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The Role of Human-Computer Interaction in the Information Systems Curriculum (Panel)

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THE ROLE OF HUMAN-COMPUTER INTERACTION IN THE INFORMATION SYSTEMS CURRICULUM

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Human-Computer Interaction (HCI) is an interdisciplinary field that has attracted researchers, educators, and practitioners from many different disciplines. HCI has gained even more attention during recent years in which technology has developed at a fast pace. To improve the usability and interaction support we must educate the next generation of designers and implementers of Information Systems. They must be knowledgeable of the tasks within different contexts, and the interplay among users, tasks, IT, and contexts/environments. Many IS programs are beginning to integrate HCI into the IS curriculum. This panel discussion will help IS educators understand the role of HCI in the IS curriculum and how to structure HCI courses. In addition, various pedagogical approaches will be presented and discussed.

This panel is the second of several planned panels by AIS SIGHCI. The purpose of this panel is to raise awareness of HCI in the MIS Curriculum. By doing so, we hope to raise the awareness of the importance of HCI courses in MIS programs, to promote course development, to exchange HCI teaching experiences, to prepare IS students with the knowledge and skills for HCI practice and consulting, and finally, to help directly or indirectly produce better human-centered Information Systems and other technologies.

At this panel, the panelists will discuss their perspectives by answering the following questions:

1. How does HCI fit, if at all, in today's model curricula for MIS?
2. What are the attributes of a successful HCI course?
3. How many HCI courses are needed and at what level should they be offered?
 - a. One or more courses?
 - b. Required/Optional
 - c. Undergraduate/Masters/PHD (e.g., HCI Seminar)
 - d. Lower division/Upper Division
4. Can HCI be integrated into existing MIS courses? If so, which courses? Which topics?
5. What should be the content or topical coverage of an HCI course? What pedagogical approach do you use/envision for this course?
 - a. assignments
 - b. web resources

- c. readings
 - d. cases
 - e. experimental research
6. How would a business-oriented HCI course differ from one in an engineering, computer science, library science or psychology department? For example, is there a role for object-manipulation languages such as Visual Basic? Where does the Keystroke model fit in? Is there a role for UIMS (User Interface Management System) and action grammars?

Each of the panelists will bring to the table their own expertise and experiences in the teaching of HCI in MIS curriculum, which they summarize below.

Dennis Galletta has taught HCI at the Katz Graduate School of Business, University of Pittsburgh, since about 1986, beginning with the masters' level, and after a few years, with the addition of a doctoral level course. "Core" HCI topics from Shneiderman's text are covered (design guidelines, response time, presentation styles, reviewing, testing, direct manipulation, menus, forms, command languages, interaction devices, and documentation). Other topics very appropriate to a business school are added, such as Microsoft's Visual Studio.net, a number of illustrations of the difficulty of design and usefulness of testing, the role of HCI in the system development process, and various organizational scenarios of future technologies. The first topic occupies much of the first half of the course. Although programming detracts somewhat from the conceptual goals, the .Net environment provides a rich, vivid basis upon which to build a final project. An in-class presentation allows students to see each other's alternative designs and discuss the variety of tradeoffs and choices that were made. The doctoral level course obviously focuses on research, and besides covering at an accelerated pace the same conceptual material as the masters' level course, incorporates the conceptualization, design, and execution of an experimental research study. Studies we have performed over the years in this PhD course have been published in several outlets and even reported by the media. Examples of publication outlets include *Communications of the ACM*; *Accounting, Management and Information Technologies*; *ICIS*, *AMCIS*, and *HICSS Proceedings*; and *Journal of MIS*. In the most recent study, news media reports included AP syndicated outlets, which reached CNN television and the CNN web site (March 14, 2003), and *Business Week* (May 5, 2003). There were also radio interviews on CBC radio, CKLW, and Minnesota Public Radio in March, 2003. An earlier study reached the front page of the *Wall Street Journal* (June 2, 1994) and also hit outlets such as *Computerworld*, *Information Week*, and *PC Magazine*. These illustrations are meant to show that research can augment the classroom experience and vice-versa. Finally, helpful approaches and resources such as projects and readings that have been used over the years will be identified and discussed with attendees.

Jinwoo Kim would like to share his experience of teaching HCI-related classes with AMCIS participants. He has been teaching several HCI classes at the School of Management, UC Irvine, as well as at the Graduate Program of Cognitive Science, Yonsei University, Korea. His classes in the business school include Introduction to Human Computer Interaction, Analysis and Design of Internet Business, Design for Digital Content, and Usability Engineering. He also would like to discuss his graduate classes including HCI research methodology and graduate Introduction to HCI. He believes that HCI classes offered in business schools should focus more on the usefulness dimensions of HCI compared to the usability or affective dimensions. For example, his Internet-Business class focuses more on the relationship between business models and HCI issues than just usability or emotional aspects of HCI. He thinks that one of the key attributes for a successful HCI course is a direct and explicit link to real-world businesses. For example, his Digital-Content class invites presidents of content companies, product planning specialists, venture capitalists, and intellectual property lawyers to the final presentation session in which students present their term projects and get practical advice and potential funding from the industry experts. He thinks HCI content can be integrated into existing MIS courses, especially into system analysis and design and e-commerce classes. Finally, he would like to emphasize the importance of intra- and inter-university collaboration when offering HCI classes in business schools. For example, he has teamed up with professors in a neighboring university to teach aesthetics and narratives in HCI because Yonsei University does not have an art department. He has also offered software engineering classes in collaboration with his colleagues in the computer science department. Detailed information about his HCI classes will be shared with the audience of the panel at AMCIS.

Dov Te'eni believes HCI is an essential ingredient of any IS curriculum but also recognizes that this belief has not been widely shared by IS colleagues. The growing presence of HCI in practice and academia and the growing awareness of the importance of HCI in 'hot' areas of IS such as e-commerce are opening new opportunities for HCI in the IS curriculum. He would argue that HCI should be a topic covered in the Introductory IS course, specifically in a meeting on design or development, but could also be referenced in meetings on implementation. In the broader debate on the structure of the entire IS curriculum, it could be a compulsory course within a design or development track (if such a track exists) or an elective in a general track. He has taught this course for well over 10 years to different audiences and has found that it must be tailored to specific areas. For example, a

school of business may require a syllabus that shares 60% with that of a school of information science, and probably less with that of a school of education.

Barbara M. Wildemuth has taught a graduate course on User Interface Design for over a decade. In this course, she takes a usability engineering approach. The students develop a prototype of an information system (conducting user and task analyses in support of this effort), and use an adaptation of McLean et al.'s (1991) questions-options-criteria approach to document their design decisions. The students also participate in evaluation exercises, employing both usability inspection and usability testing to evaluate their own and each others' designs. One of Barbara's primary teaching goals is to raise the students' consciousness in relation to interface design. To accomplish this goal, each class includes a brief show-and-tell session in which a student may present an artifact that is very well-designed (or very poorly-designed) and the class discusses the design tradeoffs made in creating the artifact. She considers herself successful in achieving her goal if, after the course, students say, "I'll never again be able to look at things the same way."

Ping Zhang has been teaching HCI courses for seven years at undergraduate, graduate, and doctoral levels. She believes that HCI courses (one or more) should be an integral part of IS curricula for all three levels (upper division for undergraduate) with different emphases. Overall, HCI is one of the few courses that examine individual users' capabilities and limitations, their tasks within organizational and societal contexts, and their need for technologies. It is her philosophical belief that design should be human-task-context dependent and be informed/guided by theories and confirmed practices. Designers must understand relevant human characteristics such as cognition, affect, and behavior and the nature of the target tasks. In addition, an HCI course should cover fundamental user interface design concepts and methods, as well as evaluation methods of interface usability. Finally, HCI courses for IS students would be too narrow and incomplete without a discussion of organizational and societal impacts. Depending on the nature of an IS program (more technical or more behavioral), one or more HCI courses should be included in the IS curriculum. HCI content can also be integrated into other existing courses. For example, one-tenth of course time may be used to discuss usability issues in a regular Systems Analysis & Design course. At Syracuse University, only one HCI course is offered in each program. Ping uses different pedagogical approaches when teaching HCI at different levels. For undergraduates, hands-on exercises are very important. In order to focus on HCI issues, she tends to use less sophisticated technologies for class exercises so that students are not distracted by technical challenges. At this level, HTML and Access (Microsoft Database) are primary prototyping tools. At the masters' level, a combination of hands-on exercises and discussion techniques are appropriate. For doctoral seminars, discussion of issues and research dominate.