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IN THE FOLLOWING ARTICLE, Professor Larry Meile compares texts that may be suitable for an introductory course in Operations Management. A spreadsheet showing some of his comparisons may be viewed at <http://www2.bc.edu/~meile/DecisionLineTopicTable.xls>

DSI members are invited to suggest books that should be reviewed in this column and to suggest reviewers to review them. Send suggestions to the Feature Editor.

Selecting the Right OM Textbook for the Right Course

by Larry Meile, Boston College

Operations management emerged as a business discipline distinct from operations research and industrial engineering in the middle of the twentieth century and the first textbooks (*Analysis for Production and Operations Management*, Bowman & Fetter, 1957; *Modern Production Management*, Buffa, 1961) were written to guide students through the new field. Today the discipline is well established and there are many introductory OM textbooks on the market. The authors of these texts have worked hard to find unique approaches to what is essentially the same content. They organize the material in a way that provides a theoretical framework to help students understand how the topics relate to each other and they try to look into the future to find the themes that will be relevant to students who will soon enter a workforce that is very different from the one described in those earliest OM texts.

So what has changed since Bowman & Fetter and Buffa wrote their texts nearly half a century ago? Aren't the basic OM issues the same? Well . . . yes, they are. Managers are still concerned about efficiency and effectiveness. They still need to make decisions about processes and capacity and quality. But the context is very different and presents new challenges for young managers. Among these challenges are:

- The dominance of services in developed economies. Most of our students will

work in service environments and even those employed by manufacturing firms will likely work in a service process within those firms.

- The rapid advancement of technology. Technology, and especially information technology, is changing so quickly that even the most up-to-date textbooks can't discuss specific technologies without being outdated before they appear in print. Understanding how to use technology wisely is critical to the success of operations managers.
- Integration of activities within the firm and across firms (enterprise and supply chain management). Technology has enabled the rapid and inexpensive transfer of information between departments and between firms. Coordinating work to maximize efficiency and effectiveness is now possible in real time and at a level of detail we could only imagine two decades ago.
- The challenges of a global economy and a multicultural workforce. Operations managers are now faced with a plethora of issues related to globalization, from differences in the way work is organized to global markets and sourcing.
- The necessity to compete on multiple dimensions to meet continuously rising customer expectations.

Clearly these challenges are inter-related and decisions about one will affect decisions about the others.



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earned his Ph.D. in MIS from Texas Tech University. His areas of interest include innovative classroom education techniques, the use of information systems to support operations, and end-user computing support. He has published several cases and journal articles in *Case Research Journal*, *Interfaces*, *Communications of the Association for Information Systems*, *Operations Management Review*, and *International Journal of Service Industry Management*. This is his second article in *Decision Line*. He has contributed material to several textbooks, and has co-authored a book with Janelle Heineke on games and exercises for *Operations Management*. He teaches *Operations Management*, *Project Management*, *New Product Development*, and *Quantitative Methods* at both the undergraduate and graduate level at Boston College and is currently president of NEDSI.

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What the Texts Cover

Our Operations Management Group at Boston College undertook the task of selecting a book for our common core course. Based on that experience I would like to share my take on five of the books I reviewed (titles and authors listed below) and a few thoughts on what makes a text the right text and what make a course the right course.

All five texts cover the same core topics. For the most part, all five texts sequence topics from planning (including strategy and process analysis), to organizing (process design), to controlling processes. All five texts address the "hot" operations issues described above, although there are some differences in relative emphasis. All five texts are quite readable, with many examples included in the text to get students' attention and keep it.

They all share more-or-less the same chapter format. All start with chap-

ter objectives; all include chapter summaries, key terms, discussion questions, and, when appropriate, problems; all present solved problems within quantitative chapters; and all incorporate short cases. They all offer ancillary materials on CD-ROM (or DVD) such as software, spreadsheet templates, PowerPoint presentations, quizzes/exams, and web-based elements to help instructors design and deliver their courses.

So how do the texts differ? I have highlighted some of the particular strengths of each of the books in the sections below and have summarized some of the differences in Table 1. For an Excel file with a more extensive table that includes topics found in all the texts and can be sorted in several ways, go to the URL referenced at the end of this article.



Operations Management: An Integrated Approach
R. Dan Reid & Nada Sanders. John Wiley and Sons, 2005, 2nd ed. \$111, 671 pages (smaller foot-print than others)

THIS TEXT DESCRIBES HOW FUNCTIONAL areas within organizations are interdependent and decisions made in one area affect decisions in others and is therefore particularly engaging for students who will not be operations majors. The authors provide a balanced coverage of quantitative and qualitative topics.

The strategy chapter is organized around structural and infrastructural operations decisions and also includes a discussion of order qualifiers and winners. The project management chapter is strong on project scheduling tools, but

Key: No prefix = chapter
 App = Appendix
 distributed = covered in several chapters within the text
 Supp = Supplement
 CD = CD-ROM

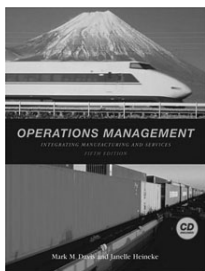
Topic	D&H	H&R	K&R	R&S	Stevenson
Process Measurement and Anal.	8	7-	4	3	distributed
Role of Technology	3	Supp 11	12	4	distributed
Work Measurement	Supp 8	Supp 10	no	11	7
Integrating Mfg. and Services	5	no	no	no	no
Reliability	no	17	no	5 -	Supp 4
Waiting lines	16/Supp 16	D	Supp C	CD-D	18
Maintenance	no	17	no	7 - -	Supp 14
Financial Analysis	Supp 2	no	CD J	CD-3	no
Decision Tools	no	A	Supp A	no	Supp 5
Learning Curves	no	E	CD G	11-	Supp 8
Linear Programming	no	App B/CD T3	Supp D	CD B	Supp 6
Simulation	no	F	Supp B	CD C	Supp 18
Spreadsheet Modeling (how to)	no	no	no	CD A	no
Statistics	no	CD T1	no	no	no
Transportation Model	no	C	no	no	Supp 8
Vehicle Routing & Scheduling	no	CD T5	no	no	no
Financial Tables	App A	no	no	no	no
Z-tables*	B (3)	App I (2)	App 1 (1)	App B (1)	App B (3)
Table of <i>p</i> values*	no	App II (2)	no	App C (1)	App B (2)
Table of Random Numbers*	no	App IV (1)	App 2(1)	no	no

* Numbers in parentheses indicate number of tables provided.

Table 1: Summary of OM textbook differences.

includes little on the managerial aspects of projects. The text covers the basic quality tools and quality function deployment. The forecasting chapter has a good section on selecting which forecast method to use. The supply chain management chapter has a very good discussion of information technology issues but has little on the trade-offs between supply chain efficiency and effectiveness.

This text is particularly readable and accessible to students. Each chapter ends with two cases, although most of these are short and more like extended word problems. It includes a CD tutor module on developing spreadsheet models that the other texts do not. I like the way the authors present Excel templates in a format that requires the students to generate the necessary formulas to create the models instead of simply running the models as a black box.



Operations Management: Integrating Manufacturing and Services
Mark Davis & Janelle Heineke. McGraw Hill/Irwin, 2004, 5th ed., \$115. About 680 pages.

THIS BOOK HAS EVOLVED from what was originally a text by Aquilano & Chase but the authors have given it an entirely new direction. Its emphasis is now on service operations but this is blunted somewhat by the sequencing of topics in the chapters, with manufacturing examples often preceding service examples. It is the only text that devotes a chapter to the service aspects of manufacturing.

The strategy chapter of this text describes the structural/infrastructural and order qualifiers and winners models and includes a very useful schematic of what the authors call the generic strategy model. I like that in the chapter on quality, the authors discuss capability before they introduce process control—which is the logical order in practice. The project management chap-

ter is the most managerially oriented of the five texts. The quality chapter includes a description of the advanced management tools for quality (such as affinity diagrams and relationship diagrams). The aggregate planning chapter is strong in that it discusses all three pure strategies (chase, stable workforce/ varying work hours, and level) individually. The supply chain management chapter includes a good discussion of the IT effects on SCM and a discussion of the efficiency/effectiveness trade-offs.

This book is the least problem-oriented of the texts and, therefore, does not include OR topics such as linear programming and transportation models. While it has the fewest end-of chapter problems, the ones included focus on the key topics. Two of their cases (out of 18) were the most managerially comprehensive of any. Financial tables are included, the only text to do so. The Excel templates for selected problems on the included CD have the model already completed so all the students need do is change input values to run different scenarios. Helpful callouts are included to point out the modeling logic but the challenge of creating the model has been eliminated. Although the most service-oriented of the texts, it is still an introductory OM text and not a service management text leaving room in the curriculum for a true service management course.



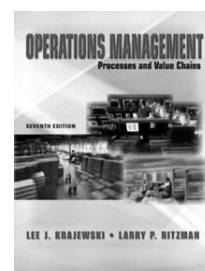
Operations Management
William Stevenson. McGraw Hill/Irwin, 2004, 8th ed., \$126. About 870 pages.

THE LONGEST OF THE TEXTS I reviewed, Stevenson's organization is topical, more like a traditional OM textbook, although the introductory chapter does loosely cluster chapters and topics under the headings of design and operating decisions. This edition of the text incorporates more material on service

operations than the previous one and more examples and photos have been added to make the material more accessible to students.

The strategy chapter focuses on competitiveness and productivity, with a good discussion of order qualifiers and order winners. The project management chapter covers the managerial aspects of managing projects well and, although the scheduling tools are presented clearly, there is more discussion on activity-on-the-arc networks than I think is necessary. The basic quality tools and quality function deployment are covered well. The forecasting chapter has a good section on selecting which forecast method to use and also includes control charting of mean standard error, which is not included in the other texts. The author uses a centered moving average technique for computing seasonal relatives, the only text to do so. The supply chain management chapter does not discuss global supply chains and has limited discussion of IT issues.

I found the cases at the end of the chapter to be good for stimulating discussion. This book has a large number of end-of-chapter problems, but they seem to be either quite straightforward or very challenging, with few in the middle range of difficulty. The Excel templates on the accompanying DVD disk were macro-driven, giving a solution without the student having to do anything other than alter the input data; even the logic was largely hidden—not a good set of instructional tools to my mind.



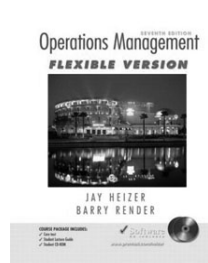
Operations Management: Processes and Value Chains
Lee Krajewski & Larry Ritzman. Pearson Prentice Hall, 2004, 7th ed. \$135, About 830 pages.

THIS TEXT SHOWS the "big picture" and strategic importance of operations, taking a process orientation and focusing on value chains. Since processes are fundamental to all func-

tional areas in all organization, they are relevant to all business majors. This edition has further expanded its coverage of services.

The strategy chapter incorporates a good discussion of four competitive priorities (cost, quality, flexibility and time). The project management chapter is light on the managerial aspects of managing projects, but does a very good job with project scheduling. The text covers the basic quality tools as well as quality function deployment. The forecasting chapter has a good section on selecting which forecasting method to use. The supply chain management chapter is thorough and includes a good discussion of efficiency/effectiveness trade-offs and the importance of IT to good SCM.

One of the longer texts in this sample, Krajewski & Ritzman has achieved a good balance of qualitative and quantitative material. It offers many end-of-chapter problems along with thought-provoking discussion questions. It is the only text to include experiential exercises. Their CD-ROM includes an Excel add-in that provides canned models (no student model-building required) and an *OM-Explorer* which contains both Tutors and Solvers. The tutors also already have the models set up and the Solvers are even more general “black box” models. None require the students to create the logic behind a useful model.



Operations Management - Flexible Version
Jay Heizer & Barry Render. Pearson Prentice Hall, 2005, 7th ed., \$99 (Two-parts in paperback—600 pages in the core text & 230 pages in the Student Lecture Guide).

THIS TEXT EMPHASIZES operations strategy as it affects global operations in the manufacturing and service environment. This is supported by a significant amount of the content directed at ser-

vice applications. And, being a paperback version of the previous hard-bound version (at \$135) provides an excellent value for the money.

The strategy chapter focuses on the three strategies of differentiation, cost leadership and quick response and describes the strategic OM decisions. The project management chapter is strong on scheduling tools, but includes little managerial content such as project selection, team development, and organizing for projects. The quality chapter describes the basic quality tools and has a nice explanation of QFD. The forecasting chapter covers different forecasting methods well but does not explain well why one method might be chosen over another. The supply chain management chapter discusses many important issues, but is light on how advances in IT have affected SCM and does not address the efficiency/effectiveness trade-offs.

Most of the statistical and OR topics have been moved out of the main text to the back of the book where they are covered thoroughly. This allows the book to be more acceptable for a discussion-oriented course than it would be otherwise. It is the only text that covers statistical methodologies sufficiently that statistics need not be a prerequisite for the course. There are no end-of-chapter cases in the book but there are 41 cases available online (plus 10 more for the quantitative modules) and 63 Harvard cases referenced. It also has by far the most end-of-chapter problems. The CD-ROM contains an Excel OM add-in and a set of active models, both of which provide pre-programmed models—there is no need for the students to create any of the logic. Overall, this text is very strong on tools but may be lighter than the others on managerial issues.

Comments

Cases. The cases included in the books are not (nor should they be) full-blown business cases. They are mostly one-page scenarios focused on the chapter topics—though they range from very short (basically extended word problems) to a few three-page cases with

more managerial content. If you want “real” cases, order them as supplements.

CD-based supplements. All texts offer CD-ROM based support for both the students and the instructor. Reid & Sanders, loaded and ran without any hassle. Davis & Heineke loaded and ran with only an acceptance of notice of copyright at the first loading. The Stevenson DVD loaded after accepting the license agreement and skipping through a glitzy, but non-productive intro. To exit gracefully also required going through a slow exit display. The Krajewski & Ritzman CD supplement required installation of its modules as add-ins to Excel. Heizer & Render’s disk starts by having the user select “start.html” and from there it is entirely menu driven.

Some publishers offer, beyond the material packaged with the text, auxiliary disks that support a range of texts. For example, Prentice Hall offers Windows based software packages for \$6 (with a textbook) or \$16 (otherwise): *POM for Windows* featuring 24 separate modules covering topics in both operations management and *QM for Windows* featuring 19 modules covering topics in management science.

Web-based supplements. All publishers offer extensive web-based material both for students and exclusively for instructors. These include Blackboard, Course Compass, and Web-CT compatible elements and stand-alone tools like, for example, Wiley’s *eGrade Plus* or McGraw-Hill’s *Operations Management Center (OMC)* and *PageOut*, and Prentice Hall’s *Companion Websites* which provide access to multi-media supplements to the text, PowerPoint slides, and a whole host of publisher-provided resources.

Custom Texts. Many publishers allow you to select chapters of interest from the texts in their stable, add to it articles or full-length cases, and combine them with supplemental material of your own. Examples include Prentice Hall’s “Just-In-Time” publishing program, and McGraw-Hill’s *Primus Online*.

Switching texts? In practice, OM terminology is not well standardized, nor are there always consistent definitions between these texts. For example, definitions for cycle time, throughput time, capacity, capacity utilization and the way forecast error is calculated vary across titles. Similarly, notation varies among texts, which can cause some confusion for students when an instructor is used to one notation convention and a text uses another. This is not to suggest that you not change. Just be aware that these details need to be addressed.

Summary

The five books I have reviewed here are similar in many ways yet different in others. Which of these (or other texts) to choose depends on how well it fits with the course you wish to teach. If your course is the one in your curriculum that exercises quantitative skills, the Heizer & Render and Stevenson texts are probably the most rigorous. If you want the students to practice develop-

ing models, Reid & Sanders is best. If you are teaching operations as an integral part of the other functional areas, Krajewski & Ritzman and Reid & Sanders do the best job of integration. If the course needs to fully embrace services, Davis & Heineke is a strong choice (and it has a strong managerial focus).

Perhaps a more important question is: Does the course you wish to teach fit the needs of students in today's operating environment? How does the Operations Management course fit into the education of your students? What can you assume that they know when they come to your course? Is this the only course where they get to put math models to use? What will be used in following courses (and in life)? Which topics are really critical for all managers to understand at least something about? (Is there any virtue to being able to apply Vogel's Approximation method?) Which topics do we teach because we've always taught them? Which do we teach a particular way because we learned them that way? Once these ques-

tions have been answered, then the text choice may become clearer. Is it time for a new book – or also time for a new course? It's up to you!

Disclosure: I have taught from both the Krajewski & Ritzman and the Stevenson texts and know Lee Krajewski, Larry Ritzman, Mark Davis, Janelle Heineke and Dan Reid. I have contributed to the Krajewski & Ritzman text.

Related Web Link

Spreadsheet comparisons by Professor Larry Meile of texts suitable for an introductory course in Operations Management: <http://www2.bc.edu/~meile/DecisionLineTopicTable.xls> ■

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Summary of Critical Factors

Critical factors in successfully achieving initial AACSB accreditation were: (1) creating a sense of determination and willingness to undertake the work required to attain accreditation by creating a clear understanding of what must be accomplished and emphasizing the intrinsic value of AACSB accreditation; (2) placing the task of documentation and record assembly in the hands of a capable individual with keen attention to detail; (3) developing strong teamwork among the faculty to prepare for the accreditation visit and to support the generation of the required level of successful research; (4) the dean's intimate familiarity with the accreditation process, teamwork building skills, and political skills in gaining necessary resources and assembling a strong accreditation site visitation team;

and (5) enhancing faculty confidence and assurance by conducting a full-fledged mock accreditation visit.

Attaining legitimacy for a College of Business through AACSB accreditation can be daunting, particularly when the effort requires a personal and professional culture shift. The College of Business at Rowan University accomplished more than just reaching *the next level*. This faculty and their leadership have given us a window on what sociologist J Kenneth Benson (1977) called the "process of becoming."

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Feature Editor Krishna S. Dhir invites papers, essays or notes for the Deans' Perspective feature column from administrators and faculty members. It is hoped that this column will become a thriving forum for dialog among our readers on issues pertaining to academic leadership. It offers an opportunity to administrators and faculty members alike to speak their minds on any and all aspects of the various leadership issues confronting them. Please contact Dean Dhir at kdhir@berry.edu, or call him at (706) 238-7942 or (706) 346-5066, or send fax to him at (706) 802-6728. Articles may be of any length up to a maximum of about 2500 words.