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

Amit Arora, Ph.D. Student, Georgia Southern University, Statesboro, GA

Joseph Weatherford, Ph.D. Student, Georgia Southern University, Statesboro, GA

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)

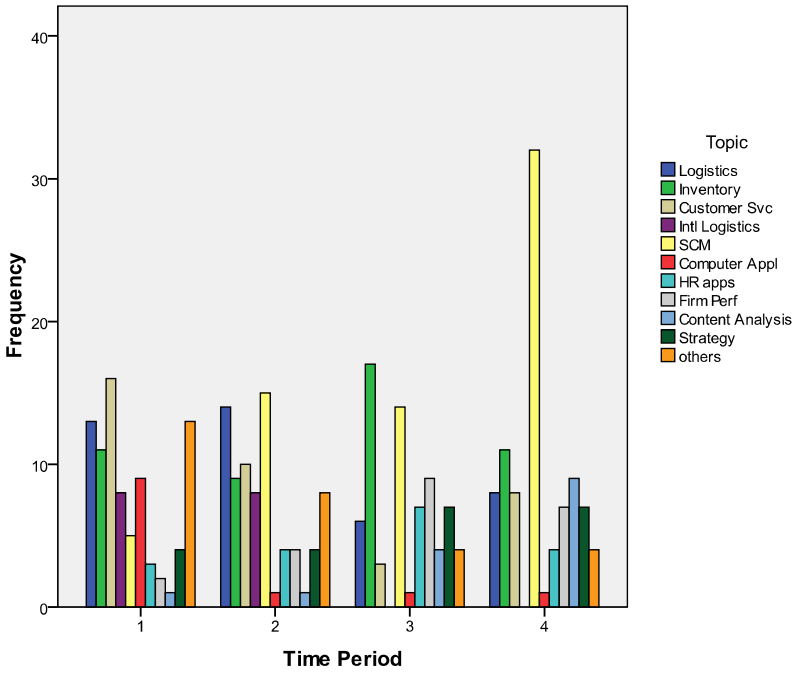

Figure 1: Top research topics in the last twenty years (frequency count)

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)

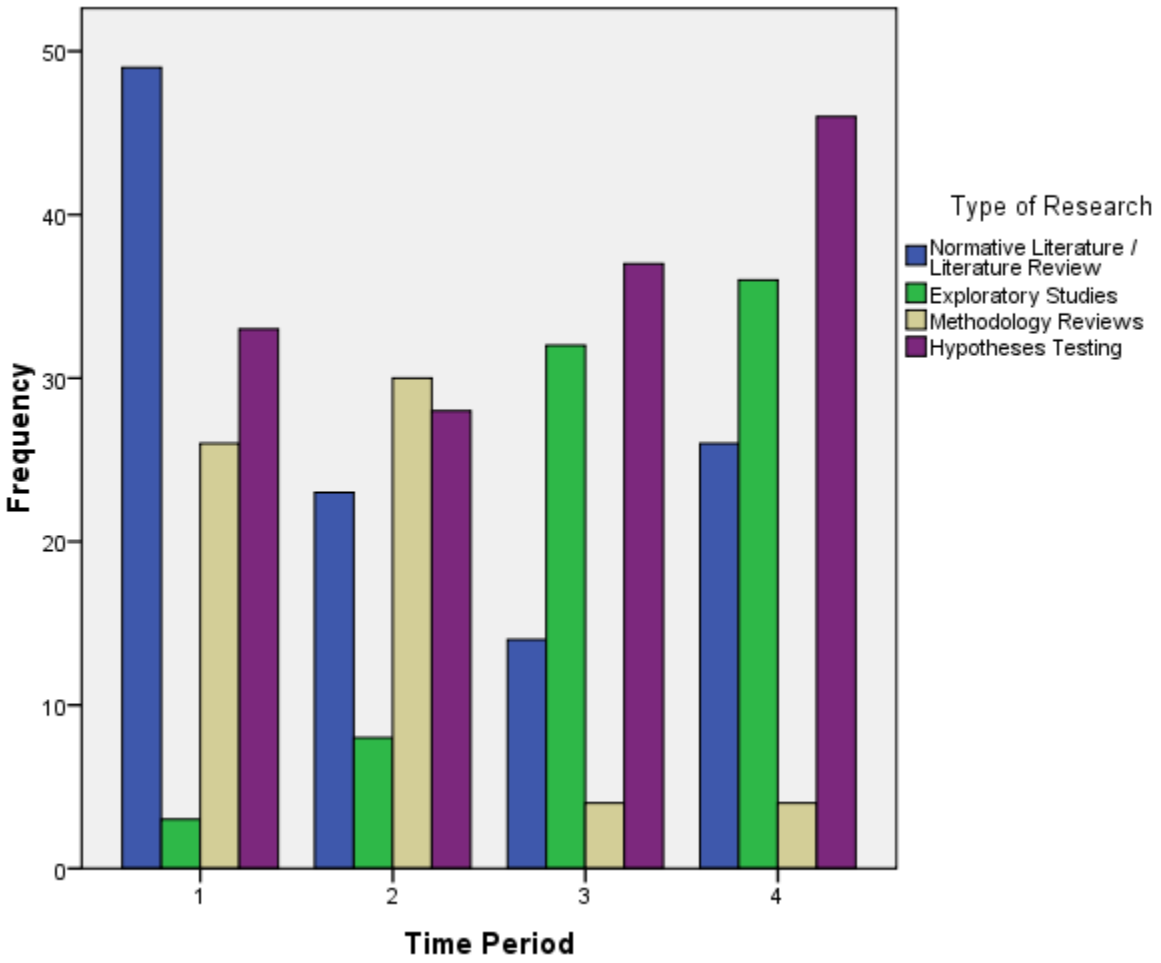

Figure 2: Type of published research in the last twenty years (frequency count)

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)

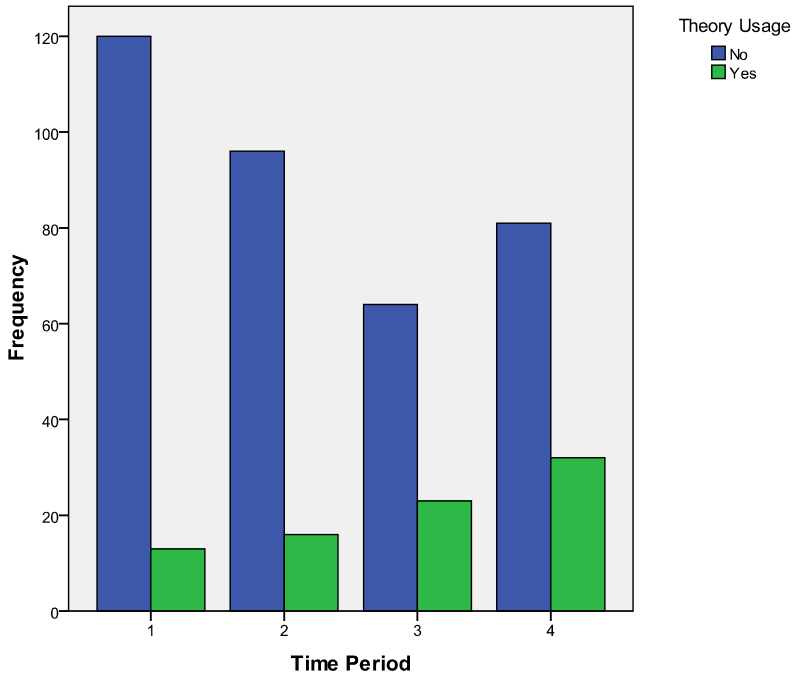

Figure 3: Usage of theory in the last twenty years (frequency count)

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)

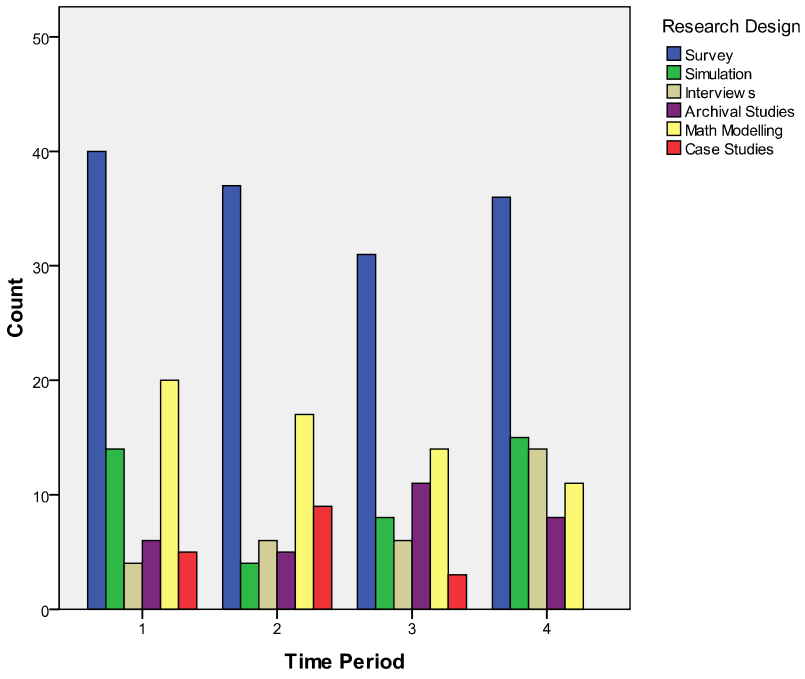

Figure 4: Research design methods in the last twenty years (Frequency Count)

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)

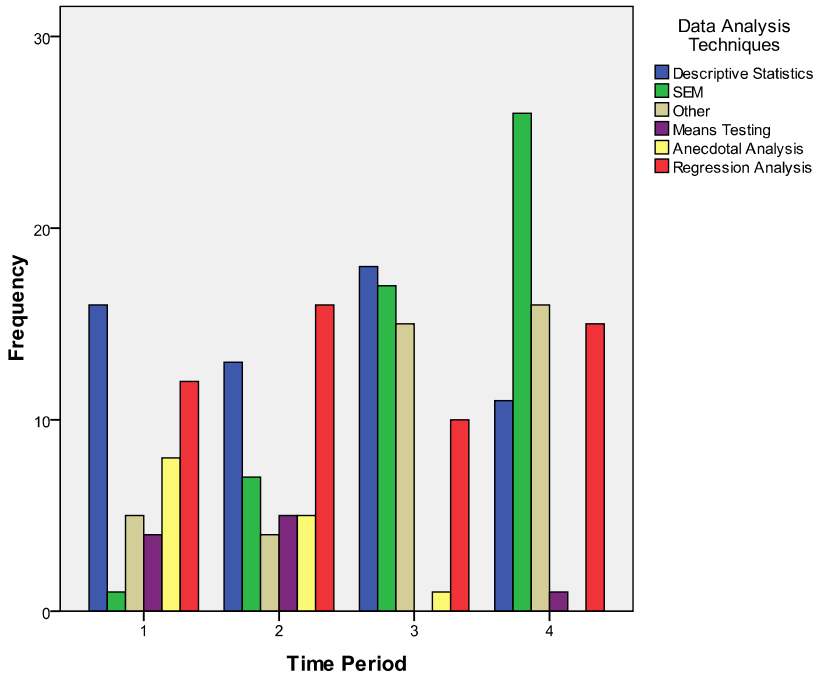

Figure 5: Type of Data Analysis Techniques used over the last twenty years (frequency count)

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)

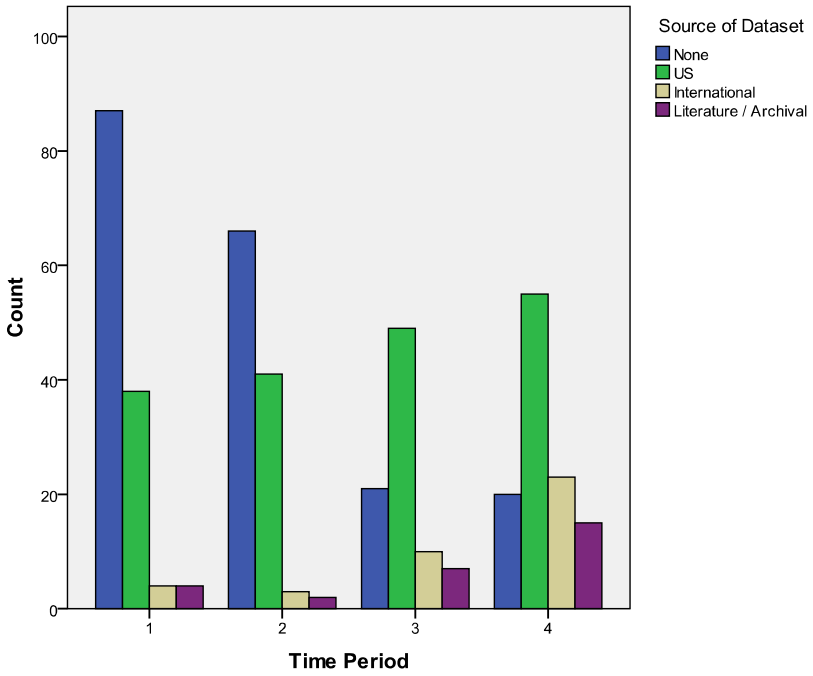

Figure 6: Source of dataset over the last twenty years (frequency count)

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.

References

Boyer, E. (1990), "Scholarship Reconsidered: Priorities of the Professoriate", San Francisco: Jossey-Bass.

Brown, J. & Dant, R. (2008), "On what makes a significant contribution to the retailing literature", *Journal of Retailing*, 84 (2), 131-135.

Carter, C. & Ellram, L. (2003), "Thirty-five years of The Journal of Supply Chain Management: Where have we been and where are we going?", *The Journal of Supply Chain Management*, 39 (2), 27-39.

Carter, C. R. (2002), "Assessing Logistics and Transportation Journals: Alternative Perspectives," *Transportation Journal*, 42(2), 39–50.

Davis, M. (1971), "That's interesting! Towards a phenomenology of sociology and sociology of phenomenology", Philosophy of Social Science, Vol. 1 (December), pp. 309-344.

Defee, C., Williams, B., Randall, W., and Thomas, R. (2008), "An inventory of theory in logistics and SCM research", *International Journal of Logistics Management*, 22 (3), 404-489.

Emmelhainz, L.W. and Stock , J.R. (1989), "An Evaluation of Logistics and Related Journals," *International Journal of Physical Distribution and Materials Management*, 19 (12), 40-45.

Fawcett, S. (2009), "An update of on the state of supply chain education" *Supply Chain Management Review,* 13 (6), 36-42.

Fawcett, S. E., Vellenga, D., and Truitt, L. (1995), "An Evaluation of Logistics and Transportation Professional Organizations, Programs, and Publications," *Journal of Business Logistics*, 16 (1), 299 314.

Fawcett, S., Vellenga, D., and Truitt, L. (1995), "An evaluation of logistics and transportation professional organizations, programs, and publications," *Journal of Business Logistics*, 16 (1), 299-314.

Frankel, R., Bolumole, Y., Eltantawy, R., Paulraj, A., and Gundlach, G. (2008), "The domain and scope of SCM's foundational disciplines-Insights and issues to advance research", *Journal of Business Logistics*, Vol. 29 No. 1, pp. 1-30.

Gibson, Brian J. and Joe Hanna (2003), "Periodical Usefulness: The U.S. Logistics Educator Perspective," *Journal of Business Logistics*, 24 (1), 221–240.

Golicic, S., Davis, D. & McCarthy, T. (2005), "A balanced approach to research in supply chain management", in Herbert Kotzab, Stefan Seuring, Marin Müller, and Gerald Reiner (eds.), *Research Methodologies in Supply Chain Management*, New York: Physica, pp. 15-29.

Kumar, V. and Ik-Whan, K. (2004), "A Pilot Study on Normalized Weighted Approach to Citation Study: A Case of Logistics and Transportation Journals," *International Journal of Physical Distribution and Logistics Management*, 34 (10), 811–826.

Ladik, D. and Stewart, D. (2008), "The contribution continuum" *Journal of the Academy of Marketing Science*, 36, 157-165.

Lewin, K. (1945), *The research center for group dynamics at Massachusetts Institute of Technology*, Sociometry, 8, 126-135.

McGinnis, M., Boltic, S., and Kochunny, C. (1994), "Trends in logistics thought: An empirical study", *Journal of Business Logistics*, 15 (2), 273-303.

McGrath, J. (1982), "Dilemmatics: The study of research choices and dilemmas," in McGrath,

Martin, and Kulka (1982). Martin and Richard A. Kulka (1982), Judgement Calls in Research (Studying organizations: Innovation in methodology No. 2), Beverly Hills, CA: Sage Publications.

Mentzer, J. & Kahn, K. (1995), "A framework of logistics research", *Journal of Business Logistics*, 16 (1), 231-250.

Mentzer, J. (2008), "Rigor versus relevance: Why would we choose only one?," *Journal of Supply Chain Management: A Global Review of Purchasing & Supply*, 44 (2), 72-77.

Miles, M. B. and Huberman, A. M. (1994), Qualitative Data Analysis, Thousand Oaks, CA: Sage Publications.

Miyazaki, A., Phillips, J., and Phillips, D. (1999), "Twenty years of JBL: An analysis of published research", *Journal of Business Logistics*, 20 (2), 1-20.

Rutner, S. and Fawcett, S. (2005), "State of supply chain education", *Supply Chain Management Review*, 4 (4), 55-60.

Sachan, A. and Datta, S. (2005), "Review of supply chain management and logistics research", *International Journal of Physical Distribution and Logistics Management*, 35, (9/10), 664-705.

Schmenner, R. and Swink, M. (1998), "On theory in operations management", *Journal of Operations Management*, 17 (1), 97-113.

Smith, D. (2003), "The importance and challenges of being interesting", *Journal of the Academy of Marketing Science,* 31 (3), 319 - 322.

Stock, J. R. (1997), "Applying theories from other disciplines to logistics", *International Journal of Physical Distribution & Logistics Management*, 27 (9/10), 515-539.

Van de Ven, A. (1989), "Nothing is quite so practical as a good theory", *Academy of Management Review*, 14 (4), 486-489.

Wagner, S. and Kemmerling, R. (2010), "Handling nonresponse in logistics research", *Journal of Business Logistics*, 31 (2), 357-389.

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