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Gerald L. Hershey

University of North Carolina - Greensboro, jere_hershey@uncg.edu

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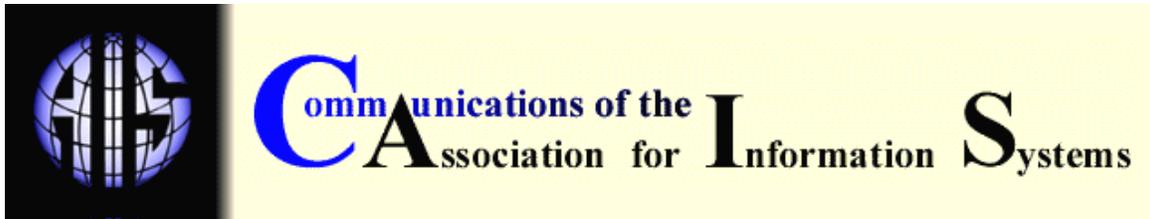
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A DIFFERENT FOCUS AND CONTENT FOR THE CORE INFORMATION SYSTEMS COURSE FOR BUSINESS SCHOOL MAJORS

Gerald L. Hershey
Information Systems and Operations Management
University of North Carolina, Greensboro

jere_hershey@uncg.edu

ABSTRACT

Changing business practices and expectations suggest it may be time to rethink the contents and emphases of the introductory information systems course typically required of all undergraduate business majors. With increasing business emphases on processes and revived interest within schools of business on integration of functional common body of knowledge (CBK) content, an alternative to the traditional IS course seems desirable. This article presents an approach that enhances students' understanding of the entirety of business operations and their critical interdependencies. They learn about business processes, how later CBK courses and functions relate to processes, and how IT and IS are critical to development of effective processes. It is argued that this approach adds more value to the general business student than the required course (2002.1) in the IS 2002 Curriculum of AIS. Further, it is argued that a new approach could strengthen faculty and student perceptions about the importance of IS in the core curriculum in schools of business.

Keywords: Information systems core course content, AACSB, undergraduate business programs, business processes, functional content integration, role of IT and IS in processes, IS 2002 Curriculum

NOTE: Two Letters to the Editor are Published at the End of this Article

I. INTRODUCTION

Schools of business sometimes require two IS-related courses of all undergraduate business students similar to those proposed in the IS 2002 Curriculum of AIS [Gorgone, et. al., 2002]. The first course (usually offered during the freshman or sophomore year) deals primarily with personal productivity tools and uses of information technology (IS 2002.PO). The second course, IS 2002.1 (often offered the junior year), could be described as a traditional information systems (IS) course. Similarly, the suggested "core information system requirements for all business school graduates" reported in a recent CAIS paper closely resemble those of the IS 2002 Curriculum [Ives, et. al., 2002].

This paper argues there may be a better way to add value for all business majors (including IS majors) about the benefits and uses of IS. Further, it is suggested that IS faculty can play a critical role in helping schools of business solve the long-time and continuing problem of integrating functional knowledge. This continuing need for increased understanding about functional integration is articulated by the Association to Advance Collegiate Schools of Business International (AACSB) in its most recent document on standards and procedures for accreditation [AACSB, 2003].

Various reports stress the need for students to possess cross-functional perspectives and understandings. [Stumpf and Tyman, 2002]. Some of the current emphasis is undoubtedly the result of the increasing number of business system conversions to enterprise systems but some is also likely the result of increased emphasis on the processes and subsequent process management required for effective electronic commerce.

The proposal described here is based upon positive student and faculty feedback from the past several years after developing a non-traditional, second level IS course for all business majors to replace a course similar to IS 2002.1. In short, the proposal is

- to increase emphasis on learning about functional integration and business processes,
- provide additional specific examples of the interrelationships among functions, and
- to show how IS can and should be used to improve process integration and organizational performance.

To do so, emphasis and coverage of several IT topics normally included in introductory IS textbooks was either significantly reduced or eliminated. Appendices I and II provide a comparison of the topics and learning objectives from IS 2002.1 with those of the course described in this paper. Section III discusses specific guidelines used to make course changes.

II. BACKGROUND OF INTEGRATIVE EFFORTS IN SCHOOLS OF BUSINESS

For more than 30 years, business program directors and professors struggled with the challenge of how best to integrate key knowledge and concepts from functional courses (e.g., accounting, marketing, finance, operations, organizational behavior) so students would understand the gestalt of business operations and how they interrelate. An early and continuing effort to promote integration was development of the senior-level capstone policy or strategy course. This course, often case or simulation based, is intended to help students integrate aspects of function-specific learnings as they develop policies and strategies for a firm. The effectiveness of this course (as an integrated learning experience) is not clearly known but such a course continues to be endorsed by AACSB [AACSB, 2003].

Another approach to enhance integration involves block scheduling of core courses in finance, operations and marketing offered in concert with an integrative strategic management course, such as that offered by Indiana University for more than 30 years through what they call the Integrative Core. Though deemed effective by faculty, students and outside reviewers, this approach is faculty time-intensive and assumes that students completed all prerequisites and are able to take the block of four courses in one semester. Further, the Indiana model of block scheduling is not feasible for many schools and students where course scheduling is not lock step and students attend on a part time basis.

Some schools attempt to increase integrative learning by forming teams of faculty representing the key functions. These teams then develop integrative instructional materials such as cases that focus on multiple functional areas. Team members agree to emphasize interrelationships among functions when teaching core courses. Anecdotal reports suggest this approach is largely unsuccessful for such reasons as extensive time investments, insufficient faculty background, and lack of incentives to justify the additional faculty work.

Trying to achieve high levels of functional integration in current schools of business is also fraught with additional hurdles. Doctoral programs preparing professors became ever more specialized, producing new faculty colleagues who may be less likely to possess a rich understanding of

functional activities and interactions. Research requirements/expectations increased and may constrain emphasis on teaching strategies. Thus, new business professors may not be inclined to devote extensive time to such labor-intensive teaching. As a result of the difficulties related to implementing the above approaches, it appears the primary (or sole) mechanism to provide functional knowledge integration in schools of business is left to a senior level policy or strategic management course, usually taught by faculty in the management (or similar) department.

WHY I.S. FACULTY CAN HELP IN INTEGRATION EFFORTS

Arguably, IS professors might be in the best position of any business faculty to help solve the functional integration problem. The education, training, and systems projects completed by IS faculty provide an excellent foundation for understanding of processes. Systems and process analysis requires understanding of the entire organization, its functions, and the many activities in each function. IS faculty understand how activities performed in the functional areas must be interconnected for a business to operate smoothly, such as the sub-processes, functions, and activities involved in order processing and supply chain management. Further, IS faculty members know technology and how it can, should, or must be used to facilitate effective management of processes, such as customer acquisition, customer relationship management, and customer retention. IS faculty, perhaps more than any other business faculty, also understand inter-organizational business processes and systems and why they must be integrated; for example, SCM and order fulfillment systems. In short, they are well equipped to help students learn about processes, how processes and sub-processes involve multiple functions, and the importance of process management, regardless of the technology employed. And, even though it might be argued that all business faculty studied functional subjects as part of their academic preparation it is unlikely those outside IS studied the interrelationships to the extent required of IS faculty.

The system and process knowledge possessed by IS faculty provide them with a unique opportunity to help solve the nagging problem of core (functional) content integration, perhaps to the extent of becoming key players for schools of business in addressing the concerns expressed by employers (such as those discussed in the Stumpf and Tyman [2002] and Bisoux [2002, 2003] articles). And, perhaps most importantly, IS faculty can add significant value to the education of undergraduate business students by helping them understand how the core courses fit together and the important roles technology and IS play in contemporary organizations.

DECISION TO CHANGE THE INTRODUCTORY IS COURSE

It seems unrealistic to expect that one strategic management or integrative policy course taught at the end of a business students' undergraduate program can provide sufficient and effective understanding about the importance of integrating key functional knowledge. A more effective approach might employ the medical education model which emphasizes learning the gestalt (anatomy) before focusing on medical specialties. This premise was likely the basis for many of the introduction to management courses offered 30-40 years ago which used texts such as those by Weimer [1966] and Hart. [1970] Some schools still offer such a course but it is often provided only as an elective for non-business majors. Unfortunately, current texts don't seem to address process issues or process management. [Kinicki and Williams, 2003] So, it seems that the expansion of the body of business knowledge and addition of core courses (such as international business, communications, IS, and others) resulted in the elimination of a required introduction to management course in many schools of business.

Consequently, students continue to demonstrate problems in understanding the entirety of business operations and processes, a weakness noted by employers. [Bisoux, 2003] Students should fully understand how businesses operate and appreciate the critical operational interdependencies among both internal functions and those operations in partnering firms where inter-organizational processes and systems are intertwined. Employers should feel confident that business students understand business processes and the importance of process management. A recent article in *BizEd*, the magazine published by the AACSB, points to the increasing importance of such understanding as businesses increasingly move toward a process orientation.

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[Bisoux, 2002]. Likewise, vendors such as SAP are quite successful in convincing executives of the need for better process management. The above concerns fueled the decision to change the core IS course as presented here.

III. COURSE CHANGES AND GUIDELINES USED

In the early 1990s faculty at UNC-Greensboro, my institution, developed a course in business processes for the MBA program. Based upon the success of that course, faculty also believed major revisions were needed for the introductory IS course required of all business majors (the IS2002.1 course) to provide a more relevant and integrative experience. The revised undergraduate course was first offered in 1995 as a replacement for the traditional MIS course. Neither students nor faculty were satisfied with such aspects of the previous course as its traditional topics and lengthy book (500-700 pages). (Appendix III provides a list of typical topics covered in popular introductory textbooks used for IS2002.1.) Student evaluations reflected their dislike for the heavy technology focus. They also felt the course was oriented far too much toward students majoring in IT. After eight years of experience and continual revision of the course, now called Business Processes and Information Technology, it appears the changes are appropriate. There is regular positive student feedback about the focus and emphases of the course.

GUIDELINES USED

This section discusses the guidelines used to determine the course changes needed. The specific course content and topic emphases are discussed in following sections.

The faculty agreed that the second-level IS course in the common body of knowledge for undergraduate students:

1. Would provide important IT and IS knowledge needed by all business majors--students majoring in accounting, finance, marketing, operations, human resources or other business areas--as they complete their undergraduate programs. Further, the topics should relate closely to those IS and IT aspects students are most likely to encounter in employment upon graduation.
2. Would exclude topics that were neither important nor meaningful to the vast majority of business majors. The criterion used was whether or not the topic would likely be encountered in a functional area of business. Deleted topics (important to IS majors), would be included in other courses required of IS majors.
3. Would provide an early emphasis on the concepts of processes and how process management forces integration across functional areas. Enterprise system concepts would demonstrate how processes involve the specific functional areas students will study later and how IS/IT is and can be used to improve process performance and management. In short, the course should add significant value in helping students understand how their later study of core specialties fit together. To serve as an early integrative experience, the course was moved from the junior level to an advanced sophomore level. Students now complete this course before study of core/functional specialties. This placement helps students integrate better what they learn about processes, IS, and IT with what they will study later in the functional areas.
4. Would increase awareness for all students, including IT majors, of business organization, business functions and activities, and how functional organization and management often complicates effective process management.

CHANGES IN COURSE EMPHASES

The guidelines were used to make decisions about which traditional topics to eliminate or decrease in emphasis and which topics to add or increase in emphasis. This course is in continual transition and what is listed below differs from the offering provided eight years ago. For example, the rapid development of electronic commerce and applications of new communication technologies provided new opportunities to examine processes and show

students how all the related sub- processes and procedures must be integrated if a firm wishes to be successful. The course emphasis changes are shown below.

Topics either eliminated or de-emphasized significantly are:

- Systems theory and systems thinking
- Organization and management of IT
- Strategic uses of IT
- Design of information systems
- System architectures
- Relative merits of different operating systems
- Managing hardware and software
- IT personnel and career paths.

To meet the guidelines the following topics were either added or emphasized more:

- Business functions and activities and how they are usually organized
- Business processes, sub processes and procedures and how they relate to business functions and typical business activities
- Primary and secondary or supporting processes, their interactions and relative importance to customers
- Why clear processes and process management is important to effective business operation and customer satisfaction
- How IT and IS are important to functions, processes and process management
- Why functional (silo) management often conflicts with process management
- Relationship of processes and process management to growth of enterprise systems
- Process analysis and redesign; roles and applications of IT and IS in processes

COURSE OVERVIEW AND TOPIC OUTLINE

The course is based upon a 15-week semester plan. The following list shows how many weeks or portions thereof are devoted to each topic. A brief explanation of the key content follows the name of each topic. (One week is allowed for testing and test review.)

- Overview of business operations, functions and organization; information systems in today's digital firm and its functions (two weeks). Trace changes in business operations and processes during the past 15-20 years; provide examples of how technology and globalization changed business operations; introduce processes and how they changed as result of technology, especially electronic commerce (EC); show how IT has allowed changes in organizational structure, jobs and customer preferences; and, examine examples of typical organizational structures, functional areas and activities within each function.
- Business processes—types and levels of IS such as TPS, functional integration, types and uses of IS/IT, CRM, SCM, ERP, process analysis steps; students select a firm for analysis (three weeks). This discussion is a critical part of the course, providing many examples of differences between processes and sub-processes as compared to typical business functions; numerous examples of primary processes, supporting processes, sub- processes and procedures in firms are defined; the importance of process understanding to CRM, SCM, ERP, order fulfillment and EC is demonstrated. How functional areas and activities relate to primary and supporting processes is examined together with IT/IS application issues.
- Electronic commerce (two weeks). Process issues in providing EC; analysis of successful and unsuccessful firms; B2C, B2B, C2C; examples of "reintermediation," and impact of EC on brick and mortar operations; services and support needed for

EC; introduction to Internet, intranets, extranets, collaborative commerce, net marketplaces, private exchanges.

- Data management and why it is critical to every IS (1.5 weeks). Based upon the foundational understanding of processes, functions, types and uses of IT and EC the emphasis shifts to the criticality of effective data base design; relationships of data bases to TPS, CRM, and decision making, and how data bases relate to functional activities, key processes, and the organization as a whole. Other topics include DBMS, data redundancy problems, problems of using disconnected data bases; discussion of DW and DM and their organizational applications.
- Telecommunications, networks and related technologies (1.5 weeks). Main considerations relate to key components of telecommunications, channels, technology developments, regulatory developments, issues in uses, wireless, mobile commerce, ethical issues, security, applications in SCM.. (The details of network technology and design and other topics that would be critical to IT majors are excluded.)
- Inter-enterprise networking (2 weeks). A more thorough look at the Internet, intranets, and extranets as components in modern business. Issues related to process management within and between organizations, communications infrastructure, appropriate uses of various networks, importance to functional areas and relationship to ERPs are explored. Security and liability issues are revisited; the pros and cons of wireless, impact of communication developments on employees, and system application successes and failures are examined.
- Miscellaneous and catch up (2 weeks). Planned topics (assuming earlier schedule is maintained) include: KM and how it differs from traditional data management; emerging technologies and their potential uses and impacts; trends in management of IT and IS including relative merits of outsourcing; reasons for difficulty in implementing new technology; ethics of information collection and uses, privacy and intellectual property rights; and, the changing workplace.

CHANGES IN COURSE MATERIALS, RESOURCES, AND PROJECTS

After agreeing to the above content and emphasis changes, the task of course organization and delivery was addressed. A serious problem several years ago was a lack of text materials to fit the desired conten.; Custom publishing was still in its infancy. So, faculty developed a minitext and supplemented it with numerous handouts, application examples, cases, and a required subscription to Business Week. This publication was used to emphasize current business problems, technology applications and issues, often using non-IT articles to show students the cross functional nature of business problems and successes.

In 2001, a custom-published textbook was adopted. It is supplemented with instructor-supplied documents about processes and their components, process analysis, BPR, functions, functional activities, and process management issues. These topics are still not well covered by any one IS textbook on the market. The Blackboard system is used to share such documents and additional articles, point to specific web sites and reports and, when appropriate, to discuss issues and topics. Videos about BPR and processes provide students with examples of firms applying BPR and their improved processes. Software from SAP is used to demonstrate how companies define processes, to show how activities in different functions must fit together, and how technology is essential to such integration.

Teams of students study a local firm to apply what they are learning. In the project they describe the business, its functions, and organization and then attempt to identify and describe 4-5 key processes for that business. They then select one process, with approval of the instructor, to document in depth, analyze and, subsequently, make suggestions for improvement. In most

cases, this project is their first 'team' project in our business school (since they are sophomores) so materials and instruction are provided about how to form teams, ensure effective teamwork, resolve team problems and schedule team tasks.

Initially faculty were concerned about placing the course at the sophomore level, with prerequisites of only one course each in IT, accounting, and economics, since students would have limited business course background. This fear proved to be inconsequential. Sophomores seem as well prepared as juniors to learn about processes..

IV. RELATIVE MERITS OF THE NEW COURSE

The overriding goal of this approach is to provide material which is useful and relevant to all business majors. Technology is taught as it relates to functions, processes, and overall management concerns. The beginning-of-course emphasis on organizations, functions, processes and interrelationships between and among organizational units and their data and information flows sets a stage for richer understanding of the importance of current IT and IS.

PERCEIVED ADVANTAGES OF THE APPROACH

1. Helps students understand organizations and operations.

Typical business students usually lack meaningful understanding of how business operates, how it is organized, the activities within specific functions, how functions and activities are interrelated and why such understandings are important to effective operations, such as order fulfillment and customer service.

2. Provides a richer background for later study of functional core courses.

Upon completion of this course students are better prepared to understand subsequent functional/core courses (such as finance, marketing, human resources, and operations) and how those courses/contents fit together in typical organizations. This course adds value to the overall education of business students by providing an integrative_course early in their business studies.

3. Increases the satisfaction level of students about studying IT and IS.

By using many examples which relate to every business major and by explaining roles and tasks of employees in functional areas, students are better able to understand how IT and IS are used in business, how IT and IS relate to their major and career choices, and the importance of effective IS. In addition, the process analysis project helps students understand more fully business functions, processes, and the need for and uses of IT.

4. Increases image of IS/IT faculty as being business faculty first and technology experts second.

This may seem unimportant to some but faculty in other functional areas of business often fail to realize the extent to which IS faculty understand business functions, operations, and processes. Further, this approach provides an organizational perspective important to employers and helps to address the continuing integrative learning issues noted by AACSB. Further, this approach strengthens the case for requiring_a core IS course since it builds upon business operations and processes and demonstrates how IT enhances overall operations. (The importance of continuing to require a core IS course was the purpose of the paper by Ives, et. al.[2002])

POSSIBLE WEAKNESSES OF THE APPROACH

1. The course places much less emphasis on topics like systems analysis and design, decision support systems, database management, hardware and software management, IT strategies and strategic uses of IT/IS, and IS organization and IT management.
2. Since current textbooks (with the possible exception of the one recently published by Gelinas et al. [2004]) do not provide the depth of information desired regarding business operations, activities, processes, and process analysis, it will be necessary for faculty teaching such a course to develop or adapt additional materials.
3. If IS/IT faculty understanding of business functions and activities is limited or they don't understand business processes (hopefully very few), teaching this course would be problematic. Likewise, if faculty rely heavily on graduate assistants for grading and teaching assistance they may encounter a scarcity of qualified resources.
4. If one of the popular textbooks is used, many chapters would not be covered with this approach. Students would likely complain about paying for a large text and using only part of it. This problem can be addressed by using a custom published text selecting only those chapters deemed important.

V. CONCLUSIONS

A different approach to content and emphases is believed desirable for the traditional Introduction to IS course required of all undergraduate business majors. Experience with the revised course described in this paper supports that belief through increased student understandings of business, functions, processes and IT applications. Student evaluations indicate a high level of satisfaction with the content and learning compared to the traditional approach. Students develop a better understanding of the importance of IS and IT in functional areas and why IT is essential to effective management of an organization. Faculty in other functional areas report that students enter their courses with a richer understanding of business activities, operations, and IT applications. Personal communications with employers show they support the new emphases. Finally, the proposed approach makes a bold statement toward satisfying the concerns by AACSB and others who express the need for increased integrative learning and experiences.

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APPENDIX I. TOPICS FROM IS 2002.1 COMPARED WITH THE UNC-GREENSBORO COURSE TOPICS

Topics Covered	IS 2002.1	UNC-Greensboro
Systems concepts	✓	Minimal
System components and relationships	✓	Minimal
Cost/value and quality of information	✓	Minimal
Competitive advantage of information	✓	
Specification, design, and re-engineering of information systems	✓	
Application versus system software	✓	Minimal
Package software solutions	✓	✓
Procedural versus non-procedural programming languages	✓	
Object oriented design	✓	
Data base features, functions, and architecture	✓	✓
Networks and telecommunication systems and applications	✓	✓
Characteristics of IS professionals and IS career paths	✓	
Information security, crime, and ethics	✓	✓
Practical exercises may include developing macros, designing and implementing user interfaces and reports; developing a solution using data base software	✓	
Business functions and activities and how they are organized and managed		✓
Changes in business operations and processes; how technology and globalization have changed business operations		✓
Business processes, sub processes and procedures and how they relate to business functions and typical business activities		✓
Primary and supporting processes and their interactions and relative importance to customers		✓
Importance of process management to effective operations such as CRM, SCM and utilization of ERP		✓
Utilization of IT and IS in functions, processes and process management; trends in IT management		✓
Process analysis and redesign; field-based project		✓
Inter-enterprise networking and process management, inter-firm partnerships, data access and data sharing		✓

Note: In this table, the IS 2002.1 column is a verbatim listing from page 24 of Gorgone et al.[2002]

APPENDIX II: LEARNING UNIT GOALS FOR IS 2002.1 COMPARED WITH LEARNING GOALS FOR UNC-GREENSBORO COURSE

Goal	IS 2002.1	UNC-Greensboro
To introduce system and quality concepts	✓	Minimal
To provide an introduction to the organizational uses of information to improve overall quality	✓	✓
To present hardware, software, and related information technology concepts	✓	Moderate
To provide concepts and skills for the specifications and design or the reengineering of organizationally related systems of limited scope using information technology	✓	Minimal
To show how information technology can be used to design, facilitate, and communicate organizational goals and objectives	✓	Moderate
To explain the concepts of individual decision making, goal setting, trustworthiness, and empowerment	✓	Minimal
To show career paths in Information Systems	✓	
To present and discuss the professional and ethical responsibilities of the IS practitioner	✓	
Develop a clear understanding of business functions and activities and how they relate to critical business processes and sub processes		✓
Understand how functions differ from processes, different types and levels of processes, and the difficulty of managing processes		✓
Provide examples of processes and sub processes requiring cross-functional integration and the types of IT and systems needed for integration		✓
Understand problems caused by lack of functional integration and why a process perspective and appropriate application of IS/IT can solve such problems		✓
Learn how to detail and analyze a business process		✓
Evaluate how selected technologies can be applied to business activities, functions and processes		✓
Learn how to identify ways to improve processes and the appropriate applications of technology and systems		✓
Understand the development of technology, the nature of office work and barriers to and techniques for improving white-collar productivity		✓
Understand how new technologies can affect business operations both locally and globally		✓

Note: The list of IS 2002.1 goals is verbatim from pages 42-43 of Gorgone et al. [2002]

APPENDIX III. MAJOR TOPICS COVERED IN POPULAR INTRODUCTORY INFORMATION SYSTEMS TEXTBOOKS

This appendix lists the major topics covered in four popular IS textbooks currently on the market. Details on the books appear in the references.

Topics in Popular IS Textbooks	Laudon [2003]	Laudon [2004]	O'Brien [2004]	Post [2003]
IS organization and management	✓	✓	✓	✓
Business systems analysis, development, design and implementation			✓	✓
Decision making systems; decision support systems	✓	✓	✓	✓
Data and data base management	✓	✓	✓	✓
Telecom and networks	✓	✓	✓	✓
Ebusiness and ecommerce	✓	✓	✓	✓
IS security and control	✓	✓	✓	✓
Managing hardware and software	✓	✓	✓	
IT strategies; strategic uses of IT			✓	✓
IT/IS ethics, ethical and social issues	✓	✓	✓	✓
New technologies and uses	✓	✓	✓	
Knowledge management	✓	✓		
Enterprise systems			✓	✓
Global, international IT		✓	✓	
Business values of IS	✓	✓		
Functional and cross-functional systems			✓	

. Note: The topic names listed are generic and not the exact terms used in the texts

ABOUT THE AUTHOR

Gerald L. Hershey is Professor in the Department of Information Systems and Operations Management in the Bryan School of Business at the University of North Carolina, Greensboro. He is the author of two textbooks and more than 40 articles. He began teaching full time at the university level in 1968 and is an avid observer of developments in information systems, both in business and education.

LETTERS TO THE EDITOR

November 2003

From: Gordon Davis
University of Minnesota

Heikki Topi
Bentley College

Those who have been involved in the development of IS model curricula reports (such as IS'97 and IS2002) appreciate discussion of curriculum issues. It is valuable that Gerald Hershey (2003) has provided an alternative view regarding one of the key issues in the curriculum, that is, the first course (or second course if you count the prerequisite requirement on personal productivity with information technology). In the IS model curricula, the first course (IS 2002.1 Fundamentals of Information Systems) is for majors, but it is often used for all students. The discussion of the first course is frequently positioned within the context of a business degree program, but the issues are important to other IS programs as well.

If the first course is a general course for all students in a school, the problem is how to make the course interesting and motivating for non-IS majors and, simultaneously, to make the course a

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starting point for IS majors. This is a general problem in a curriculum. Most functional areas have a first course required of all students. In that course, they explain the purpose of the function, the tasks it performs, the responsibilities of the function, how it adds value, and key concepts and issues within the domain of the function about which everyone should have some general understanding. The first course in each function provides motivation for students who will be majors or minors in an area, and appreciation for those who will not have other formal exposure to the function in their programs of study. A critical question to be answered is the value a function provides to the organization and its activities. As Hershey points out, in many cases business schools have decided to integrate functional area introductory courses, with varying results.

The traditional first course in information systems explains the IS function, the value of information systems for the organization, the infrastructure that the function builds and maintains, the processes for development and deployment of systems, the job functions within IS, and the issues of IS design and use that impact management and other personnel within the organization. This seems reasonable, except it may not sufficiently touch on the most fundamental value of the IS function: building and maintaining systems that are vital to the work processes of the organization, the building and maintaining of repositories (data of all sorts), and applications that facilitate the coordination and management of the organization.

Hershey seems to be dealing with the core issues of why information systems and data repositories are absolutely vital to the work processes and management of organizations. Rather than emphasizing unique and interesting uses of information technology, Hershey emphasizes the essential, critical role of IT for business processes, ranging from the most mundane to the most exotic and innovative. Hershey spends five weeks of a 15 week course in studying business operations and business processes, one and a half weeks on the critical role of data management (the repositories), five and a half weeks on how information technology changes affect the basic processes (electronic commerce, communications and networks, inter-enterprise networking, etc), and two weeks on topics.

A vital question about the approach Hershey proposes is whether or not it gives a non-IS major (or minor) a sufficient understanding of the core infrastructure technologies that currently form the foundation on which every modern business organization is built. A business student will not get this understanding from other courses in the business curriculum. De-emphasizing the material related to systems concepts and infrastructure technologies may decrease a typical business school graduate's understanding of the opportunities that advances in infrastructure technologies continue to offer. It will also decrease a graduate's ability to communicate directly with technology experts. Business students do not always appreciate the technology concepts at the time they are studying them, but many see their value later.

Textbooks are very important in defining the content of the first course. There are numerous examples in different functional areas of innovative textbooks that changed the content and emphasis of the first course in the field. Some innovative texts succeed; others fail. The discussion highlights the need for innovation and experimentation in first course textbooks. It is helpful to keep in mind the reasons why changes in content and pedagogy take so much time. Most publishers prefer a safe book that doesn't diverge too much from the crowd. Those who teach the first course risk failure in teaching the course if a newly adopted innovative book doesn't teach well.

Hershey has written an interesting paper, which raises some useful issues. Introduction to business courses have never been very successful, probably because they had no central theme that made them vital. They were supposed to show the interrelationships of functions, but that was difficult. The information systems course, as defined by Hershey, may be able to present the relationships, interdependence, and integration of organization systems and how they depend upon information and communications technology and information systems. This would be a valuable achievement and thus, the problem is not the purpose; the problem is the presentation. The presentation depends on innovations in content as well. The Hershey paper suggests one

approach to innovation in the first course. Hershey has not completely resolved all difficulties in the first course, but the work he has done is very important.

Reply by the Author

Gerald L. Hershey

University of North Carolina-Greensboro

I appreciate the comments by Professors Davis and Topi. Deciding content to be emphasized when teaching a heterogeneous group is difficult. The heart of my argument is that much of what is emphasized in IS 2002.1 and the topics proposed in the paper by Ives don't seem appropriate for non-IS undergraduate business majors. In the case of the IS 2002.1 course, if this is the only course that can be offered as a CBK course for non-IS majors, then a great majority of the students may question the usefulness of many topics covered. Conversely, for IS departments outside a business school the IS 2002.1 course may be very appropriate.

The Ives report "what every business student needs to know about IS" also covers several topics and concepts (systems thinking, aligning IT and strategic plans, technology infrastructures, competitive advantage, interoperability and scalability, open vs. private architectures, justifying investments in infrastructure, cost structure of information systems, how to manage complex, technology based projects, and economics of IS) which appear more relevant to IS majors and graduate students. As one who teaches a large number of undergraduates, I have difficulty rationalizing the inclusion of these topics. Our focus on business functions, activities, processes, and operational performance through effective applications of IS and IT seems more appealing to students.

The problem of deciding what to cover in a CBK course is not unique to IS. My sense, however, is that our colleagues in marketing, human resources, legal environment and operations may do a better job of emphasizing topics of relevance to non-majors. At least my scan of their textbooks leads me in that direction.

Whether business students will learn enough about infrastructure and technologies such that they can communicate with IT experts may not be the correct query. The message seen regularly in the trade press (Computerworld, CIO, InformationWeek) and in consultancy reports (Gartner, Meta Group, IDC) is that we, in IT, should do a much better job of learning and communicating about business so we can design better systems and services. I propose that the UNC-G course is a step in that direction. An additional concern is the life expectancy of knowledge about infrastructure and architectures when compared to the responsibilities of typical undergraduates during their first five years after graduation. Simply put, how much of what is taught to a sophomore or junior will still apply several years later?

The point about developing and using innovative textbooks certainly applied when we started this course in 1995. Our need to develop and adapt materials during the first five years was cumbersome at best. Fortunately, publishers of several introductory texts now allow custom publishing. We select chapters which best fit our topics and goals and provide supplemental items where coverage is inadequate. In the ideal world, we would like to select chapters from several texts and meld them into one text. However, we are finding that contents and emphases of several of the popular texts appear more closely aligned to our course than to traditional topics. Appendix III provides the specifics.

The original stimuli to change our course are reflected in the guidelines described in the paper. The stimuli for my paper came first from the business press and subsequently from review of the IS 2002.1 content and the Ives article in CAIS. In light of the reason for the Ives paper, in conjunction with attitude changes about IS in recent years, it seems important to make sure we are adding as much business value as possible. This seems particularly true regarding perceptions of our business faculty colleagues—who, worth remembering, have significant influence regarding CBK requirements. So, as business expects of our IS graduates, we may wish to make sure we (IS faculty) are focusing upon business first and technology second. As one of the youngest of the "functional" fields we likely face greater pressure to demonstrate the value of our continued inclusion in the CBK.

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Having been involved in much earlier efforts to develop model curricula for our field I fully appreciate the complexities of gaining concurrence about what topics to include and their relative importance. Our model is far from perfect, whatever that might be, and is under continual revision. Hopefully this exchange will invite additional perspectives.

G.L. Hershey
University of North Carolina, Greensboro
November 2003

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