

# Introduction to Operations Management: The MBA In-Class Experience

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**O**ur paper describes a design that redefined the nature of an introductory operations management core course in a part-time evening MBA program. The result allows students to be active, interested and informed participants in the learning process. The transformation is in the approach and does not interfere with the course content and rigor. The delivery employs tools that help us emphasize the in-class experience as a whole. The article includes the motivation, the implementation, and the evaluation of the course design.

## Motivation

The initial motivation for emphasizing the in-class experience arose from the realization that teaching in a part-time evening MBA program offers many unique challenges. First, it is important to acknowledge and respect the commitment that students express by simply showing up. To most it means enduring three hours of class time following a full day's work and coping with the inconveniences of a night away from their family. In order for students to further commit to the learning process, it is pertinent to convert this initial burden into a worthwhile experience which they identify as their own. Second, and more particular to OPM, many of the students will have had no exposure to production operations. So, for example, although inventory might seem an easy concept to understand abstractly, real appreciation of the issues is limited if you haven't seen inventory pile up on the shop floor or gone to stores and not been able to obtain the needed commodity. Popular phrases such as "just-in-time" and "zero inventory" can easily become trivialized. In addition, we have always emphasized quantitative

analysis because it offers grounding to students who have no experience with production or operations. However the quantitative analysis at this level can present an over simplified view of the real operations problems. We needed ways for students to experience production first hand and gain insight beyond what they might get out of listening to us lecture.

## Implementation

The course lasts 13 weeks with a three-hour class meeting every week. The objective in the first week is to introduce the subject of operations management and its various sub-topics. We also usually play a simple production game using spreadsheets. Students work in small groups guessing at demands, making production decision, and calculating costs and profits. The purpose of this exercise is to set the analytical tone and the experiential style of the course.

In the next 10 weeks we cover the typical topics of operations management (forecasting, resource allocation, project management, facility layout, JIT, supply chains, quality control, inventory, aggregate planning, and MRP) independently and in depth. Each of these three-hour classes is divided into four sections: lecture, activity-demonstration or game, class discussion, and in-class exercise. The order and length of each section vary depending on the topic. Each (including the lecture) is designed for student participation and involvement in a relevant, comprehensive and enjoyable way.

## The Lecture

The lecture is usually 90 minutes long and could either precede or follow the activity or demonstration. We use what we call "skeleton class notes" that we distribute to

the students. These are half-filled definitions, tables, numeric examples and such which the instructor and students, together, complete during the duration of the lecture. The notes serve two purposes—first, they keep this portion of the class focused and increase time efficiency. This is important in order to free time for the other class sections. The second purpose is to allow students an active role in this process. They feel a sense of ownership for their notes and pay added attention to their completeness and understanding.

### The Activity

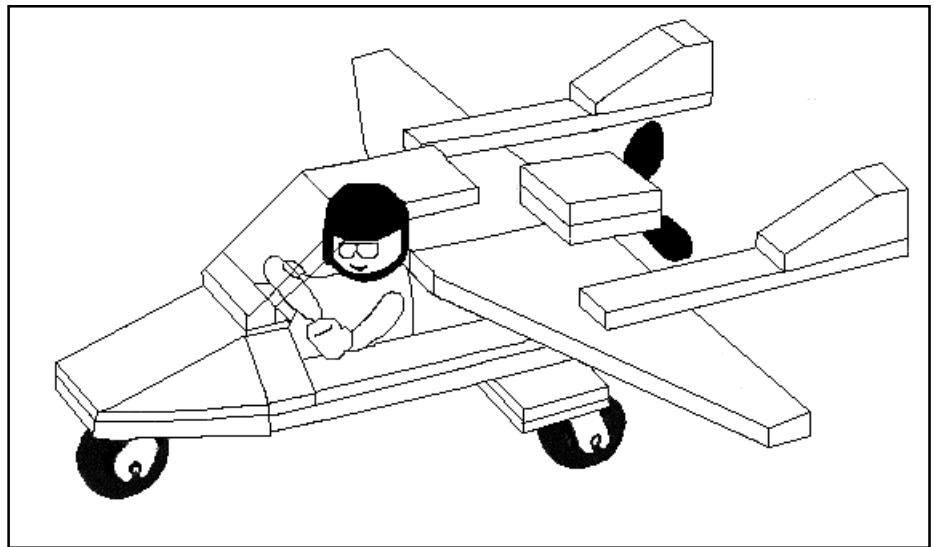
The lengths of the activities vary, from 10-minute short demonstrations to 90-minute team games. Each of the activities is designed to be directly relevant to the topic at hand. Each is used to introduce, explain, or point out limitations of theoretical concepts in operations management. A list of the activities and a description of how we use them is included in our experiential learning website (<http://web.lemoyne.edu/~wright/learn.htm>). Also accessible from the website is the original submission to the instructional innovation competition. The activities add a great deal to the classroom presentation. They allow students to experience first hand many of the operational problems. They help us increase their understanding and maintain their interest and anticipation of “ what comes next.”

### The Discussion

We usually spend 20 to 30 minutes discussing the topic at hand. We expect students to bring examples from their own work environment. To make sure that the discussion is relevant and does in fact involve the students, we look up the list of their employers and come prepared to pose specific questions to specific students. With very little initiation and direction on our part, the discussion is a lively and interactive part of the class. It is also the part where they most realize the value and extent of applicability of the subject matter.

### The In-Class Exercise

At the end of the class and in a computer lab setting, students are expected to answer a short question, often requiring spreadsheet analysis. This is where the nitty-gritty learning occurs. The students really appre-



**Figure 1: Designing and implementing a production line that can be used to efficiently assemble Lego planes is one of the in-class activities students experience in our MBA operations management class.**

ciate the time to immediately apply what they have just experienced. Although we collect and grade these exercises every week, it is their own enthusiasm that often keeps them working beyond the end of the class period.

The last two weeks are spent integrating the various topics of operations management. This is achieved through a team competitive Visual Basic simulation we designed called the “In-Class Manufacturing Game.” The game involves the production and sale of three products over 24 periods. Students are provided extensive information on production costs and sales forecasts. One class is spent producing production plans and students are expected to use spreadsheet tools to develop and evaluate their plans. In the second class the plans are actually implemented periodically. Students are expected to revise and update their plans as needed. Costs and revenues are tracked and the winning team is the one that has made the most money by the end of the game. This exercise serves two purposes: one is to integrate the various course topics and the other is to reinforce the importance and relevance of the subject matter.

### Evaluation

The design of the course is an iterative process and the emphasis on the in-class experience is achieved gradually.

- The skeleton notes are revised continually with increasing comprehensiveness and

cohesion. Our objective is to maintain the interactive nature of the lecture and increase efficiency without sacrificing depth or rigor.

- We currently use eight activities that we characterize as winners. Including these activities in our Operations and Production Management course has produced many real benefits for our students. This form of learning gives students an experience with which they can associate every topic. When they are faced with any of these issues in the future, the in-class activity is likely to provide the first recollection of their exposure to this area. Judging by the questions the activities generate, it seems clear that understanding of the real issues increases tremendously.
- We are frequently researching OPM issues as they currently apply to employers in our region. We make sure that these issues are introduced in the classroom discussion in a relevant and focused manner.
- The in-class exercises are periodically updated. They are increasingly based on real problems and utilize substantial data.
- The in-class manufacturing game has undergone several stages of redesign. At each stage additional issues, mechanisms for informed and deliberate decision making, and sensitivity analysis tools are introduced.

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The emphasis on the in-class experience is the cause of the transformation of the OPM introductory class from the *required evil* to what students often describe as the *best class in the MBA program*. It is important to note that, although we have and continue to make every effort to maximize the benefit of the three-hour class, the successful completion of the course requires much out-of-class-time commitment. Student performance evaluations include weekly reading and homework assignment

as well as take-home exams and report writing. The quality of this work clearly indicates that their level of comprehension has increased. And not only have students' understanding improved, but their interest in operations management has grown as well. It is the in-class effort that leaves us in a position to require, expect and receive more from our students. It is an instructor-student contract that sets an example for an effective and worthwhile teaching-learning experience.

Student course evaluations support these claims. When compared to course evaluations before this experiential approach, students gave much higher ratings to questions reflecting the extent to which course objectives were met, the course stimulated thinking, the amount of effort students put into the course, and the overall rating of the course. And, finally, this stuff is fun! And fun is invigorating. And invigorated people are far more likely to be stimulating and stimulated. ■

## Alpha Iota Delta—Decision Sciences Honorary

The purposes of Alpha Iota Delta are to confer distinction for academic excellence in the decision sciences, promote the infusion of the functional and behavioral areas of administration with tools, concepts and methodologies of the decision sciences and to promote professional fellowship among students, faculty and administration.

Membership in the honor society represents recognition of achievement and brings prestige to its members. It presents a unique opportunity for academically talented students in decision sciences to enrich their professional educational programs. Membership in Alpha Iota Delta is a symbol that employers will appreciate when they recruit for careers in business, industry, government and education. Membership is granted to both undergraduates and graduates.

### Are you interested in participating?

You can participate in the activities of Alpha Iota Delta, national honorary society of Decision Sciences Institute in a couple of different ways.

1. Starting a chapter. If you are interested in forming a chapter you can contact one of the officers (listed below) and ask for our handbook *Starting and Operating a Chapter of the Decision Sciences Honorary*.

2. You can attend the annual business meeting of Alpha Iota Delta at the 29th Annual Meeting of the Decision Sciences Institute, Las Vegas, November 21-24. If you are currently serving as a chapter sponsor or interested in becoming one, please plan on attending our session (see the final meeting program for exact date, time and location of the meeting).
3. You can volunteer to serve on the Alpha Iota Delta Liaison committee (a standing committee of the Decision Sciences Institute). If you are interested in serving in this capacity, please contact one of the officers listed below for further information about committee tasks and responsibilities. The members of the committee are annually appointed by the president of DSI.

### Year's Summary

At last year's annual business meeting of Alpha Iota Delta in San Diego (November 1997) several important decisions were made which are summarized below:

1. Alpha Iota Delta and Regional Activities Committee of DSI made several initiatives to improve Alpha Iota Delta's services at the regional DSI meetings. These initiatives include:

- a. An Alpha Iota Delta sponsored instructional innovation paper award.
  - b. Alpha Iota Delta organizational/information presentation at each regional meeting.
  - c. An Alpha Iota Delta representative invited to regional DSI board of director's meetings.
2. Alpha Iota Delta will work with the Association of Information Systems to possibly have it utilize Alpha Iota Delta as its honor society.
  3. Continue efforts to promote and encourage new chapters as well as to revive dormant chapters. ■

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