facilitator; Team Roles: Contractor, Coordinator).

(8) CONDUCTS MEETINGS. An eighth basic skill is that the individual understands effective meeting processes and especially how to focus attention and resolve process issues (Leader Roles: Facilitator; Team Roles: Contractor and Communicator).

(9) IS SKILLED IN WRITTEN COMMUNICATION. Given the importance of documenting progress, process, and ultimately project outcomes in formal written format, a ninth basic skill is that the individual can communicate effectively using non-oral communication techniques that are typically technology mediated (Leader Roles: Monitor, Mentor; Team Roles: Contractor, Creator, Contributor, Completer, Consul, Coordinator).

(10) SOLVES PROBLEMS COLLABORATIVELY. A tenth basic skill is that individuals need to know how to work collaboratively to solve unstructured and complex problems. (Leader Roles: Facilitator, Innovator; Team Roles: Critic, Calibrator).

While it is true that specific skill levels for certain work tasks need to be in place (as noted above under the assumptions for individuals), these skills identified above are those general skills that will be required of an individual in a leadership position or a team member position no matter the industry or company and regardless of the cultural setting within which the collaboration is occurring. . Thus, it should be possible to design a developmental program that can address all ten of these skill areas.

Process Issues Several process issues have arisen as researchers have examined either leadership behaviors or team behaviors. For example, the context in which a leadership development program is based matters [41]. Leadership training and development need to be focused on the strategic goals of an organization.

For problem solving and decision-making teams, McFadzean [35] suggested that the team's attention to certain tasks is an indication of its relative level development. A team in an initial developmental stage would focus its attention only on the specific task. The meeting process was the focus at level two. Level three shifted the team's focus to a team structure. After the designation of the team structure, attention turned to team dynamics. The fifth level was team trust. McFadzean [35] further suggested that variation in team performance is related to variation in the developmental stage of the team. Chong [15] empirically demonstrated that different team behaviors are required at different stages of team development in order for effective team performance to occur. Thus, when beginning work in a new team, time and exercises should be spent on corresponding skills of task knowledge, meeting process, team structure, team dynamics and team trust levels across time as the team develops.

Another team process issue that arises is the size of a team. For complex problems, Belbin suggests an ideal team size of 6 [8]. Like Quinn in the competing values framework regarding leader-manager skills [40], Belbin [8] believed that teams within which all roles were enacted were more effective in team processes. Others have not found this to be the case [49][37][15]. They acknowledge, instead, that an individual with a wider the range of skills is more adaptable in a group setting [37].

When considering how to work ethically within a newly formed team, it is suggested that the initial steps include having a team compact or contract [18]. This contract should include the following information: who will be involved; length of time the team will be in effect; how the team will work together; how conflict and/or poor performance on the part of an individual member will be handled; how individual work shall be saved and made available for the team; and how team work shall be archived and made available to the individual team members [18].

APPROPRIATE DEVELOPMENTAL TECHNIQUES

There is little research addressing the simultaneous development of leadership and team member skills sets (see for an example, Hensley [27]), yet from the above descriptions, it seems clear that there is much overlap between the two skill sets. Three literatures will be briefly reviewed next: leader development, team development, and the current academic context. Following these reviews, we will propose a synthesized version of a leader and team role developmental program.

Leader Development

We summarize here *leade*r (as opposed to leadership) development processes because our focus is on enabling individuals to gain skills as leaders rather than an entire organization's effort to develop leaders [16][41]. Current state-of-the-art leader training methods have not changed in several years. They include classroom type learning, assessment center focused learning, simulations, action learning and leadership/management games [16][41]. However, technology mediation does enable novel delivery of some of these confirmed techniques [41]. A common issue addressed by all leader development programs is leader self-awareness. Leaders must be able to seek feedback from a variety of sources and to act on that feedback [41]. A tight link between leadership development programs and day-to-day organizational practices is critical for the internalization of the skills such that they extend beyond the program or classroom [16].

The search for leadership development programs that included team processes in their framework yielded very little that expressly included the development of both sets of skills simultaneously. However, Carpenter and Sanders [13] presented a 5-step leadership development process which begins with individual skills, then moves to team skills, then to team leadership, then to excellence in leading teams, followed by organizational leadership and ends with humility and modesty in excellence of organizational leadership. So while there is little published work on the integration of the training for the two role sets, there is support for considering it.

Team Training/Development

There is a difference between team training and team building [32]. Team training focuses on enabling people to learn specific team roles, while team building is a team intervention designed to help a specific team perform better. We are focusing on team training based development programs. Such training does improve both team functioning and team performance [32], even when it is general team training [21]. Team members' understanding of teamwork competencies (for example the team roles mentioned above) positively impacted planning and task coordination, collaborative problem solving and communication skills [21].

There seems to be some contradictory findings on the relative importance of taskwork skills and teamwork skill training sessions. Teams need to enter teamwork skill training with a base level of taskwork skills [44]; however, the opposite was found by Ellis and his colleagues[21]. It may be that a minimal threshold is needed for teamwork to have any meaning but that more advanced skills can follow some basic teamwork training. It is important to not overload team training participants with too much information in any one session [39]. Thus, multiple sessions for training may be advisable.

Typical teamwork training methodologies include guided practice [44], lectures [1], simulations, and role plays [21]. Providing opportunities for individuals to practice a skill in multiple settings with allowance for mistakes and the opportunity to learn from those mistakes is very valuable [21]. In any case, team task analysis should be the first step in designing and providing any team training program [21]. When the goal is to gain skill-based outcomes, then a role play exercise or simulation should be used as the evaluation mechanism [33].

The Academic Context

When considering the current higher education academic environment or context, several topics need to be addressed including the appropriateness of a topic within a curriculum, the characteristics of the students involved, and the resulting appropriateness of an andragogical method. We will address these three components given the earlier discussion about leader development and teamwork training.

Appropriateness of Topic When we consider the teaching of leader role skills, it fits into the range of "soft skills" that are being called upon to revive a misimpression of graduate management training [25]. There have been positive links made between leader development programs for both youths or adults and creativity in organizations [30]. The teaching of leader roles has been identified as one of the most important topics in management education [2].

When it comes to teaching teamwork skills like team roles, certainly the direct teaching of "soft skills" is an important part of any Master of Business Administration program [25]. Furthermore, it seems appropriate at the undergraduate level too since team projects are an integral part of many upper-level business school courses Within the context of a semester-long project within a given course, teams are created and dissolved in a very short time period, oftentimes with a large component of the overall course grade assigned to the outcome of the collaborative effort by the team. In many cases, however, teams are provided the task assignment and expected to develop quickly a common understanding of what needs to be done to get to the formal outcome specified by the professor. In many cases, students are expected to create successful "teamwork" without further effort on the part of the faculty [26][3]. In one example of how limited the coaching and mentoring of teams can be, Bolton [9] found that 72% of instructors in the business school at San Jose State University assigned students to teams in at least one class, but 81% gave "modest, limited, or no support to students assigned to teams" [9: page 232]. Certainly, there have been very recent calls for the explicit inclusion of teamwork processes in business curriculums [23].

Characteristics of Higher Education Students Society at large and instructors in college campuses across the nation bemoan the declining standards in today's academic programs from kindergarten to graduate work [48]. They point to the lack of textual literacy on the part of students (grammar, writing skills, reporting and synthesizing skills) [43] [48]. Without a doubt, Sacks [43] spoke for many post-secondary educators when he noted the following student behavior:

> "Scattered mostly in the back and far side rows were young males… and an ample attitude. Slumped in their chairs, they stared at me with looks of disdain and boredom, as if to say, "Who in the hell

> cares where you worked, or what your experience is, or what you know? Say something to amuse me." I would encounter this look and The Attitude often. It was a look of utter disengagement." [43: page 9].

This disengagement has resulted in some teachers seeking "entertainment" based lectures.

The attitude of passive entitlement [43] is one that the "system" of education had cultivated over the years in the students. It is in part an unintended result of the training to one single uniform "standard" that was needed during the industrial age and was then coupled with the self –efficacy movement in education during the 1970s and 1980s [48]. The disengagement and attitude of non-valuing the backgrounds of the academics is in part a result of students being exposed to high levels of technological skills on many areas outside of education so that the "novice" treatments of technology found inside of our institutional walls triggers a "disbelief" bias on the part of the students [42]. The desire to not engage until the value of the engagement is made clear is, in part, a result of information gathering and technological interactive training that the students have via non-school forms of learning (such as found in their learning how to play video games, surf the internet, channel surf the TV, program VCRs and utilize other technological tools) [42]. They access information as they need it and learn from repeated attempts and failures. We, in most institutions of higher education, are woefully unprepared to compete in our dissemination of information on any of these fronts.

Many of these same issues also impact the believability of our programs for returning students (or in the past "non-traditional" students). These full time working students have many demands on their time. They need access to specific skills and information for the furtherance of their career, and they need this specific help now. Our programs with general information are not as useful to them because they cannot see the "value" in learning something that, by the time they have need for it, will most likely be outdated. They, in many cases, are accustomed to using higher levels of technology on a daily basis than is found in their classroom experiences or in most of their interactions with universities.

The wide-spread use of the internet and other network-based systems has created in students the anticipation of modern, efficient organizations that utilize such systems to reduce "time spent in creating paperwork, paperwork shuffling and removed many of the routine decisions from the backs of supervisors and onto the back of the information processing system." What instead they find at many universities is often perceived as antiquated (by their standards) information systems, instructors who present lectures from outdated notes via outdated methods, lectures that require memorize-and-regurgitate orientations and few if any real-life applications that they hoped to obtain. They also find programs that have taken so long to change that they are being taught "useless" information.

Even when academic programs have responded by including content and process changes, the same disengagement still can occur. Many post-secondary educators can cite a range of anecdotal instances of circumstances in which the students don't come to class prepared unless they were tested on the assigned cases before the discussion, and can attest to the fact that even if the students are prepared they still do not participate actively in class discussion. When team experiences are offered, many "better" students decline to take such courses because of their past teamwork experiences and the problem of slackers. Such experiences often occur because there has been little to no development of team process skills, and typically, there is a lack of controls to ensure team member accountability. Consequently, many students cite experiences "free riders" and having few, if any, effective ways of managing the problems those slackers cause.

Appropriate Andragogy From the earlier discussions, we have noted that effective development programs for both leader role training and team role training include active learning techniques such as collaborative learning, problem-based learning linked to a real world context, simulated experiences whether in face-to-face role play situations, simulations mediated by technology and problem solving in a simulated work environment. Collaborative learning is widely considered to be good training for future employment in business [10][26][47]. In a senior-level classroom setting, undergraduate students typically arrive with some basic skills in the topic area and will be introduced to more advanced skills during the course of the term. Such an approach lends itself to the use of active learning andragogies such as a team project oriented towards identifying, addressing and solving a complex problem or issue [21]. Advantages of teamwork are said to include greater motivation and challenge than individual assignments, and a context where students can benefit from interaction with and learning from one another [17].

Additional considerations when designing the joint leader role/ team role training program include a number of issues mentioned earlier. For example, the need to include self-reflection opportunities was a process issue related to leader role training programs. Additional leader role based issues include having the leader training focused on those needed for the specific needs of the team in a particular strategic context and using complex decision tasks such as simulations that mirror real world experiences. Such experiences help students learn to cope with the complexity of the real world [54]. Other team role training issues include limiting team size to no more than six when addressing complex problems; training and practice in a wide range of team roles and, when using a newly-formed team, including a team behavior contract.

Imbedding teamwork training into the team project. At the core of team projects is the desire for students to not only interact critically with the task, but to do so in a simulated organizational setting, the work group. Thus, a team project meets several criteria for an effective teamwork training program. Often these team projects require the creation, development and disbanding of a team within timeframes as short as 5 weeks or as long as 15 weeks. Thus, these are new teams which provide an opportunity ripe for teamwork training.

For example, this is a good time to either introduce or reinforce the need for a team behavior contract. In the context of course-based team projects, professors typically provide student teams with formal outcome controls for the final team project (e.g., page length, presentation format, organization, structure, analysis to be included, etc.), but limited guidance is provided about *how* to enact behavioral control within the group. Thus, teams need to have some way to share expectations about team member involvement. As mentioned earlier and noted by Dyer [55],

> …professors may put students into study or project teams and grade the team project but will spend no time at all in helping these students understand how a good team functions and how to manage group problems that arise… The end result is that usually a few students take over and get the group paper or project completed while others goof off or slide along and get rewarded for the efforts of others. This leaves many students with a negative feeling about group activities as they leave school and go into the work force. (55: page 152)

As such, outcome controls are clearly provided by the supervising professor, but much about what happens to get to the outcome is not controlled through such formal mechanisms, with the exception of some attention to peer evaluation. Kirsch [56] noted, "While coordinating task-related activities is obviously important…individuals also exercise control to foster relationships in order to engender cooperation and elicit individual cooperation" (p. 236). Del Monte [18], however, also suggested that ethically such expectations for team member behavior and individual and team contributions should be made explicit from the beginning in a team contract. Thus, this should be an explicit part of a joint leader-team role training program.

To emphasize the importance of team projects, professors often assign a substantial proportion of the individual student's grade based on these projects [3][28]. Thus the effective functioning of the team as well as the quality of its final product is critical to the individual student's success in the course. Such a grading scheme imposes strong motivation for the individual to take on team tasks and do them with dedication. In the process, the necessity of participation in both effective leader roles and team roles is reinforced.

However, professors are unable to be a part of every facet of the team's process and functioning [57]. While they may either assign group membership or provide guidelines for team formation, in many cases the only evaluation of the team's work is the final product. , There is no mechanism for determining individual team members' contributions [56]. One way to circumvent this problem is to follow common business practice where the individual "rewards" are "weighted" according to the contribution of the team member [36]. Students may find this a bit of a shock [48] but, anecdotally, it does tend to motivate the lazy or "why bother to try" student to put forth his/her fair share of the team's effort.

COURSE AND PROJECT DESIGN BASED ON IMPLEMENTING A JOINT LEADER-TEAM ROLE DEVELOPMENT PROGRAM

We now provide the example of a capstone strategic management class that is designed for the development of both leader role skills and team role skills. Recall that both leader development programs and team training programs are more effective when they incorporate active learning, preferably around a "real world" problem. At the same time, these programs provide multiple opportunities so that a failure in one can be redeemed by a later success.

When designing this course, multiple opportunities to engage in problem-based learning were provided. This type of learning was enhanced by providing time to plan before engaging in the active learning event. Recall also, that when forming a new team, it is better to have a team contract specifically outlining appropriate team behaviors as well as the consequences for violations. Retention of learning about team role behaviors was enhanced by explanation of the team roles along with the opportunity to practice those roles. Given these parameters, we have the following general course design (See Table 1).

The action learning problem and each set of activities included in the action learning problem are described next. This section is followed by descriptions of the team roles used. Leader roles were never officially described but the developmental process for leaders was detailed with an acknowledged emphasis on individual and team member skill attainment. Thus, the leader role skill development is a by-product of the other activities involved and will not be separately detailed.

Table 1: Agenda for 20 meeting Strategic Management Course

Date	*Scheduled Course Topic & Assignment Due Dates*	*Role Competency Objectives*
Day 1	IN-CLASS: Introduction to the Course – Project Overview *Section 1: Setting the Stage for Competitive Advantage: What is Strategic Management?* **Due 8PM: Individual Homework #1: Prospective Team Mate Qualifications Report**	Leader: Mentor Role: Self-Reflection
Day 2	IN-CLASS: Introduction to the Course – Team Building/Project Formation *PP Point Opportunity #1* *Section 1 Continued* Logic & Teams Team Role #1 Assigned Team Work Time for Team Assignment #1	Leader Roles: Facilitator, Producer, Director, Coordinator Team: Introduction to Team Roles Team Development: Form new teams
Day 3	IN-CLASS: Introduction to the Course – Ch 1, 2 & 13 & Project Mgt review *PP Point Opportunity #2* **Due Midnight: Team Assignment #1 –Team Consulting Name/Logo, Contract & Planning Overview**	Leader Roles: Producer, Director, Coordinator, Monitor; Innovator, Facilitator Team Roles: Practice in all Team Roles Team Development Step 1: Team Contract made
Day 4	IN-CLASS: **Quiz I (Section 1 – Strategic Management)** *PP Point Opportunity #3* *Introduction to Section 2: Analyzing the External Environment of the Firm* via Library Team Work Time on Team Assignment #2: Orientation to Semester Projects (Ms. Casey Schacher) **Team Roles Change to Role #2** Team Work Time for Team Assignment #2 **(Class meets in Kimbel Library Reference Area)** **Due: Summary of Team Participation & Practice Team Evaluations**	Leader Role: Facilitator, Monitor, Producer, Innovator, Broker, Mentor Team Roles: *(New Role Participants)* Critic, Creator, Contributor, Communicator Team Development Step 2: Team Roles
Day 5	IN-CLASS: *Section 2: Analyzing the External Environment of the Firm* *PP Point Opportunity #3 (C&S Ch. 4; Handbook Section 2)* **Due Midnight: Team Assignment #2 – Treasure Hunt**	Leader Role: Facilitator, Producer, Monitor, Facilitator Team Roles: Practice in all Team Roles

Date	*Scheduled Course Topic & Assignment Due Dates*	*Role Competency Objectives*
Day 6	IN-CLASS: **Quiz II (Section 2 – External Analysis)** *Introduction to Section 3: Analyzing the Internal Environment of the Firm* **Team Roles Change To Role #3** Team Work Time for Team Assignment #3 **Due: Summary of Team Participation & Practice Team Evaluations**	Leader Role: Facilitator, Producer, Monitor, Mentor , Director, Innovator Team Roles: *(New Role Participants)* Practice in all Team Roles
Day 7	IN-CLASS: *Section 3: Analyzing the Internal Environment of the Firm (cont.)* Team Work Time for Team Assignment #3	Leader Role: Facilitator, Producer, Monitor, Mentor , Director, Innovator Team Roles: Practice in all Team Roles
Day 8	**Quiz III (Section 3 – Internal Analysis)** *Section 4: Implementation and Control* Due: Summary of Team Participation	Leader Role: Producer, Monitor, Mentor , Director, Innovator, Coordinator, Facilitator Team Roles: Practice in all Team Roles
Day 9	Due: Practice Case Write-up **Quiz IV (Section 4 - Implementation)**	Leader Role: Facilitator Producer, Monitor Team Roles: Practice in all Team Roles
Day 10	*Section 5: The Selection of Strategies: Business Level Strategy and Strategy Scope* Case Discussion: **Practice Case** **Due: Team Assignment #3: State of the Industry Report** **Due: Summary of Team Participation & Team Evaluations** **END of DAY: Team Roles Change to Role #4**	Leader Role: Mentor, Facilitator, Producer, Team Roles: Final Practice in all Team Roles*(New Role Participants at midnight)*
Day 11	*Section 5: The Selection of Strategies: Business Level Strategy and Strategy Scope (cont.*)	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker Team Roles: Practice in all Team Roles
Day 12	*Section 5: The Selection of Strategies: Business Level Strategy and Strategy Scope (cont.)* **Due: Team Assignment #4: Team Case Oral Reports Begin** **(Team Roles Change for this team to #5)** **Case Presentation 1:**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker Team Roles: *(New Role Participants)* Practice in all Team Roles
Day 13	**Quiz V (Section 5 – Business Level Strategy)** *Section 6: The Selection of Strategies: Corporate Level Strategy* **Due: Summary of Team Participation**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor Team Roles: Practice in all Team Roles
Day 14	*Section 6: The Selection of Strategies: Corporate Level Strategy* **Due: Team Assignment #4: Team Case Oral Reports Continue** **(Team Roles Change for this team to #5)** **Case Presentation 2** **Due: Team Evaluations**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor Team Roles: *(New Role Participants)* Practice in all Team Roles
Day 15	*Section 6: The Selection of Strategies: Corporate Level Strategy (Cont.)* **Due: Team Assignment #4: Team Case Oral Reports Continue** **(Team Roles Change for this team #5)** **Case Presentation 3:** **Due: Team Evaluations**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor Team Roles: *(New Role Participants)* Practice in all Team Roles
Day 16	**Quiz VI (Section 6 – Corporate Level Strategy)** **Due: Team Assignment #4: Team Case Oral Reports Continue** **(Team Roles Change for this team #5)**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor

Date	*Scheduled Course Topic & Assignment Due Dates*	*Role Competency Objectives*
	Case Presentation 4:	Team Roles: *(New Role Participants)* Practice in all Team Roles
Day 17	Team Meetings with Professor (make an appointment) **Team Work Time** **Due: Team Assignment #5 Final Consulting Reports by 9pm** **Team Roles Change to #6**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor Team Roles: *(New Role Participants)* Practice in all Team Roles
Day 18	**Due: Team Powerpoint Slides for ALL Final Consulting Project Presentations (All Teams)** **Team Assignment #6: Consulting Project Presentations (2)** Due: Summary of Team Participation & Team Evaluations	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker. Mentor Team Roles: Practice in all Team Roles
Day 19	**Team Assignment #6: Consulting Project Presentations (2)** Due: Summary of Team Participation & Team Evaluations	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor Team Roles: Practice in all Team Roles
Day 20	Team Assignment #6: Consulting Project Presentations (2) **Due: Summary of Team Participation & Team Evaluations**	Leader Role: Facilitator, Producer, Monitor, Director, Innovator, Broker, Mentor Team Roles: Practice in all Team Roles

Action Learning Problem(s)

The active learning problem to be completed was the development of a comprehensive assessment of the competitive environment within which a publicly traded focal company competed and the articulation of a comprehensive set of appropriate recommendations to guide the respective firm forward. This assignment was designed to serve the following four objectives:

(1) Application of analytical tools and processes discussed within the context of the capstone undergraduate Strategic Management course;
(2) Integration and active engagement of the multiple disciplinary focuses of students pursuing different majors within the business administration bachelors program;
(3) Ability to identify appropriate sources of data regarding competitive environments and to assess and interpret this data effectively; and
(4) Synthesis of the above matters into effective oral and written deliverables or professional quality.

The project therefore unfolded in several phases.

Team Roles

As can be seen from the course agenda, there are multiple team assignments and each assignment has the requirement of a shift in the assigned team roles. The roles expected of all team members at all times are the task roles of contributor and completer. Combining the remainder results in a total of six team roles. The logic for combining these roles is based on the maturity level of the team members (undergraduate students as described earlier), as well as, the need to provide a role assignment for each team member. Thus, teams of no more than six members were allowed. If team had fewer than six members, then the roles were condensed further; i.e, one or more members assumed more than one role. Furthermore, the roles were relabeled to reflect names that the students might readily recognize and understand how to perform them. The revised six role names were: Facilitator, Recorder, Time Keeper, Quality Control, Reporter and Archivist. Each of these revised roles is described below.

Facilitator This combined role includes elements of the contractor and creator task roles as well as the leader's communicator role. This person crafts team meeting agendas, conducts meetings, provides an initial structure to the project, solicits contributions from everyone, recommends and coordinates tasks needed to reach the next milestone/deliverable, and determines what help or supplies are needed for others to accomplish assigned/volunteer for tasks. This role calls for skills also used by the leader in directing, mentoring, facilitating and coordinating roles.

Recorder This role includes elements of the creator and completer task roles and the communicator and collaborator process roles. The recorder creates a written record of the meeting details on the Team Meeting Report; compiles work of all team members; helps set new team norms when needed due to missing task steps or process issues; may initiate conversations addressing submission of tasks by others; and estimates time needed to complete final polished versions of documents or multimedia.

Time Keeper This role includes elements of the completer task role and the collaborator and calibrator process roles. The person acting as a time keeper keeps track of time spent on various tasks and indicates when too much time has been spent on any one task. The time keeper helps remain on task in meetings and sends reminders of deadlines as they approach.

Quality Control Responsible for ensuring quality control, this person takes on the task role of critic as well as elements of the calibrator process role. The quality control individual reminds team members of agreed-upon quality standards as well as the criteria for reasoning. This person helps maintain sensitivity to the responsibilities associated with team roles as well as the importance of employing them. The team member responsible for quality control is willing to oppose the team majority in order to raise important but overlooked issues. The assessment of the quality of team and/or individual members' output is also this member's responsibility.

Reporter This role encompasses both of the boundary spanning roles of consul and coordinator along with the process skills of the communicator and collaborator. This person presents orally to class any required debriefings. This person acts as the team representative for between-group meetings and communications with professor. A part of this role entails actively listening to others and may include using humor to alleviate tensions. This member works on constructing a positive spin for the team's image and deliverables without misrepresenting efforts or quality.

Archivist Aspects of the contractor task role, the coordinator boundary-spanning role and the collaborator process role are found among the responsibilities of the archivist. This is the person responsible for the team folder (containing all team work and record-keeping), gathers material to be turned in, and distributes material from folder. This role is responsible for arriving early to help set up the facility. Locating needed resources and sharing those resources with the team is also the responsibility of the archivist.

Six roles and six assignments with required role changes ensure that each person has an opportunity to practice the skills involved with each team role. Because of the differing assignments among roles, there is also reinforcement of the ability to translate the skills into differing contexts for greater retention.

RESULTS AND DISCUSSION

Preliminary results of the training tools applied lead to some conclusions. While several types of assessment tools can be compared, we choose to focus here on one that is task focused (the overall quality of the end product) and one that is process focused (evidence from the ability of teams to work productively together).

Given the focus on task accomplishment noted earlier in this type of assignment, we can note that the team/task interface yielded projects with scores ranging from 74% to 98%. In addition, the better reports have up to 90 sources of information. They have detailed appendices that summarize the result of research or strategic analyses. They have concise reports that focus on the results and recommendations. They are word-smithed and include more advanced word processing features. A sample of a table of contents from one of the better strategic reports is found in Appendix A.

Often you can find students who merely describe a strategic analysis tool in their report rather than summarizing the results of having done the analysis. In Appendices B and C, you find two sets of summary

paragraphs found in the bodies of two reports. Although there are style differences, the quality of the summaries are clearly evident. Another difficult area for students is in the synthesis of information and being able to make a significant recommendation. In Exhibit D, you will find an example of a final section of the main body of the report.

ADDRESSING THE PROBLEM OF INDIVIDUAL ACCOUNTABILITY

You will recall that the lack of individual accountability has been cited as a weakness in many teamwork assignments. To counter this problem, we developed a peer evaluation system where each team member is required to submit individually an assessment of each team member's work as well as his/her own work. Each member is rated on five items on a one-to-five scale. Any team member who rates another team member less than four on any item is required to provide an explanation for the low rating. Evaluation forms (see Appendix B) are collected, and the total scores are compiled by the professor.

Each individual's total score is then divided by the total possible score to yield what we consider to be each individual's percentage contribution to the assignment. All contributions of 90% or better are considered satisfactory. The contribution percentage for anyone below 90% is used as a weight to determine what part of the team's grade that low-performing team member will earn. A few quick calculations will reveal the devastating effect this weighting process can have on a "free rider's" grade. An example of how grades are affected by this process is provided in Appendix C.

Further, we feel that for anyone whose contribution was determined to be less than 90%, other teammates had to do extra work beyond their agreed upon contributions. Therefore, any points forfeited by the "slacker" (i.e., team grade minus slacker's grade) are distributed among those team members with particularly outstanding contribution percentages. Thus, not only are those who did not do the required work penalized, those who did extra work are rewarded.

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APPENDIX A: EXAMPLE OF AN A LEVEL REPORT, PROJECT A.

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APPENDIX B: SUMMARY PARAGRAPH FOR FIVE FORCE ANALYSIS PROJECT B

FIVE FORCES ANALYSIS

There are three leading competitors in the video game industry: Nintendo, Activision Blizzard, Inc., and Electronic Arts (Standard & Poor's, 2011a). The top three leading firms have significantly higher market share than the rest of the video game firms, and these firms fight fiercely to stay on top (Liu, 2010). High quality video games are high in cost pertaining to research and development, so firms with higher market share have a great advantage (R., C. C., 2005). Reference Appendix P for *rivalry among competing sellers* chart and a detailed analysis.

The main threatening entrants already established video game companies need to watch out for is freelance developers (Schilling, 2003). If a freelance developer can develop a game with an innovative idea and sparked by technology, that developer can choose to contact investors and raise capital (Schilling, 2003). As of now, there is no determinant as to whether it is hard for a freelance developer to enter the market; it mainly depends upon the novelty of the new game idea (Schilling, 2003). Reference Appendix P for *threat of new entrants* chart and a further explanation of the force.

Video games are considered to have no real substitute products (Liu, 2010). Movies are a similar technology, but it does not require the interactive aspect, nor does it require so much focus and attention (Arakji, 2007). Please reference Appendix P for *firms offering substitute products* chart and more information on the force.

Although there are over fifty suppliers to the video game industry, these suppliers still have a good deal of bargaining power over the firms (Johns, 2006). Suppliers can choose whom to sell to, and prefer to choose firms producing high revenue products (Johns, 2006). Reference Appendix P for *supplier bargaining power* chart and a detailed analysis.

The consumers of video games have the most bargaining power over video game firms (Hsu, 2005). Video game fans keep the companies in business, so it is essential to keep customers happy and wanting to come back for more (Hsu, 2005). Gamers are quick to turn on a video game firm if the firm were to slip up even once (Hsu, 2005). Reference Appendix P for *consumer bargaining power* chart and a further explanation of the force.

APPENDIX C: SUMMARY PARAGRAPH FOR FIVE FORCE ANALYSIS PROJECT B

Five Forces

Each of the five competitive forces, along with the strength of complementary forces, has a varying effect on the water utilities industry. First, the rivalry among existing competitors is moderately strong due to the competition to obtain new exclusive water distribution rights agreements and to acquire other firms in the industry. Second, the threat of new entrants is relatively weak because low industry growth and large initial capital requirements, along with heavy government regulation, make this industry relatively unattractive to enter. Third, the threat of firms in other industries offering substitute products has very little effect on this industry due to water being a necessary and irreplaceable commodity. Fourth, since relatively few suppliers make the water pipes and purification equipment that are needed in this industry, supplier bargaining power is a moderate force. Fifth, although the number of consumers of water is very large, and they are very knowledgeable about the product, heavy government regulation reduces the strength of buyer bargaining power to moderate. Finally, the level of complementary forces is very strong, as local governments heavily regulate prices, distribution coverage area limits and requirements for completing mergers and acquisitions. However, as a whole, the threat of downward potential on profitability potential in the water utilities industry is relatively weak. A complete analysis of each of the five forces, along with an assessment of their collective strength and potential strategies to overcome these forces, can be found in Appendix O.

APPENDIX D: RECOMMENDATIONS SECTION FOR PROJECT B

RECOMMENDATIONS

The recommendations section will take the most critical issues found in the SWOT and TOWS analyses of Artesian Resources Corporation to determine two strategic recommendations that would best within its external and internal environments. Implementation and execution plans will be presented for each recommendation along with its impact on major stakeholders. Finally, the ways in which the recommendations help to improve the alignment of Artesian will be discussed.

Recommendations

As shown in Appendix AD, there are two major strategic recommendations that Artesian can implement to improve its long-term growth potential. First, the firm should create a grassroots water conservation program in every community that Artesian services to care for the environment while improving the firm's image and reputation. This recommendation would satisfy the desires of environmental groups while creating a sense of purpose and pride within the individual communities. The knowledge and expertise of the marketing department would be utilized to improve the long-term image and reputation of the firm. This strategy would be implemented in all geographic areas within the next year following six months of program design and preparation.

Also, Artesian should acquire smaller water distribution companies with newer infrastructure to continue to grow and expand the firm. This recommendation would allow the firm to grow while improving its distribution capabilities and efficiency. The expertise of the engineering department would be the primary human resource that is needed, while financial capital and managerial expertise will also need to be provided. This will allow the long-term efficiency of water distribution to be significantly enhanced. The time frame for this recommendation is 1-3 years, and the new infrastructure will be utilized upon the completion of each purchase.

Implementation and Execution Plans

As detailed in Appendix AE, there are several steps to each recommendation that must be followed in order to ensure success. The grassroots conservation campaign entails six steps. First, the budget for the program must be determined. Second, each subsidiary must speak with its customers to determine their level of interest and desires for the program. Third, the marketing department will discuss and synthesize these ideas to determine their merit and feasibility. Fourth, the marketing department will work with the top management team to craft a simple, standardized implementation program. Next, the program will be presented to the individual subsidiaries and an incentive program based on participation will be created to facilitate its success. Finally, a six-month performance review will be conducted to determine its success and make changes to improve the future of the program.

There are also six steps to implement the recommendation of acquiring smaller water distribution companies with newer infrastructure. First, the amount of available capital and potential sources for obtaining additional capital must be determined. Second, the strengths and weaknesses of acquiring specific individual companies must be assessed, which includes their geographic coverage areas and distribution infrastructure. Third, Artesian must enter into purchase agreements with companies that possess the best possible qualities. Fourth, the engineering team must assess the purchased infrastructure

to determine how best to integrate it into the existing system. Next, any needed upgrades and other logistical concerns must be addressed to ensure a seamless transition to the new infrastructure. Finally, the performance of the new infrastructure must be assessed to determine what upgrades can be made to further improve future performance.

Impact on Major Stakeholders

As discussed in Appendix AF, all major stakeholders in the firm will benefit from the successful implementation of these recommendations. For the grassroots program recommendation, the stockholders will experience some short-term losses but will benefit from the improvement in company image. The employees will need to be enthusiastic and supportive of the new program and provide feedback to further improve it. The customers may be reluctant to make the necessary lifestyle changes to conserve water, but most are expected to become more eager to participate in the program. Finally, the community will be very supportive of the firm and its desire to foster a sense of community and conserve the environment for their children.

The recommendation to acquire smaller water distribution companies will also have a predominantly positive impact on all stakeholders. The stockholders may be skeptical to take on additional debt in the beginning, but will support the continued long-term growth plan of the firm. The employees may not appreciate the extra workload involved with merging companies, but will appreciate the added job security from the firm becoming stronger. The customers will likely not experience many impacts due to strict government price regulations. Finally, the community will continue to view Artesian positively as long as they continue to promote their water conservation programs.

Improvement in Alignment

These recommendations will improve the alignment and future success of Artesian Resources Corporation in several ways. First, both recommendations will move the firm closer to its long-term shared value of becoming an industry leader in water distribution while caring for the environment. Second, the additional staff acquired in the mergers will help to expand the wide variety of skills and systems that Artesian already possesses. Third, the organizational structure will become stronger by continuing to decentralize the responsibilities of implementing the conservation program to the management teams of each individual subsidiary. Finally, promoting environmental causes will continue to be an important part of the organizational style and culture at Artesian for the foreseeable future.

PRIVACY CONTROLS IN ONLINE SOCIAL NETWORKING SITES

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ABSTRACT

This research explored the privacy controls available on social networking sites. Data was gathered from fifty web sites chosen on the basis on their popularity and usage. The number and type of privacy controls available were recorded. From this information, the types of privacy controls indicated that three distinct areas of controls were present in addition to the traditional profile protection controls. These were privacy controls relating to personal, social, and professional information protection. Overall, sixty-nine privacy controls were identified pertaining to profile, personal information, social information and professional information. In general there was more privacy control for personal information compared to social and professional information.

INTRODUCTION

In recent years, social networking has become a global phenomenon (Boyd and Ellison 2008). Some of top social networking sites boast hundreds of millions of users. People of all ages use online social networking sites as a primary communication media to get or stay connected with their friends and family (Livingstone 2008). Individuals voluntarily share a lot of information on the social networking sites. For instance, prior research has observed that users share personal information, such as personal interests, special hobbies, and several other facets of their lives in an effort to develop intimate and personal connections with other users (Vasalou, et al. 2010). Also, a lot of personally identifiable information is collected during the sign-up process (Bonneau and Preibusch 2009).

Social networking sites have been subject to legal scrutiny due to their privacy violations. Personal information shared on social networking websites has been targeted and misused by many sources including law enforcement agencies, identity thieves, sexual predators (Pilkington 2007), prospective and current employers (Finder 2006), educational institutions, and other third-party websites (Fogel and Nehmad 2009). The consequences for social networking users have been socially damaging and humiliating (Rosenblum 2007). For social networking companies such incidents can destroy their reputation. Accordingly it is vital to explore and understand the various privacy controls available to users for protecting their information.

This study extends the current research by taking a holistic approach to conduct a thorough analysis of privacy controls available in social networking sites. In addition, this research moves beyond personal information and attempts to identify other types of information that can be shared on social networking sites and privacy controls available to protect them.

RELATED WORK

In recent years, academic scholars have increasingly focused on social networking issues. Prior research has focused on different aspects of social networking. Some studies have examined the factors that

motivate individuals to participate in social networking (Boyd and Ellison 2008, Tufekci 2008). Others have analyzed user attitudes towards social networks with an emphasis on information sharing and disclosure (Constant, et al. 1994, Livingstone 2008). Another stream has focused on the relationship between cultural affiliation and social networking (Fogg and Iizawa 2008, Vasalou, et al. 2010).

Research on privacy and user security has been a active area, but the focus has been on privacy policies (Bonneau and Preibusch 2009), potential threats and risks of using social networking (Dwyer, et al. 2007, Frankowski, et al. 2006). Some researchers have taken a technical approach to examine the security flaws (Bonneau, et al. 2009) and/or the network architectures (Anderson, et al. 2009) with an emphasis on proposing new privacy preserving front ends for existing social networks. Another interesting stream of research has focused on developing models to solve the "privacy paradox" which refers to users showing high concerns to privacy but at the same time sharing a large amount of data (Poindexter, et al. 2006).
A common agreement among all the social networking research is that users display high concern towards privacy. In addition, there is consensus that privacy in social networks is dysfunctional and requires remodeling.

In the past, several studies have noted that users genuinely do express concern about their privacy (Acquisti and Gross 2006, Bonneau and Preibusch 2009, Gaurav Bansal, et al. 2008). In fact, some users indicated privacy as a primary influencing factor on their choice of social networking sites. Yet while informative, most of the studies have focused on user behavior, specifically how privacy policies affect or influence user behavior. Moreover, the focus has been largely on personal information. On the contrary, recent trends indicate that individuals share more than just personal information on social networking sites (Strater and Richter 2007).Therefore, it is important to explore the privacy controls available to protect other types of information. As previously stated the main objective of this study is to develop a comprehensive rubric of privacy controls available on social networking sites. In addition, this study explores the options available to share different types of information and the privacy controls available to protect it.

METHOD

An exhaustive survey of the major, general-purpose social networking sites was conducted in order to explore the various privacy controls available for users to protect their information. In addition, this research captured the different types of information that can be shared on social networking sites and their associated privacy controls.

Selection of Sites

A group of fifty online social networking sites were selected for the survey, details listed in Table 1. The sites were chosen based on its popularity and number of users, which were collected and verified from various outlets such as Wikipedia, Web Trends, and the e-business MBA knowledge base among others. To be included in the survey the sites had to meet four criteria – (1) the main purpose of the site should be general purpose social networking i.e., the primary use of the site is interacting with others through profile pages on the web (2) the site should be available in English (3) the site must be active and fully functional; (4) the accessibility should be free and require no fee or special invitations. These criteria were necessary to ensure fair comparison between sites and to avoid general content sharing websites such as Youtube, Flickr among others. The constraints enforced in this study are consistent with prior research (e.g., Bonneau and Preibusch 2009) examining user privacy in social networking sites.

RESULTS & DISCUSSION

To determine legitimacy of the site general information about the site, such as its launch date, estimated user count and traffic ranks, country of operation, and purpose were collected. All these details are listed in Table 1. To get access to various privacy controls a user account was created for each site, recording the amount of information required in order to register an account. In addition, all the publicly viewable sections of the webpage that are presented to non-members who visit the site were examined. This was done to analyze how and where the profile information is displayed. Following this, the different types of information a user can post on the site and privacy controls available to protect that information was recorded.

Table 1. List of Social Networking Sites included in the Survey

Social Networking Site	Alexa Traffic Rank (Adjusted)	Users (M)	Country	Category
Facebook	1	500	USA	General-Purpose
Habbo	19	200	Finland	Gaming
Twitter	2	175	USA	Micro-blogging
Bebo	13	117	USA	General-Purpose
MySpace	3	100	USA	General-Purpose
Tagged		100	USA	General-Purpose
Okrut	6	100	USA	General-Purpose
Friendster	8	90	USA	General-Purpose
Badoo		86	UK	General-Purpose
LinkedIn	4	80	USA	Business-Networking
Hi5	5	80	USA	General-Purpose
NetLog		70	Belgium	General-Purpose
Flixster	16	63	USA	Media recommendation
MyLife		51	USA	Reunion
Classmates.com		50	USA	Reunion
Last.fm	12	30	USA	Media recommendation
Viadeo		30	France	Business-Networking
WeeWorld	20	30		Gaming
Xanga	15	27	USA	General-Purpose
GaiaOnline		23.5	USA	Gaming
SkyRock		22	France	General-Purpose
MyYearbook		20	USA	General-Purpose
BlackPlanet		20	USA	General-Purpose
Fotolog		20		Photo-blogging
FriendsReunited		19	UK	Reunion
LiveJournal		17.5	Russia	General-Purpose
meinVZ		17	Germany	General-Purpose
Sonico		17	Argentina	General-Purpose
Plaxo		15	USA	General-Purpose
StumbleUpon	9	10.6	Canada	Media recommendation

Multiply		10	USA	General-Purpose
Hyves	10	10	Netherlands	General-Purpose
BuzzNet		10	USA	Media recommendation
WAYN	18	10	UK	Travel
Care2		9.9		General-Purpose
DeviantART	7	9		Media recommendation
XING	11	8	Germany	Business-Networking
MyOpera		5.5		Blogging
OpenDiary		5		Blogging
Livemocha		5		Language Learning
weRead		4		Media recommendation
ibibo	14	3.5	India	General-Purpose
MocoSpace		3	USA	General-Purpose
CouchSurfing		1.5	USA	Travel
Nexopia		1.4	Canada	General-Purpose
PerfSpot	17		USA	General-Purpose
Yonja			USA	General-Purpose
Sofamous (formerly Bahu)			France	General-Purpose
Eons			USA	General-Purpose
ExperienceProject			USA	Privacy-Specific

Source: *http://www.alexa.com/topsites*

Overall the number of users and traffic for most of the social networking sites were impressive. External sources were relied upon since it was difficult to determine the number of users directly. However, the numbers were not consistent across the external sources. The same applies to popularity of the social networking sites. For instance, the e-business knowledge base ranked Facebook as 1, Twitter as 2, and MySpace as 3. The Web Trends ranked Facebook as 1, MySpace as 2, and Twitter as 3. Due to this inconsistency publicly available Alexa ranking was utilized (Alexa). These are commonly used as a general indicator of the amount of traffic a site is receiving and as an indirect scoring for a site's popularity.

The number of privacy controls available on social networking sites was significant. More interestingly, social networking sites enable users to share more than just personal information. In particular, it was observed that users are able to share social and professional information. Social information refers to data that helps the individual to socialize with similar people. For example, group affiliations, network interests and tags on preferred videos. Professional information relates to the posting data about one's expertise, credentials, and experience. This includes information such as degrees, educational levels, certificates, and place of employment.

Table 2: Summary of Privacy Tools

PROFILE PROTECTION

1. Option to share your profile anonymously
2. Option to block photos/videos shared by others
3. Option to disable "places I check in to" feature by others
4. Option to share when you have visited someone's profile (browse anonymously)
5. Option to block posts by others on your profile
6. Option to enable/disable messages
7. Option to enable/disable friend requests
8. Option to control visibility on Search
9. Option to control visibility on Public Search
10. Option to share when you update your profile
11. Option to share when you use Mobile
12. Option to block users
13. Option to block users by age
14. Option to block unwanted application invites from certain users
15. Option to block unwanted event invites from certain users
16. Option to block entire applications
17. Option to filter group invitations
18. Option to block market research surveys
19. Option to choose whose profile pictures to view
20. Option to block partner advertising
21. Option to enable/disable personalization on third party sites
22. Option to block third party sites from accessing your information, if not connected to them

PERSONAL INFORMATION

1. Option to share birthday
2. Option to share your age
3. Option to share posts by me
4. Option to share gender
5. Option to share real name
6. Option to share IM screen name
7. Option to share display name
8. Option to share profile picture
9. Option to share relationships/marital status
10. Option to share biography/favorite quotes
11. Option to share your vanity URL/numerical friend ID
12. Option to share e-mail address
13. Option to share family members
14. Option to share home address
15. Option to share current city/hometown
16. Option to share mobile phone number

17. Option to share other phone number
18. Option to share religious/political views
19. Option to control personal information shown by applications
20. Option to control personal information used by applications
21. Option to share photo albums and videos
22. Option to share when you add new photos, videos, or blogs
23. Option to share when you add new friends
24. Option to show online status

SOCIAL INFORMATION

1. Option to share education/work experience
2. Option to share interests/other information
3. Option to share friends list/connections
4. Option to share the networks you are associated with
5. Option to share information about application activity
6. Option to share groups/associations
7. Option to share what types of contact you are interested in
8. Option to share when you join a new group
9. Option to share when you are a fan
10. Option to share when you post events
11. Option to share when you are tagged in a photo, video, or blog
12. Option to share when you create new friend categories
13. Option to share e-mail and IM addresses to help friends find you

PROFESSIONAL INFORMATION

1. Option to share your blogs
2. Option to share recommendations from others
3. Option to share honors and awards
4. Option to share when you add new blogs
5. Option to share when you are attending events
6. Option to share new companies
7. Option to share when you install or rate an application
8. Option to share comments posted on another profile
9. Option to share your news feed
10. Option to share new recommendations

This study found sixty-nine privacy controls pertaining to profile, personal information, social information and professional information. All the details are listed in Table 2. From a privacy control standpoint, there was more privacy control for personal information compared to social and professional information. This is consistent with the currents market trends and research which has primarily emphasized the need for protecting profile and personal information (Bonneau and Preibusch 2009). More interestingly, emergence of privacy controls for social and professional information indicate the future expectations of social networking trends, that is, moving beyond just sharing personal information. This is consistent with today's work environment where recruiters are increasingly using social networking to search and hire potential candidates (Albrechtslund 2008). Thus, it is important for social

networking users to control what information should be displayed to potential employers. Another interesting observation was the availability of fine-grained privacy controls. Inasmuch, users have more options to manipulate their visibility rather than simply opt-in or opt-out. However, the fine grained controls can be a double edge sword, that is, in some situations it can become very stressful and confusing for novice users.

In summary, this study has two main contributions. First, the results of a thorough analysis of privacy controls will help users understand the degree of protection available on social networking sites. Second, the comprehensive list included what information is being protected by privacy tools which can help the user determine what information is safe to share on the social networking sites. For social networking site developers, the comprehensive rubric will assist them in identifying the gaps in their privacy controls which if addressed can enhance their reputation.

Additionally, this study found that the social networking industry is reacting to user's privacy concerns. By extension this would necessitate the importance of being proactive in identifying any privacy violations.

CONCLUSION

Online social networking is a promising and growing phenomenon. Individuals are finding various ways to use social networking sites. This study found that social networking companies are encouraging users to share different types of information by providing privacy controls to protect that information. However, proportions of privacy controls were not balanced. In other words, there were more privacy controls for protecting profile and personal information than social and professional information. From a broader standpoint, this implies that social networking sites are taking a reactive approach rather than a proactive approach to privacy. Therefore it is important for the users to monitor continuously their privacy and report any violations.

Overall privacy in social networking is still at its infancy which urges the need for more research in identifying new issues and providing options or solutions that can be implemented by ordinary users. For instance, exploring the ease of use and the customization of the privacy controls identified in this study would be worthwhile effort. Similarly, determining the privacy concerns across all the social networking sites will help users understand the reliability of those sites. This research hopes that the ideas presented here, along with the published dataset, will be an important starting point.

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