IMPROVING THE FUNDAMENTALS OF INFORMATION SYSTEMS COURSE FOR BUSINESS: LESSONS LEARNED FROM VERTICAL-TEAMING

Annette C. Easton, Information & Decision Systems, College of Business, San Diego State University, San Diego, CA 92182-8234, 619-594-2664, annette.easton@sdsu.edu
George K. Easton, Information & Decision Systems, College of Business, San Diego State University, San Diego, CA 92182-8234, 619-594-2759, george.easton@sdsu.edu

INTRODUCTION

Information technologies interact with nearly every aspect of business. As such, one would encounter little disagreement about the escalating need for business students to know about information technology (IT). Lee [4] stated that "a responsibility of business schools is to combat illiteracy in information systems (IS) among our future managers, executives, and consultants." Unfortunately, business schools have not universally succeeded in combating information systems illiteracy. Many of the mistakes and failures of information systems in organizations can be traced to this shortcoming. Furthermore, deficiencies in an understanding of information systems can lead to misunderstandings such as thinking that knowledge about Oracle is the equivalent to knowing how to correctly design a database; or thinking that an understanding of computer science is the same as understanding information systems [4]. Business schools must continue to look at whether they are meeting their responsibility to combat information systems illiteracy. As major players in this activity, faculty in the information systems discipline must be willing to look at the design and implementation of our core information systems curriculum. Additionally, we must be willing to look at new approaches to curriculum development as we improve our course so that it better meets the needs of our students, our business college faculty, and the business community. This paper discusses how one such approach, vertical-teaming, was used in the evaluation and evolution of the Information Systems course for business at an AACSB College of Business. Our experiences should provide useful information to IS educators as they address similar curriculum concerns.

THE CORE INFORMATION SYSTEMS COURSE

 While many universities follow recommended curriculum models for IS programs, these programs often vary considerably between universities. The uncertainty and inconsistency of topics taught in the IS core course is a major concern for business school deans and business school faculty [6]. Although Stephens and O'Hara [5] reported that "remarkable consistency" did exist in their content analysis of IT core course syllabi, they also indicated that the analysis of the syllabi was a "best effort" due to the variability of details provided as well as terminology used. The applicability of their results today must be questioned because their study looked at only 39 undergraduate syllabi and there are differences between the curriculum topics they suggested and those included in the IS 2002 Model Curriculum.

The IS 2002 Model Curriculum [3] describes two courses recommended for all business majors -- IS 2002.PO (Personal Productivity with IS technology) and IS 2002.1 (Fundamentals of Information Systems).   Within IS 2002.PO, the emphasis is on skills related to spreadsheets, databases, presentation graphics and web authoring.   The IS 2002.1 course contains content that most of us would classify as "computer concepts" or "principles" including topics such as systems theory, the organizational role of information systems, and information technology including computing and telecommunications systems.

CHALLENGES OF THE IS 2002 CORE CURRICULUM

The increasing prevalence of information technology in our society creates an interesting challenge for educators. Students are using and learning common software applications such as PowerPoint and Word in elementary school, and Excel in middle and high school. The first wave of students from the digital generation have arrived at college, often bring with them a heightened perception of their "computer literacy" because of their increasing exposure to technologies such as text messaging, blogging, and podcasting. Their presence necessitates a reevaluation of the core information technology course taught at the university level to determine the appropriate content and level.

In a survey of self-reported computer proficiencies for a group of 700 students enrolled in an introductory core information systems course at a major university in the west during the Spring 2005 semester, students were asked to rate their proficiency with the application on a five-point scale ranging from beginner to expert. The results show that many students arrive at college thinking they are adequately computer literate (67% rated themselves as intermediate or above for Overall Computer Literacy). However, when asked about their proficiency in the skill sets most often used in business programs, and in the business world, these same students rated themselves not as well prepared (29% rated themselves intermediate or above for Spreadsheets, 13% rated themselves as intermediate or above for Databases, and 27% rated themselves as intermediate or above for presentation software.) While this data is a single-semester snapshot of self-reported proficiencies of the most common computer applications used in business today, these results have been replicated in an ongoing research study about entry level skills of business students [2]. Generally, this data suggests that the majority of our students do meet the "elementary knowledge of word processing, spreadsheets, e-mail and web browsing" required for the IS 2002.PO course, but they fall short of the proficiency requirements of the IS 2002.PO course. Students also do not typically enter the university with the computer concepts or principles knowledge taught in the IS 2002.1 course. This leads to a dilemma with many business schools that only have one IS course in the business core, and as a result have to make curriculum decisions to determine what content will be selected from IS 2002.PO and IS 2002.1 to comprise their one required course. How do we stuff six units of content into a three-unit package?

If too much of the "one-course" core is spent on IS 2002.PO content, we risk reinforcing the misunderstandings described by Lee [4] of not making the distinction between the usage of an application versus the design of information system using an application. To effectively address the issue of combating information systems illiteracy, we must teach the principles and concepts outlined in IS 2002.1. However, when students lack the foundation and understanding of how these productivity tools are used to solve business problems, the concepts material lacks a platform on which to frame and build knowledge. Additionally, we must recognize that many of our students may be "technology literate" and they may be unenthusiastic about studying computer concepts. Our course design must recognize this fact and find appropriate ways to engage students while helping them realize that there are important IS concepts that will be beneficial to them.

CONSIDERATIONS FOR IMPROVING THE "ONE-COURSE" CORE IS CURRICULUM

As we look to refine and improve the content of the one-course core IS curriculum, it is important that we consider input from the rest of the business school. For example, exercises incorporated into the course should enable students majoring in functional areas to gain additional IS skills and system understanding through use of application packages in their major fields of study, such as accounting, finance or marketing [3]. Further we should consider adopting curriculum development approaches that

have been used successfully in other educational areas. For example, in K-12 education the use of vertical-teaming or vertical alignment is a common strategy used to ensure that teachers across different grade levels know what content is being taught in different classes. This helps ensure appropriate coverage of a topic, eliminates unnecessary redundancy of topic coverage, and helps teachers to be able to either reference forward or backward in the curriculum (i.e. "You will learn more about this next year in English.")

This research reports on a first attempt to use vertical-teaming to help in the redesign of the information systems core course. Vertical teaming requires one to look both at what happens prior to the students entering class and what happens after they leave the class. To better understand what happens after the students leave class we surveyed faculty of other business core courses for examples of topics where computer applications are, or can be, used in arriving at a problem solution. We also solicited examples of the types of information systems that are used in that discipline and sought to understand how that discipline views their role in the creation of an information system. To better understand what happens before students reach our course, we have incorporated data from a longitudinal study about the incoming technology literacy skills of university business students [1] [2]. While understanding the trends is helpful, in terms of evolving the curriculum it is most helpful to use the most recent data. As a result, the data from the last two years will be used to help in the updating of the course. Understanding our students' changing usage of technology, their changing perceptions, and the role self-assessment plays in motivating students to take responsibility for their learning, are important components towards developing both curriculum and teaching strategies to best educate the evolving needs of our students.

Complete details of the process, the results, and their impacts, will be further discussed at the conference.

REFERENCES

[1] Easton, A. (2005). Information Technology Literacy: Understanding Today's Students. *Proceedings of the 5th Annual Hawaii International Conference on Business*, May 26-29, 2005, 889-890.

[2] Easton, A. & G. Easton (2004). Trends in Self-Assessment of Computer Literacy. *Proceedings of the Academy of Educational Leadership, 9(1), Allied Academies International Conference*, New Orleans, April 7-10, 2004, 85-88.

[3] Gorgone, J.T., G. Davis, J. Valacich, H. Topi, D.L. Feinstein, & H.E. Longenecker. (2003). IS 2002 Model Curriculum and Guidelines for Undergraduate Degree Programs in Information Systems. *Communications of the Association for Information System*, Vol. 11, 1-53.

[4] Lee, A.S. (2001). Information Systems Literacy and the Responsibilities of Business Schools and Universities. *MIS Quarterly*; June 2001, 25(2), v-vi.

[5] Stephens, C.S. & M.T. O'Hara. (2001). The Core Information Technology Course at AACSB-Accredited Schools: Consistency or Chaos? *Journal of Education for Business*, Mar/Apr 2001, 76(4), 181-184.

[6] Watson, H.J., R. Sousa, & I. Junglas. (2000). Business School Deans Assess the Current State of the IS academic field. *Communications of the Association for Information Systems*, September 2004, Vol. 4, article 4.