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HAVE WE TAUGHT OUR STUDENTS THE RIGHT STUFF?

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Operations Management involves managing the resources that are required to convert inputs to outputs. These resources include materials, capital and people which requires decision making within the operations function to be cross functional (Schroeder, 2000). The resulting impact is that whenever an operations manager makes a decision, he or she should be cognizant of its impact on other areas within the firm, such as finance, marketing and human resources, as well as the external partners such as suppliers and customers.

Our question is whether Production and Operations Management (POM) educators are training students adequately to make the necessary cross functional decisions. Recently Bennis and O'Toole (2005) critiqued the whole focus of business education in the *Harvard Business Review*. They pointed out that the general business school model currently in use dates back to the 1950's and is probably too academic and functionally oriented to serve the current needs of businesses. While this issue is not unique to the POM field, in this article our goal is to initiate a dialogue regarding this issue.

In our opinion, we can all do better if we consciously spend more time discussing the cross-functional impact on the organization. An examination of some syllabi on the POMS website and recent POM textbooks indicates that at least in some cases a cross-functional approach to teaching POM is gaining momentum. We see this as a positive development that ties in with Porter's Value Chain (Porter 1982), which suggests that the operations value chain does not exist in a vacuum, but rather in a cross functional universe integrated with human resources management, marketing and other activities.

Traditionally, most POM syllabi are taught by topics and each topic is developed to optimize or near optimize a selected performance measure. From our experience, a discussion beyond a single measure of performance may occur in the classrooms but the extent is dependent on the situation in which the course is being taught – engineering versus business faculties, case based versus lecture type pedagogy, training of the instructor (operations research versus operations management focus), number of contact hours in the course, and other factors. For example, when we teach inventory management, many of us spend a great deal of time teaching models such as the Economic Order Quantity (EOQ) where students are shown how to determine the least cost order quantity. Often we do not have time to discuss the impacts of EOQ and inventory decisions on other functional groups and resources such as capital and people. Also we often fail to discuss how other functional groups and resources may affect our ability to implement the POM decisions.

In this paper we emphasize the cross functional imperative in teaching POM and suggest ten issues that POM educators should consider in their curriculum. It is not our intention to list all issues or suggest a complete solution to each issue. Some of the issues, for instance, relate to skill sets that are typically not taught in a university-level curriculum; nevertheless they are important skills that POM students should have in order to succeed in their future careers. Our discussion is thus intended to make us, as POM educators, think about how these issues should be handled and taught within POM. Indeed, some of these issues are taught in courses other than POM, such as Marketing and Human Resource Management, but often the issues are not linked back to POM. We as POM educators should not assume that our students can automatically make these links. We should proactively make our students recognize the links explicitly.

<u>Know what our non-POM colleagues do:</u> There are recent articles in leading Operations Management, Management Science and Industrial Engineering journals (for examples see Boudreau et al. (2003), Boudreau (2004), special issues of *Management Science* (Volume 49, Number 4, April 2003) and *IIE Transactions* (Volume 36, Number 10, October 2004)) that have discussed the need for more research on managing people in operations. For example, a recent article by Cook et al. (2002), discussed recognizing human issues in service design. While most POM professors do recognize the importance of managing people well in operations, we typically have left the people issues to the Organizational Behavior (OB) faculty.

...right stuff... from page 15

Most of us either do not have the expertise to discuss the people issues or simply ignore the issues at our students' peril. As POM faculty we need to understand what our POM students are learning in their OB courses taught by our OB faculty. After taking these OB courses, do our students really know how to manage people better in operations or specifically, set up a better incentive scheme that aligns the workers' goals and aspiration to the business/operations objectives? How many and what type of OB courses should we require our POM students to take? We need to understand if these courses adequately prepare students to consider the people issues when designing and operating business systems.

Similarly, there is also a need to know what our marketing colleagues teach, especially in the area of service management. Review of recent textbooks and syllabi on Service Marketing and Service Operations (which are typically taught by Marketing and POM faculty respectively) shows an increasing overlap in the topics covered. Clearly, POM and Marketing faculty have gradually realized the need to teach services as an integrated subject.

It would also be beneficial for most POM educators to understand the content taught by the finance and accounting faculty and integrate the financial matter into their POM teaching. For example, in a global business environment, POM students must understand how factors like the exchange rate fluctuation, product costing, overhead costing, transfer costing and other financial and accounting matters will influence their POM decisions.

Process Implementation Issues: In POM, we have traditionally focused on teaching students how to analyze processes and suggest solutions. What we often ignore is that even the best plan or solution is of little value if it is not implemented well with the cooperation of various members including our information systems colleagues. Consequently, stopping at the analysis of processes, we risk graduating students who may know what to do, but lack the ability or acumen to know how to get the solution implemented. For example, they may choose the wrong time to propose and discuss the process improvement solution with their management. They may also choose the wrong time to announce the planned changes to the people affected. They may lack the skills to convince and persuade management, and affected peers and subordinates to accept the ideas and implement the solution success-

on the internal and external forces to get a solution implemented well. It is often not the students' fault because we, the educators, have often failed to discuss with our students the 'when, who and how' of solution implementation.

The Barilla case from the Harvard Business School (Hammond, 1994), shows that to have a well-planned implementation of a Just in Time Distribution (JITD) program it is important to address the resistance of a variety of stakeholders. The company must address the concerns from the customers and sales-team that they could become redundant or suffer financial losses from the stoppage of bulk-order discount and sales commission. The case also suggests that Barilla should be more astute in "selling" the JITD program to its distributors by first implementing it at its own distribution centers and demonstrating its success. As educators, have we impressed on our students the importance of paying sufficient attention to such issues? Most likely, we have not.

Using the right person for the right job: Given a team of people with diverse skills, decision makers often fumble by appointing the wrong managers/leaders or delegating the tasks to the wrong people. Have we taught our students how to recognize the difference in people's ability, interest, motivation, ability to lead, and other skills to get the job done well? Do we teach our students to consider the subordinates' personal goals and whether they are in line with the business goal when appointing and delegating people to different tasks? Consider our own academic environment. In some business schools, there are two groups of faculty – teaching and research. Appointing one versus the other in an administrative position would mean a bias toward teaching or research. In addition most business schools have clerical staff whose career objective may be to supplement their family income. For many their aspiration is to leave the office by five in the afternoon, even though there are some who are looking for greater challenges. Should we teach our students how to identify and hire only those with greater aspirations? Have we taught our students to recognize the differences and deploy them accordingly?

Silo mentality: POM professors as well as professors from other areas, have assumed that if we teach students our functional issues, at the end of their degree program, whether an undergraduate or graduate student, they will have integrated all their knowledge and be able to make decisions in an integrative manner. For example, we assume

...right stuff... from page 16

that if we teach the Economic Order Quantity (EOQ) model, the Accounting professors teach costing, and the OB professors teach worker motivation and training, our students will be able to implement in the workplace an inventory management process that uses the correct costs. However, in reality this is often not the case. Costing numbers are often hard to obtain, yet in our classes, costing numbers for the EOQ model are almost always provided which may lead to a false sense of security. Similarly, rarely is there a discussion on how one can ensure that employees are qualified and motivated to operate an inventory management system on a sustainable basis.

A classic example is illustrated in the Blanchard Importing case from Harvard Business School (Marshall and Drinan, 1972) which highlights the need to break away from functional silos. This case discusses the implementation of an inventory system where the costing numbers to be used in the inventory model are suspect, the assumptions of the proposed model are not satisfied, and the employees are not trained in inventory management. Thus implementing a solution involves more than simply plugging numbers into the inventory model to arrive at an order quantity. Rather it involves implementing an appropriate system given the actual environment in the facility.

The need to break away from the silo mentality also suggests that a more integrative view in teaching the impact of POM decisions is needed. We should illustrate the positive impact and importance of good operations on other functions such as marketing or even finance. For example the French insurance provider AXA clearly recognizes the importance of operations in financial services by using manufacturing approaches modified for their environment including Six Sigma, cost modeling and benchmarking (Monnoyer and Spang, 2005). The company is convinced that operations can give it the profitability edge in the current business environment where equity markets cannot guarantee a healthy return. Many of our students do not major in Operations but rather in Finance or Marketing, good operations examples from a purely financial or marketing business facilitate a healthy appreciation of the role of operations management in any organization.

Basic Skills: We often teach our students materials that are relevant only if they are middle and higher level managers. Today's education system graduates students in large numbers and many of our students will be starting their careers as lower level managers. At this level,

what they need most are skills on how to serve and interact with customers. A trade school often teaches its students such skills as how to answer telephone calls, how to handle an unhappy customer or how to set up a filing system. But we, as university professors, simply assume that our students know how to handle such situations. Since our graduates are not trained to handle such situations, can they really do better than the trade school graduates in similar starting positions? If they cannot perform better in such positions, why should their supervisors promote them rather than trade school graduates? So what confidence do we have that our graduates will eventually rise up to the higher level and be given opportunities to use the knowledge that we have taught. In our opinion, few university professors would agree to teach such basic skills at the university level even though these skills are important to the students.

Empowered Employees: While we teach process improvement, do we attempt to convince our graduates to have pride in their work - serving others, especially in the early part of their career? The joy of seeing a happy customer should come first and the reward of big fat paycheck should come later. Second, as managers they should be creating the passion for work in their subordinates. Many people or workers whom they will be managing are doing tasks that are mundane, boring and unchallenging. For example, as a chambermaid, how can one find joy or interest in cleaning the same rooms every day? Have we taught our students how to challenge such workers to excel, day after day, in their jobs? For example the Ritz Carlton case from the Harvard Business School uses the slogan of "Ladies and Gentlemen Serving Ladies and Gentlemen" to increase the self esteem of such workers (Sucher and McManus, 2001). However, do our students really know how to motivate workers on the importance of their tasks to the success of the company and their future advancement? Personally, do we know what and how to teach our POM students to inspire their workers to excel daily in 'mundane' tasks?

Teamwork: As we all know, the success of operations often depends on a collegial team working together as one. Conflict within an organization may damage and destroy long-term working relationships and cooperation. It is vital that we teach our students how to work with people at all levels throughout an organization.. How much do we know or teach our students on ways to reduce and handle these workplace issues? Having our students work on projects is one way in which we can let them learn about teamwork and experience firsthand the potential conflict of working in teams. It is our responsibility as

...right stuff... from page 17

educators to act as advisors to educate and prepare our students to handle these types of challenges in their future workplaces. However, we need to know enough to teach our students structures, processes, and policies that can help reduce and handle inter-personal issues that occur in workplaces. Honestly, some of us may choose academic careers to avoid the pain of working with people.

Recognition and Reward: We all know the value of people in process improvement. We need to instill in our students the importance of being recognized individually for a job well done without having a detrimental effect on somebody else's contribution. Ultimately, every individual wants to be recognized for his or her contribution. Take a situation where Worker A has some suggestions that may improve the effectiveness of a process managed by Worker B. It is understandable that Worker A may want to be noted for her contribution, for example, by forwarding her suggestions to both Worker B and their common supervisor instead of sending her ideas directly to just Worker B. Naturally, Worker B may respond by attacking the suggestions if she is wary of being seen as not doing her job well. While we understand Worker A's desire to be recognized for her thoughts, the relationship between the two workers may be tested. How should the supervisor handle this type of situation? How should Worker B respond? What can Worker A, Worker B and the supervisor do to defuse the situation and evaluate the suggestions objectively? To avoid this type of scenario, is there a better means for soliciting and rewarding constructive suggestions? Have we taught our students how to handle such a situation or have we left it to our OB colleagues?

Managing in a multicultural and global environment. Nobody will argue that students regardless of which part of the world they live in will have to manage in a global and multicultural environment. As previously mentioned, in POM we tend to focus on processes and sometimes we do not pay attention to some of the other issues. We need to impress upon our students that in order to manage processes effectively, they must consider the culture differences which may affect the management of their process. When we transfer a successful process from one country to another, we need to consider the cultural practices that may affect the process. This is not to say that it cannot be implemented, the issue is that students have to recognize that cultural differences have to be addressed in order for a successful implementation. For example, in certain countries it may be more acceptable for a

high value customer to jump a queue in a bank. Thus when setting up in these countries, this issue would have to be specifically recognized and dealt with. Thus students need to be aware of the need to understand and adapt to local customs when dealing with and designing processes for foreign customers and workers.

Ethics. Processes have to be managed within an ethical context. While many of the ethical issues in recent years have revolved around financial improprieties, ethics are also important in POM. For example, consider locating a facility in a country that has different standards regarding product labeling, fair trade purchasing practices, and working conditions. An organization may realize significant financial savings by locating in countries that are less stringent but the real question is the ethical dilemma which arises in this scenario. Another possible ethical issue is a situation where a worker or manager makes himself or herself irreplaceable by customizing or teaching no one the nature of his or her job. How should companies deal, handle or allay the fear of such employees? How do we identify such employees to ensure that they are not hired? Do we as instructors have an answer to such a situation? Ultimately we need to raise our students' awareness to the ethical implications of POMS decisions and students must learn to consider the ethical ramifications of their decisions.

The ten issues presented are not new, but they have become even more important in the globally competitive environment. Thus it is crucial that we start paying more attention to these issues. How might one address these issues? One possible way is to select teaching cases that bring out the issues mentioned above. For example, one can use a case like the Barilla case to illustrate the pitfalls of ignoring stakeholders in the implementation process or the Blanchard case to illustrate the need to break away from the silo mentality. However, there are not many examples of such cases. Faculty should contribute cases that are more integrative and bring out the characters of people involved to enrich the learning experience of case discussion. It is also important to examine material from outside POM. For example the concepts discussed in Thomas et al. (2002) on project management are useful for emphasizing the second of the ten points – the need to sell process improvement.

Some MBA programs have attempted to provide an education format that is integrative rather than functional to address the above issues. Thus, instead of offering courses in the traditional functional format, class sessions are focused towards integrated problem solving with

faculty members from different functional areas teaching together as a team. For example, the teaching team could address motivation, process management, reward and ethical issues in an integrated manner rather than independent courses.

Others have combined practicums with classroom lectures so that students could apply what they are learning in classrooms to real life situations. Yet other business schools have cooperative education (Co-op) opportunities where the degree program has alternate work and study terms. This allows students to take classroom theory into a real life setting. During a Co-op term they may often have to work in front line situations where they have to interact directly with customers, thus giving them an appreciation of issues that they would need to deal with when they start their career. Further, many universities have programs where the students spend a designated amount of time abroad to give them an appreciation of different cultures.

Another method of getting students, especially undergraduates, to appreciate the real life aspects of POM, is to get them to do projects where they are involved in the actual implementation. Often when POM students participate in industry projects, they stop after analyzing the existing process and suggesting improvements. This does not give them an opportunity to test whether the suggestions they made are realistic. As a result they miss the learning opportunity which could occur through actual implementation of their suggestions. In addition, if the projects are completed by teams, the students would have an opportunity to experience firsthand the team dynamics involved in working on projects.

Experts generally agree that students retain more by participating in active learning pedagogies such as experiential exercises. Experiential exercises like the Beer Game (Sterman, 2000) are effective in getting students to understand the dynamics of real life issues in organizations. We could also use the television programs like The Apprentice as teaching tools. While some may debate the "reality" element in a show such as The Apprentice or in featured films with fictitious plots, they undoubtedly can still hold vital managerial lessons. We can ask our students to watch and discuss the people issues involved in the successful completion of a task or job. Through this experience they may be more likely to use this learning in their workplace to make more integrated decisions. There are many strategies exist for us to help students obtain a better business education and become better

managers. Ultimately it is up to us, as educators to use them and in the long run our students will thank us for it.

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