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Teaching operations management in an integrated format: Student perception and faculty experience

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ABSTRACT

Understanding the role of the operations function is an important part of any business student's training. Here we present and analyze our experience of teaching operations management by integrating it with other business disciplines. A survey instrument was developed and students were asked to complete the online survey at the beginning and at end of the semester. Statistical analysis was performed on the responses received. Using factor analysis and structural equation model we assessed student perceptions. We found that students perceive learning operations management in an integrated format quite useful. Students are well trained to understand the interrelationship of operations management with other business functions. The experience and viewpoints of faculty members developing and delivering the integrated course over a significant period are presented as well.

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1. Introduction

Through the years, most business schools have delivered core courses in a silo approach—especially management, finance, marketing, and operations management. As a result, business schools have traditionally turned out narrowly focused graduates who are often unaware of how decision making by one functional area affects or is constrained by decisions made by other functional areas. For example, many graduates fail to see how finished goods inventory, while desirable by marketing in order to meet demand from available stock, may prevent operations personnel from producing goods and services that can be competitive in terms of features or pricing. They also fail to see how this inventory can show up on the income statement as something that directly affects bottom-line profitability. This, of course, is just one example of how the silo approach to teaching can lead graduates to miss the big picture of business management.

In order to address the above problem, faculty at our institution developed a course that focuses on 'business' instead of 'discipline'. The integrated course is over a decade old and is constantly evolving based on student feedback as well as feedback from recruiters and other external constituents. The course is regarded as a competitive advantage by the Association to Advance Collegiate Schools of Business as well as by *Business Week* in its 2006 ranking of comprehensive undergraduate business schools. *Business Week* singled out our program for its course in which student groups prepare business plans (Lavelle et al., 2006). We use the business plan development exercise as a tool to foster student learning of the interdisciplinary nature of real-world business and were glad to receive acclaims from external entities for doing so. Nonetheless, we felt that an objective review of the current offering would be useful. We, the operations management faculty, particularly focused on our discipline in the context of the integrated learning environment.

The purpose of this research is to assess student perception of teaching operations management by integrating it

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with other disciplines and to analyze the experience of the faculty teaching the integrated course. The following two sections review literature regarding such courses and detail how faculty at our institution deliver the operations management course in an integrated format. This is followed by discussion of the current study's research questions and methodology. Finally, discussions on results are presented followed by concluding remarks.

2. Literature review

Traditionally, business students have shown apathy toward operations management courses due to lack of knowledge, limited exposure to the discipline, and difficulty with the quantitative aspect of the course (Desai and Inman, 1994; Mukherjee, 2002; Peters et al., 2002). Over the years, academicians at several business schools recognized the need to modify and enhance the content and delivery of operations management (Bahl, 1989; Raiszadeh and Ettkin, 1989; Chase and Zhang, 1998; Luque and Machuca, 2003; Peters et al., 2005). Some of the initiatives for modifying the operations management course have focused on integrating it with other business disciplines with the intention of facilitating student understanding of interdependency of various business functions and promoting collaborative learning through a number of activities ranging from role playing to team projects. Yazici (2004) found collaborative learning experiences to improve students' analytical aptitudes, strategic thinking abilities, and communication skills. Darian and Coopersmith (2001) presented the efficacy of integrating a marketing course with a course in operations management by coordinating learning objectives, sequence of topics covered, and project assignment. Overall student feedback was quite positive. Morris (1997) reported an initiative at the University of Idaho that replaced 21 hours of core curriculum with the Integrated Business Common Core program. The program is two semesters long. The first semester is made up of four modules including business systems, team building, planning and decision making in organizations, and product and process planning. These courses provide students with the 'big picture approach' to business. For the most part, first semester courses are focused on long-term decision making or strategic management. Day-to-day decision-making coursework occurs during the second semester. These modules include managing the firm's resources (i.e., financial, human, and information) and business operating decisions (i.e., decision making that takes place from the time of customer order until the time of delivery). Faculty members in the Idaho program hold degrees in marketing, finance, human resources management, operations management, and management information systems. The Idaho program utilizes an integrated case to facilitate course integration.

Clemson University utilizes an industrial-strength enterprise resource planning software to facilitate learning in the undergraduate operations management course (LaForge and McNichols, 1989; LaForge and Busing, 1998). Students begin by observing the management of a fictitious manufacturing firm. The firm produces office furniture that is shipped to customers once a week. At mid-semester, a student team takes control of the company. The actively engaged student employees consist of master schedulers, inventory managers, and work center managers. The Clemson project was found to facilitate a higher level of learning than a course covering traditional Operations Management topics. Students must coordinate with one another in order to deliver product to customers on a timely basis while not holding excessive work-in-process or finished goods inventory. As a result, students see how decision making at one level affects decision makers at almost every other level of the organization.

Similar to the Clemson project, faculty at California State University Chico acquired an enterprise resource planning software to support the undergraduate curriculum. After taking the course, students reported that the use of ERP software provided a basis for understanding inter-dependencies of functional areas of organization (Boykin et al., 1999). Faculties believed that the use of the ERP software motivated non-business majors to take the course. Polito et al. (2004) compared performance in operations management course between a student group exposed to a mock factory experience and a student group without a similar experience. They found experiential learning activities had significant impact on students' recollection of operations concepts that were closely tied with the activities. McKone and Bozewicz (2003) discussed an experiential simulation of a service organization requiring students at the Babson College to make decisions by integrating concepts in management, marketing, accounting, and operations. It was reported that exposure to such an integrated decision-making process was quite beneficial for student learning.

A number of researchers studied a variety of innovative approaches used in teaching operations management. For example, Greasley et al. (2004) assessed student experience of a virtual learning environment used in operations management course. Lewis and Taylor (2007) analyzed various types of games used to teach operations management courses. They found that games were usually effective to teach some key concepts although there were scopes for further improvement. Holweg and Bicheno (2002) developed a simulation game that overcame some of the limitations of the popular MIT beer game. They reiterated the usefulness of such a hands-on experience to facilitate student understanding of supply chain characteristics. Satzler and Sheu (2002) found use of integrated Lego projects to be effective in teaching operations management in large classes. They have successfully used Lego projects to teach product design, statistical quality control, workforce management, aggregate production planning, material requirements planning, and process/layout design. Kanet and Barut (2003) presented an application of problem-based learning in teaching operations management and demonstrated its usefulness.

The approach at our institution is unique (details are provided in the next section), although it has some resemblance to the program at the University of Idaho.

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