

**TEN TEACHABLE MOMENTS:
NOVEL APPLICATIONS OF OPERATIONS MANAGEMENT THROUGH AN
INTERNATIONAL STUDY PROGRAM**

Darla J. Domke-Damonte, Coastal Carolina University, Conway, SC, ddamonte@coastal.edu
P. Richard Martin, Coastal Carolina University, Conway, SC, prmartin@coastal.edu
Monica Fine, Coastal Carolina University, Conway, SC, mfine@coastal.edu

ABSTRACT

This paper focuses on the development of a novel approach to teaching operations management outcomes through a experiential learning in a study abroad program in which students traveled to France, Germany, and Spain in May 2012 and engaged in company visits, collaboration with partnering universities, and participated in active self-reflection. The program responds to the critiques posed by authors such as Feinberg (2002) who pose the superficiality of some study abroad programs and incorporates novel approaches to engage student appreciation for the implications and context of operations management contexts. Ten teachable moments are elaborated for operations management courses.

INTRODUCTION

Experiential and active learning processes have increased in their adoption by colleges of business as they seek to develop individuals capable of functioning effectively in globally competitive business settings. Harsell and O'Neill (2010) have defined experiential learning as "the process of learning by experience." Experiential learning has been applied through such educational approaches as internships (cf. Dillon, McCaskey, & Blazer, 2011), to consulting projects (Maskulka, Stout, & Massad, 2011), and student-run businesses (Tompkins & Schlesinger, 2010). The commonly accepted advantage of experiential learning processes is that students, by means of being actively involved in the *context* of the business concepts under study (whether the workplace in an internship, the company setting for a consulting project, or the running of a firm whether virtually through simulation or actually through student-run firms) will more fully appreciate not only the key concepts being considered, but also the fit of their own functional roles with those also present in the context. The benefits of this learning is clear in that it delivers on stakeholder-valued competencies such as analytical thinking, people and task management, and self-management (Maskulka et al., 2011).

Furthermore, AACSB International recognizes both the need for student engagement in the learning process as well as the need for diversity and global awareness as a part of the business curriculum of accredited institutions (AACSB International, 2012). Experiential learning in the global environment is also helpful to raising awareness of business practices, intercultural management differences, and institutional environments within which business practices occur. Such experiential learning practice requires either in-depth and focused seminars on-campus or the participation in study or travel abroad programs. According to Open Doors (Institute of International Education, 2011), by 2009/2010 the latest year for which data is available, the number of US students studying abroad increased 3.9% over the previous year, reaching over 270,000. In 2010/11, according to Open Doors, 1.4% of all US university students studied abroad, of which 56.6% studied abroad for short-term programs of 8 weeks or less in duration (Institute for International Education, 2011).

The goal of internationalization is present in many universities' stated plans, though separating the rhetoric of its benefits from its real outcomes is sometimes challenging (Forsy, Broomhall, & Davis, 2012). Nunan (2006) notes the long-term benefit of study abroad to students as including enhanced

personal skills, sustained greater interest in further study, and intercultural competence and employability, but Feinberg (2002) noted that US students tend to be able to learn about themselves on study abroad programs, but doubted that they learned much about other areas. At the same time, Vande Berg (2007) noted that criticality of intervening pre-departure, intra-experience, and post-return to generate optimal learning benefits for students on study abroad programs.

One area in which experiential learning activities appear to have been limited is that of Operations Management. Polito, Kros, and Watson (2004) tested OM concept recognition via the use of the Zarco manufacturing experiential learning activity. Fish (2008) reported on graduate students' application of operations management processes to their employers. Bardati (2006) reported on the use of the campus environmental audit as an operations planning tool. The authors identified no instances of cases in which experiential learning activities were being conducted in international settings. As such, the current program reports on the development and implementation of a novel experiential learning approach to engender appreciation of operations management concepts within the global context.

EXPERIENTIAL LEARNING APPLIED TO A STUDY ABROAD OPERATIONS MANAGEMENT COURSE

The present program developed as an extension of an existing study abroad program called Business in Europe that had been in existence for 11 years at a medium-sized AACSB accredited college of business in the Southeastern United States. The purpose of that study abroad program was to expose students to the economic, socio-cultural, and political-legal environments of the France, Germany, and Spain with an emphasis on how business practices differ from those used by companies here in the United States. The addition of the Production Operations Management course to Business in Europe study abroad program in May 2012 was targeted for several reasons: (1) it was a required course for graduation for all B.S. Business Administration majors, thus creating a large potential market; (2) it fit well with the range of activities generally conceptualized on the program; and (3) it had been tested in a study abroad program in a new study abroad program in a previous year.

In addition, it is clear that aspects and key concepts of operations management are present in many ways within the development and management of a study abroad program since from the basic concept, attributes of project management are applied. Each study abroad program is essentially a new project, each with its own start and target finish dates, scope in terms of travel areas, time at each destination or step and size of class. Even if the trip has been completed in a past school session, the dates, airline, environment, housing options are different, and student groups are different. Process issues are applied in the order and time allowed at each country destination, business or event to visit. Scheduling issues are addressed in mode of transportation and its availability (publicly scheduled transport), capacity of chosen transport and business operating hours. Queuing issues arise in moving a group through airports, train stations, and sports events, as well as in the actual encounters that the group has in each business it encounters. Do you keep the group together utilizing a single queue, single server, or single channel-multiple server, or multiple queues with single servers? Constraint applications are encountered in several of the previously mentioned operational topics. How well these are applied directly influences the quality, safety, satisfaction, cost, of each program.

Consideration for including the program was evaluated for its ability to engage students actively on key concepts in operations management to create a similarly rigorous and concept-based exposure to that the students would have received in a traditional on-campus delivery of the course. As such, an evaluation was done of the key concepts in OM covered by three leading undergraduate textbooks in the field (see Table 1). Development of the student assignments and preparation was based on a strong appreciation of David Kolb's (1984) four learning abilities deemed critical to experiential learning: (1) concrete experience to process the stimuli through cognitive memory; (2) reflective observation to recover and

consider their memories; (3) abstract conceptualization to apply theoretical principles and concepts to the observed and experienced stimuli; and (4) active experimentation to come to new understandings and problem solving. Elaboration of the appropriate pre-departure preparation and reflection required to provide a baseline experience of theoretical and conceptual learning for students to identify operations management issues. Student assignments were crafted to require double loop journaling to capture what Kolb (1984) noted as reflective observation and abstract conceptualization. Finally, as a result of the experience, faculty members involved developed a set of ten teachable moments in Operations Management.

Table 1. Content Areas Noted Within Leading Operations Management Textbooks

	Content Addressed	Operations Management: Creating Value Along the Supply Chain, 6 th ed. Russell & Taylor, Wiley	Operations Management, 11 th ed. Stevenson, McGraw-Hill	Operations Management, 10 th ed. Heizer, Render, Prentice Hall
1	Intro to Operations <i>Overview of role of operations management</i>	X	X	X
2	Quality Management <i>Overview of the quality movement, history, and key individuals involved</i>	X	X	X
3	Statistical Control <i>Presentation and explanation of developing statistical process control charts for monitoring performance</i>	X		X
4	Product Design <i>Types of product design; process or product, characteristics and advantages of each</i>	X	X	X
5	Service Design <i>Characteristics and issues of service operations</i>	X	X	X
6	Process Planning <i>Types of processes, advantages and disadvantages, measuring & monitoring</i>	X	X	X
7	Capacity & Facilities <i>Discussion of capacity as a strategy, and coverage of layout decisions</i>	X	X	X
8	Human Resources <i>Acquiring, motivating and managing employees</i>	X		X
9	Project Management <i>The role of projects in meeting corporate strategy</i>	X	X	X

Table 1. Content Areas Noted Within Leading Operations Management Textbooks (Cont.)				
10	Supply Chain <i>The design and improvement of supply chains and tools for monitoring</i>	X	X	X
11	Global Sourcing <i>The role of procurement, outsourcing and distribution</i>	X		
12	Forecasting <i>The role of forecasting in supply chain management</i>	X	X	X
13	Inventory Control <i>Elements of and types of inventory systems</i>	X	X	X
14	Sales & Operations Planning <i>Strategies for demand and capacity decisions</i>	X	X	X
15	Resources Planning <i>Discussion of MRP /ERP issues, dependent & independent planning</i>	X	X	X
16	Lean Systems <i>Elements of lean production, pull vs. push, waste reduction</i>	X	X	X
17	Scheduling <i>Types of scheduling, objectives of and sequencing</i>	X	X	X
18	Linear Program <i>Review of mathematical models for optimization strategy in decision making</i>	X	X	
19	Maintenance & Reliability <i>The steps required to ensure that assets continue to perform as required</i>			x

After extensive review of key operations management concepts prior to departure, students left on an 18-day study program in France, Germany, and Spain. During this program, they were required to participate in a variety of learning experiences, including company visits, production observations, and/or presentations with firms in banking, chocolate, education, stainless steel, personal care products, retailing, marketing, solar and wind power, professional sports, broadcasting, fast food, and non-governmental public policy groups. In addition to these scheduled experiences, they encountered numerous operations activities in the act of getting to and from these meetings (e.g., public transportation and cafeteria settings in different countries), as well as in daily living during the program (e.g., restaurants, hotels, retail encounters, etc.). Finally, at several of the partner universities with which the group participated, students worked in collaborative virtual and on-site teams to deliver on specific evaluative assessments. As such, each student was asked to focus daily on operations management issues that they observed each day of the program. In daily program journaling, they were asked to identify and elaborate on operations management concepts that this issue identified, to break down the process, to consider the potential explanations (cultural, institutional), and to identify effective and/or ineffective elements of those issues. Each student was also responsible for developing a research paper that integrated his or her learning on operations management throughout the experience. As such, the experience allowed for the comparison

of operations management issues, such as layout, process design, lean systems, queuing theory, and others across multiple cultural and institutional concepts. This benefit was not one that was available in their regular in-class experience on campus.

The ultimate benefits of the program were clear through student reflection in journaling that each completed during the course of the program. Topics that they discussed included process flow, layout and design, and anecdotally, the student group would be walking down the street talking about bottlenecks, process flow issues, and queuing theory as a normal course of discussion. Moreover, in addition to the student benefits from this experience, the project resulted also in the elaboration of a set of key teaching moments that the faculty thought could be transferable to the domestic classroom, such that the richness of operations management abroad could be appreciated. These teaching moments are introduced next.

TEN TEACHING MOMENTS IN INTERNATIONAL OPERATIONS MANAGEMENT

As a result of experiencing this process with the students, the faculty members involved identified the following teaching moments that are transferable as lessons to the on-campus operations management classroom. The ten teachable moments are displayed in Table 2. The teaching moments are listed here, but each is being developed more comprehensively by its title, the operations management concept focused upon, and the way in which the teaching moments can be explored for their origins and implications. In all cases, the goal is to make available the benefits of experiential learning to the on-campus classroom in an operations management classroom, thereby increasing the derived benefits of both increased diversity and experiential learning in the operations management classroom.

Table 2: Ten Teachable Moments in Operations Management Abroad

Title	Teaching Emphasis	Focal OM Areas
1. It's Not Over Until The Big Bus Leaves	The process of getting a group from point A to point B enables us to evaluate the effects of multiple entry and exit points, push versus pull systems, and queuing.	Queuing, Service Design, Supply Chain, Lean Systems
2. Where's the line?	Queuing systems design differs by the country environment, layout constraints, and institutional expectations.	Queuing, Service Design, Scheduling, Supply Chain, Product Management
3. Hey, they have Fords here.	The development of global supply chains, including sourcing and product design/brand management are affected by the international environment.	Supply Chain, Product Design, Quality Management
4. What letter is my seat on the train?	The elaboration of co-location systems for international trains allows for the development of understandings of key product design issues (train inventory and scheduling) as well as their explanation to the customer (platform and online communications, ticketing systems, etc.).	Process Design, Process Flow, Inventory Management, Resources Planning, Sales and Operations Planning

Title	Teaching Emphasis	Focal OM Areas
5. If you have to ask...	The viewing of process systems in a language other than one's own allows us to see the utility of signage that is not language specific, as well as to more clearly see the way in which consumers are introduced to and processed through the respective systems. Experience through encountering public transportation systems, ordering in restaurants, etc. enables one to more clearly view attributes of the process and to identify needed areas for clarification of action/choice for customers.	Process Design, Service Layout, Scheduling, Sales and Operations Planning
6. How many steps does it take to make a chocolate bar?	The experience of touring a chocolate production factory enables viewers to appreciate the challenges of a dispersed supply chain, environmental and sustainability issues, the phases involved in lean production and the connection between inventory, sales and operational planning.	Resources Planning, Sales and Operation Planning, Inventory, Production Design, Product Design, Scheduling, Sequencing.
7. What color is your hamburger chain?	The review and encounter of numerous international brands, compared to the processes of well-known American brands such as McDonalds, allows not only for the identification of layout, service design and product design issues for the American firm, but also a clearer appreciation of competitor overlaps.	Product Design, Service Design, Capacity, Facilities Design
8. What happened to Joey?	When group members are separated from the team, the ability for discussion of the breakdown in process controls to service delivery is possible. The challenge of managing this constraint is enhanced by the linguistic and communications challenges posed by this setting.	Process Planning, Scheduling

Title	Teaching Emphasis	Focal OM Areas
9. How long does it take to get to Madrid?	The experience of breaking down the process requirements for getting groups of assets (people) to and from locations together can be explored in the context of the group transfer between countries. This process allows students to transfer knowledge about forward thinking and backward planning for all Resource Planning issues.	Resource Planning, Scheduling, Process Design
10. Why does it matter how fast Sallie walks?	The movement of a group in the international travel program helps to set up a wonderful discussion about the proximity of arrival between the first and last units, the ability for distractions and bottlenecks to arise, and the needed adjustments to develop in processes to adjust for variations in pace and other factors to arrive at successful outcomes on ongoing basis.	Process Design, Queuing, Scheduling, Lean Systems

DISCUSSION AND CONCLUSIONS

The value of experiential learning has been widely recognized. This paper elaborates the process of applying these concepts to the area of operations management in a study abroad context. Learning about the theories and then actually visiting production and service facilities let students learn and actually *put into practice* the valuable skills. Students experienced learning by doing and then reflecting about the experience. This process allowed them to become more critical consumers, and by extension business leaders, in the delivery of these operations. Ultimately, students began to realize that everything they experienced was a process that could be influenced by businesses or government and that the formalization of this process depended on the cultural and institutional settings within which the process was grounded. The learned to evaluate and assess the attributes of these processes which will enable them to more effectively plan and deliver processes and production experiences in the future.

This experience has enabled the college to focus on a more clearly defined set of learning outcomes for this course in upcoming study abroad programming based on the early indications of the strongly positive outcomes of this program. It also clearly reinforced the clear applicability of the operations management course to a study abroad program setting, as it demonstrates real-world knowledge and skills that are easily transferred to other business situations. In addition to helping each student participant to see how operations practices are both different and similar in settings in different countries, the opportunity also provides the job candidate with increased potential for their association with the businesses after graduation, since all now have direct contacts with leading individuals in the organizations that the group visited.

Suggestions and future research is encouraged to more formally evaluate the outcomes of this experience for applied learning. Additional emphasis in upcoming years can more fully define a broader range of anticipated engagement based on the concepts noted in Table 1 as scheduling with firms and organizations are made. Future focus can also be on engaging and formalizing the teaching moments and to engaging a broader dialogue with university and business partners abroad to bring the benefits of this program to the on-campus classroom environments. In any case, it is clear that this approach is one that

bears further attention and focus as a means of engaging students actively in both the conceptual framework of operations management and the appreciation of cultural and institutional diversity that crafts the global business environment.

REFERENCES

- [1] AACSB International (2012). *Eligibility procedures and accreditation standards for business accreditation*. January 2012. Accessed on May 27, 2012 from <http://www.aacsb.edu/accreditation/standards-busn-jan2012.pdf>.
- [2] Bardati, Darren.(2006). The integrative role of the campus environmental audit: Experiences at Bishop's University, Canada. *International Journal Of Sustainability In Higher Education*.7,1, 57-68.
- [3] Dillon, M., McCaskey, P. and Blazer, E. (2011). MBA Internships: More Important Than Ever.*Journal of Education for Business*, 86,1, 44 – 49.
- [4] Feinberg, B. (2002, May 3). What students don't learn abroad. *Chronicle of Higher Education*,48,34, B20.
- [5] Fish, L. A. (2008). Graduate student project: Employer operations management analysis: *Journal of Education for Business*, 84,1, 18- 30.
- [6] Forsey, M., Broomhall, S., & Davis, J. (2012). Broadening the Mind? Australian Student Reflections on the Experience of Overseas Study. *Journal of Studies in International Education*, 16(2), 128-139.
- [7] Harsell, D. M., & O'Neill, P.B. (2010). Experiential learning: Lessons from the UND business and government symposium. *American Journal of Business Education*, 2, 8 (November), 9 – 14.
- [8] Heizer, J., & Render, B. (2011). *Operations Management*. 10th ed. Prentice-Hall.
- [9] Institute for International Education (2011). *Open Doors 2011: Report on International Educational Exchange*. Accessed on May 15, 2012 from <http://www.iie.org/en/Research-and-Publications/Open-Doors>.
- [10] Kolb, D.A. (1984). *Experiential Learning: Experience as a Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.
- [11] Maskulka, T.A., Stout, D.E., & Massad, V.J. (2011). Using and assessing an experiential learning project in retail marketing course. *Journal of Instructional Pedagogies*, 6, 1 – 20.
- [12] Nunan, P. (2006). *An exploration of the long term effects of student exchange experiences*. Paper presented at the IDP Australian International Education Conference, Perth, Australia. Retrieved from [http://www.aiec.idp.com/pdf/Nunan%20\(Paper\)%20Thurs%200900%20MR5.pdf](http://www.aiec.idp.com/pdf/Nunan%20(Paper)%20Thurs%200900%20MR5.pdf) on May 20, 2012.
- [13] Polito, T., Kros, J., & Watson, K. (2004). Improving operations management concept recollection via the Zarco experiential learning activity. *Journal Of Education For Business*, 79(5), 283-286.
- [14] Russell, R. , & Bernard, T. (2008). *Operations Management: Creating Value along the Supply Chain*. 6th Ed. Wiley.

- [15] Stevenson, W. (2012). *Operations Management*. 11th ed. McGraw-Hill.
- [16] Tompkins, T., & Schlesinger, M. (2010). Integrating real-world entities into an academic curriculum. *Journal of Instructional Pedagogies*, 4, 1 – 16.
- [17] Vande Berg, M. (2007). Intervening in the learning of U.S. students abroad. *Journal of Studies in International Education*, 11, 392-399.