

International Academy for Information Management

Las Vegas, Nevada
December 9 – 11, 2005

REFEREES

We thank the following referees who contributed their valuable time and expertise to the International Conference on Informatics Education Research (ICIER 2005). A special thanks to those reviewers who additionally participated in both the May Review and August Review cycles, and the final round of best paper reviews and rankings. Finally, a very special thanks to Jan Seruga and Kathleen Wright who served as track chairs this year. Thanks for helping make this a successful conference.

Cheers!

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ACKNOWLEDGMENT

Many individuals not directly involved with IAIMs conference program have contributed to the continued success and growth of the ICIER Conference and the publication of these *Proceedings*. Carol Waller contributed significantly to the Proceedings as she completed the bulk of the formatting and preparation of the CD's used for this years Proceedings.

In 2005, the International Academy for Information Management held its 20th Conference (now referenced as the International Conference for Informatics Education Research: ICIER 2004) in Las Vegas, Nevada Forty-two papers were submitted and 40 were accepted for the conference.

The key organizers of this years conference were Roy D. Johnson, Georgia State University, Tom Pencek, School of Business, Meredith College, Raleigh, NC, Mary Brabston, I. H. Asper School of Business, University of Manitoba Winnipeg, Manitoba, Canada, and Raymond Papp, University of Tampa, Sykes College of Business, Tampa, FL. Thomas Schambach, from Illinois State University, also put forth substantial efforts in serving as this years Research Chair with responsibilities for the paper review process, best paper review process, coordination of proceedings paper submissions, and the grouping of accepted papers into sessions as reflected on this years conference program.

A special appreciation is also extended to Ephraim McLean, from Georgia State University, for his role as liaison to the Association for Information Systems and for facilitating their continued support and relationship with IAIM.

Thanks also to the many other individuals who played a role, large or small-direct or advisory, in putting together this years conference and making it a success!

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MISSION STATEMENT

The International Academy for Information Management (IAIM) is a not-for-profit association founded in 1986 and dedicated to promoting excellence in information management education, practice, and research. IAIM is the Educational Special Interest Group of the Association for Information Systems. The objective of IAIM is to provide a forum in which interdisciplinary researchers and educators in information systems can exchange ideas, techniques, and applications. This objective is realized through various activities and publications.

The Academy sponsors an annual conference in December at which competitively selected papers and panel discussions are presented. A Best Paper Award is announced and all papers presented are published in the *Proceedings*, which are distributed to IAIM members.

A special issue of the *Journal of Informatics Education Research*, published semi-annually, contains refereed articles addressing excellence in MIS education. The *Journal's* mission is to provide a forum for the presentation of research focusing on quality advances in IS and MIS instruction and curricula. It serves those investigating innovative IS education delivery processes and emerging IT topics with significant curricula and instructional implications.

Workshops are held in conjunction with the annual conference to provide members with opportunities for continued professional growth and development. Please refer to our web site, www.iaim.org, for the most current information on AIS SIGED: IAIM activities.

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PAPER SELECTION PROCESS

Each year, the process of selecting high quality papers/panels/teaching cases for inclusion in the IAIM annual conference is demanding. Each of the individuals who assisted in the process is owed a debt of thanks. We are sincerely grateful for the time and effort that they devoted to ensure a strong and balanced program covering the major pedagogical issues and concerns of IS educators and trainers, as well as other professionals who incorporate information technology within their disciplines. The fruits of their labor are evident in the papers found on the following pages.

Copies of word-processed manuscripts were submitted to this year's research committee chair by use of the AIS sponsored on-line review system. Each paper was then given a brief editorial review to assure proper submission and the papers were then converted to .pdf format for convenient reviewer access. Each paper was then assigned to three reviewers for blind review. Using the on-line review system reviewers rated and commented on the submissions on the basis of the appropriateness of the topic and the contribution of the approach and results toward strengthening IS pedagogy and/or curriculum. Acceptance recommendations were returned to the research/track chair who was responsible for making the final acceptance decision. Authors of accepted papers (or extended abstracts) were notified of their acceptance status, were provided with reviewer feedback for potential research/paper improvements, and were directed to the conference web-site to review guidelines for submitting final paper copy of revised/formatted articles to the Proceedings editor.

In addition to rating and commenting on papers, the reviewers were asked to make recommendations regarding whether a paper should be given consideration for "best" conference paper. Eight papers were nominated as best paper candidates. The research chair then reviewed reviewer ratings to determine consensus regarding the quality of these papers, and subsequently forwarded seven best paper candidates to a second round of review and "best paper" ranking. The six top ranked "Best Paper" finalists will be announced at the conference and are designated via special presentation sessions at the ICIER Conference. Authors are then asked to revise and submit for fast-track review for acceptance to the *Journal of Informatics Education and Research*. Selection of papers for the journal is competitive and rigorous with a historically low acceptance rate, thus qualifying for fast-track review is indeed an honor.

The articles submitted by authors who met conference qualifications and completed their final drafts by the specified deadline appear in the following pages. The original abstracts are published by those authors whose research drafts were accepted but who were not able to meet Proceedings deadlines for submission of completed research.

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2005 AIS SIGED: IAIM OFFICERS AND DIRECTORS

The effort of the officers and directors of IAIM for 2004-2005 should also be acknowledged. The following individuals devoted considerable time, effort, and in some cases made personal financial contributions in order to attend board meetings and to maintain and enhance IAIM as a professional organization. A considerable amount of program planning and program-related decisionmaking is conducted at the board meetings.

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Mary Brabston	President	University of Manitoba
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Diane Fischer	Treasurer	Dowling College
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Raymond Papp	Vice President and Webmaster	University of Tampa
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Sharlett Gillard	Newsletter	University of Southern Indiana
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Natural Learning and Its Impact on Information Management Curriculum Design

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ABSTRACT

This article describes our experiences with our newly designed Information Management curriculum: the eStream. This curriculum is designed using modern insights into Information Management and a new approach to learning.

The eStream consists of three blocks: (1) information management, (2) information architecture and information infrastructure, and (3) eBusiness. The structure of each block is the same. After a crash course in which the major subjects are introduced, the problem-driven phase follows in which students working in small groups apply the theory to concrete situations. The block ends with the presentation of the exploration of the problem and with a report.

We have positive experience with this new approach. The students do appreciate the mixture of exploration and explanation and staff are happy having a more personal approach without having to spend more time compared to the traditional way of teaching.

We show that it is possible to overcome the shortcomings of this new approach – with free rider behaviour of the students being the most important – by applying minor adjustments to the structure of the courses.

The Computer Literacy Course: Is It Still Needed?

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ABSTRACT

This paper investigates whether a one-hour undergraduate information systems “skills course” is still needed in the curriculum. Since such a course requires significant institutional resources and entering students already possess some computer skills, a survey was administered and analyses conducted to determine if the course should continue to be required. The survey focused on previous knowledge, knowledge gained by taking the course as well as demographic data such as major and whether the student owns a computer. Pedagogical implications are discussed in light of the paper’s findings.

Keywords

Computer literacy, pedagogy, implications, software applications.

Information Technology Employment Trends and Implications

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ABSTRACT

This paper reviews employment trends in the Information Technology (IT) industry and explores implications for the U.S. IT workforce and education. We analyze workforce employment patterns, projections, and the impact of international outsourcing. The conclusion is that U.S. IT domestic employment is likely to grow much more slowly over the next decade than outsourced IT labor. IT educational institutions need to develop the ability to respond more rapidly to industry changes.

Keywords

IT Workforce, IT Employment, IT Outsourcing, IT Education

Teaching the Unified Modeling Language: A Practitioners' Perspective

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ABSTRACT

The Unified Modeling Language (UML) is generally viewed as the industry standard for object-oriented analysis and design. There are now a number of textbooks on the subject to complement the wide range of trade books. Many IS programs have added, or are considering adding, the UML to their curricula. While the advantages of taking an object-oriented approach are well known, concerns have been raised about its complexity. This particularly affects those learning and teaching the UML but practitioners also face similar problems. This paper reports on a recent survey of UML practitioners. The results show that few practitioners are using the full set of UML components, suggesting that one way to address the complexity is to focus on a smaller set of key components. The results also show that there is a shortage of skilled UML practitioners and colleges and universities could play a larger role in addressing this gap.

Keywords

Unified Modeling Language, practitioner survey, complexity, teaching

Review and Development of a Postgraduate Program in Information Systems

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Abstract

In this paper a comprehensive curriculum in postgraduate Information Systems is presented. This curriculum was reviewed and developed in response to the needs of the students and the requirements of industry. The paper provides contextual background to the course and a rationale for the review process. Key features of the reviewed course and anticipated attributes of graduates are outlined.

Keywords

Curriculum development, Information Systems, postgraduate

Combining Undergraduate Research Education and Human-Computer Interaction Research

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ABSTRACT

In order to increase interest in research in science, undergraduate research is encouraged. There is also a need for Human-Computer Interaction (HCI) research within an Information Systems curriculum. This paper combines an undergraduate research experience with HCI research. Initially, the broad topic, Human-Computer Interaction, was selected for research. Too often the study of HCI is ignored in the Computer Information Systems curriculum; therefore, students often do not have the opportunity to conduct real-world research in the HCI field. If they do, it is often within a semester-long time frame and interleaved with other coursework and activities. An interface for an e-mail client for older users was selected for this project due to the popularity of electronic mail, and the belief that older users want to use e-mail to connect with their families. This paper describes processes in a 10 week long project. The undergraduate research was both interesting and educational for both students and faculty. It is recognized that most students and faculty do not have the luxury of a dedicated 10 week timeframe. However, some recommendations are made for incorporation into a school year.

Keywords

Undergraduate research, education, human-computer interaction.

Update on Accrediting IS and IT Programs: Consolidated Criteria and Implementation Flexibility

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ABSTRACT

The Computing Accreditation Commission (CAC) of ABET is committed to providing world leadership in assuring quality and innovation in computing education. To carry out this vision, the CAC has proposed changes in the structure of the criteria used to accredit computing programs – computer science, information systems and information technology. The new structure articulates consolidated general criteria that apply to *all* computing programs, and sites program-specific criteria that apply to CS, IS or IT programs. This is an important reorganization that allows an emerging computing discipline program (e.g., bio-informatics) to apply for accreditation under the general criteria until the discipline matures to a point where model curricula can be developed. This new format also begins to move CAC documents to outcome-based statements leaving the implementation to the individual programs. This session explains the proposed criteria structure for IS and IT programs, and the timetable for implementation.

Keywords

Accreditation, Computing Accreditation Commission, information technology, information systems.

The Characteristics of U.S. AACSB Institutions that teach Project Management Courses within the IS Curricula

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ABSTRACT

IT is more pervasive in our society than ever and more organizations are using IT as a competitive advantage. With this increased importance, a major need has risen in the IS community. Project Management skills are now just as important as coding skills. Millions of dollars may be lost on IT projects, largely due to poor project management skills. This issue has been addressed for some time in various undergraduate and graduate curriculum models. This study seeks to find out if project management is being addressed at the undergraduate level within AACSB institutions with an IS degree major. The curricula and course catalogs for 304 IS programs were content analyzed to assess the presence of an IT Project Management course or coverage of project management knowledge in other courses. The data was analyzed using descriptive statistics. The results indicated that Project Management is not being addressed in any significant manner within AACSB accredited universities.

Keywords

Project Management, AACSB, IS Curriculum.

Developing an Information Technology Forensics Course

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ABSTRACT

This paper describes the development and evaluation of an Information Technology (IT) Forensics course developed in the Faculty of Economics and Commerce at the Melbourne University, Australia. The course is one of the three core courses of a Postgraduate Certificate in Business Forensics. The objective of the course is to give students an overview of the fundamental concepts related to computer forensics with an emphasis on the overall process of investigation. Academics who plan to offer similar courses in the future will find the paper useful. They can use the materials as a starting point to develop their courses and learn from the author's experience.

Keywords

IT forensics, computer forensics, digital evidence

Using a Capstone Project to Examine Student Attainment of Program Learning Outcomes

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ABSTRACT

Accreditation bodies are again emphasizing the need for programs of study to develop comprehensive assessment plans that encompass multiple assessment techniques. This renewed emphasis is leading to the identification and implementation of additional ways to objectively and formally conduct program assessment. One such method includes the evaluation of a student project deliverable completed in a capstone experience course. This assessment technique requires the mapping of project artifacts to specified student learning outcomes and then rating those artifacts against a set of predefined rubrics. Through the use of examples, this paper further describes this process within the context of an information systems program of study.

Keywords

Assessment, accreditation, information systems program review.

MBA IT Program Curriculum Models: An Analysis of Top-Ranked MBA Programs

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ABSTRACT

This study examines Information Technology (IT) curriculum trends in the top ranked US MBA programs. As a result of the internet era of the 1990's, IT has become more pervasive and requires more depth and breadth of knowledge across the business functions and strategy. Likewise, students concentrating in any of the other business disciplines (i.e., finance, marketing, accounting) require more knowledge of technology and this trend will continue. A global perspective will also continue to be more important. MBA programs have responded to these demands in various ways. Four curriculum models were identified that capture the majority of current MBA program trends. Top ranked MBA programs were examined in this study since these programs provide leadership and direction for other schools. More empirical research is required but this preliminary study shows an overwhelming trend toward more integration of IT in the overall MBA program.

Keywords

IT curriculum, MBA, trends, rankings

Panel: Developing a Program Assessment Process to Meet Accreditation Standards

PANELISTS

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INTRODUCTION

The development of an appropriate program assessment process is but one of many accreditation issues colleges and universities face today. Questions about the assessment process and what methods to use are being raised in greater numbers and by a wider audience (Banta, Lund, Black & Oblander, 1996). Changes in the accreditation rules by AACSB have made it more important than ever to develop a program assessment process that can be successfully implemented and evaluated to ensure student learning. Many schools are requiring students to pass exit or competency exams that assess what they have learned. Some have even suggested that the reason that students cannot pass such exams is due to instructor variability and that the course instructor is not teaching to the course objectives or that the objectives are not at the correct level.

Incorporating the 3 Tier Software Architecture into an Advanced Java Programming Course Using J2EE

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ABSTRACT

The information systems (IS) curriculum includes many programming course that introduce students to fundamental and advanced programming concepts. The challenge for educators is to keep up with industry changes so that students will be better prepared for a career in computing. This requires faculty to continuously update the curriculum to reflect new technologies. One of the most recent changes in industry is a transition from the client-server architecture to a three tier model that accommodates enterprise business applications and the web. In this paper the authors will provide a model curriculum that incorporates the 3 tier software architecture into an advanced Java programming course using J2EE. Included in this paper are a listing of topics covered, course objectives, and recommended software resources.

Keywords

advanced programming, Java programming, J2EE, 3 tier software architecture, enterprise business applications

Structuring and Representing a Unified Body of Knowledge for Computing

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ABSTRACT

This panel will present the *Computing Ontology Project*, which is a joint effort of five established computing disciplines (computer engineering, computer science, information systems, information technology, and software engineering) to develop a shared framework for representing a unified body of knowledge for computing and to develop an interactive software environment for maintaining and using this resource. The panelists, all active in curriculum development efforts in their respective disciplines (including information systems and computer science), will describe the goals of the project, discuss its current status, provide discipline-specific views regarding the benefits the project can offer to computing education, and explore the differences in perspective among the various computing disciplines. The panel will also provide the audience with an opportunity to participate in the discussion.

Keywords

computing ontology, computing body of knowledge, computing curricula, model curricula

Determining the Business Content in the IS Curriculum: A South African Perspective

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ABSTRACT

It is standard practice to include business subjects in graduate IS curricula. However, it is unclear whether curriculum designers apply a common framework when they design IS curricula. A further question is whether employers actually experience the benefits anticipated by including business subjects in the curriculum. The paper argues that IS graduates require a firm grasp of business fundamentals to be effective in their jobs but also makes the point that the term “business fundamentals” may be open to many interpretations by IS academics and employers alike. The paper examines the perceptions of employers regarding the business knowledge of recently hired IS graduates. This paper has two objectives. Firstly, to raise the awareness of IS academics to differences in interpretation as to what “business subjects” are. Secondly, it is hoped that the perceptions from employers will provide an insight into what industry thinks of the efforts to date.

Keywords

Information System, curriculum, business fundamentals.

The Introductory IS Course: What Do We Teach?

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ABSTRACT

This paper describes lessons learned while revising the content of the introductory information systems course at one institution. While examining one input to the process, syllabi from other programs, confusing terminology was found when technical and business-oriented course objectives were described. Students believed that objectives they perceived as business-oriented were the most critical to include in the introductory course.

Keywords

Information systems, curriculum models, introduction to I.S.

CASE Software Usage in the Classroom: Measurement Model Validation using Structural Equation Modeling

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ABSTRACT

Computer-aided Software Engineering (CASE) tools consist of software designed to automate software engineering processes and are included in software development curricula. The focus of this study is to validate the constructs used in the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al (2003). Data was collected using self-report surveys from 240 students from software development courses from a large northeastern university. Results show that performance expectancy, effort expectancy and facilitating conditions are unidimensional factors and are statistically valid measures. Social influence and behavioral intentions are constructs that exemplify non-unidimensional characteristics and are not statistically valid measures. This study is important to universities and software development educators because the constructs studied allow for the empirical measurement of students' behavioral intentions and behavior in the use and adoption of CASE tools and other technologies.

Keywords

Computer aided software engineering, CASE tools, UTAUT Model, technology acceptance, structural equation modeling.

Collaborative Learning in an E-Learning Environment: A Case Study

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ABSTRACT

The main research question addressed in the paper is to determine whether or not collaborative learning, and specifically elearning using WebCT as the software platform, will enhance the learning experience of a group of first-year students doing an introductory programming course. Qualitative research was done on the basis of conducting semi-structured interviews with the course coordinator and lecturers. The students were asked to complete an open-ended questionnaire to evaluate their e-learning and group working experience. The paper includes a discussion on the use of WebCT and collaborative learning to teach 158 first-year students to develop a computer program in Visual Basic.NET. The results obtained from the interviews and questionnaires are discussed. The authors found that WebCT was indeed able to serve as an e-learning environment that enabled students to provide other students with information, opinions or suggestions of value to promote online group discussions, and to ask and answer their questions.

Keywords

Collaborative learning, e-learning, Informatics education

Student Attitudes Toward In-Class Examination Software

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ABSTRACT

The Technology Acceptance Model (TAM) provides the theoretical foundation for understanding student attitudes towards laptop exam software. The model applies TAM to both faculty and technical support for the examination software to student attitudes towards the software, while it is mediated by the perceived usefulness and ease of use of the software. The model is empirically tested using questionnaire responses from 107 students enrolled in sections of a business core course using the examination software. The statistical technique used is the estimation of three regression equations reflecting the paths in the theoretical model. Empirical results show that perceived usefulness and ease of use of the software have direct, meaningful impacts on developing positive attitudes toward the software. Furthermore, faculty support and ease of system use impact student attitudes in a meaningful fashion indirectly through perceived usefulness. These empirical results are discussed along with conclusions and implications for instructors.

Keywords

Technology acceptance model, examination software, laptops

Learning with Laptops in Undergraduate Business Education: Student Experience of a Three Year Program

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ABSTRACT

Business schools are under pressure to understand how students use laptops to support their learning (Brown, 2005). Recent research has investigated curricula specific activities where laptops have been used in educational tasks that simulate real world business problems (Hyden, 2005). At present limited studies capture student experiences of laptop use across different academic programs (Demb et al., 2004). This paper documents student experience of laptop use, within three Quinn School of Business (QSB) academic programs to explore how students cope with computer mediated learning over time (Alavi et al., 1995). This paper joins debate within business and management education, which explores practical technology use (Leidner and Jarvenpaa, 1995) in undergraduate student learning. This paper presents narrative descriptions of laptop use as students discuss how they developed business and technology skills, and applied these skills to support their learning, through interaction with other student learners (Lave and Wenger, 1991).

KEYWORDS

Undergraduate Business Students, Laptop Use, Experience, Situated Learning.

Using the Case Method Teaching in an Online Asynchronous Learning Environment: Lessons Learned

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ABSTRACT

Teaching using the case method has been popular for many years. A newer phenomenon in teaching is the use of the Internet to provide online asynchronous learning (OAL). The basic question that is dealt with by this paper is the use of the online asynchronous learning environment when using the case method of teaching. It is important that instructors understand the learning environments that they are using and the effectiveness of the teaching methods used. This paper presents problems with the OAL environment and lessons learned from the OAL environment based on a field study using the case teaching methodology.

Keywords

Case method teaching; Online learning environment; Lessons learned.

Information Ethics: Researching the IS Professional's Decision Making Concerning Information Privacy Practices

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ABSTRACT

This research aims to investigate how business policies may shape the competence of IS professionals in safeguarding information privacy. Grounded in the Theory of Planned Behavior, two organizational contextual variables (codes of ethics concerning information privacy and expected consequences) and five variables of ethical decision making (ethical judgment, attitude toward privacy protection, norm, privacy self-efficacy, and ethical intention) are included in our research model. The results show that subjects in this study exhibit a higher level of ethical judgment, attitude toward privacy protection, subjective norm, and perceived privacy self-efficacy when organizations emphasize positive rewards to ethical behaviors, while the same cannot be said for the codes of ethics. In addition, an organizational context that emphasizes positive consequence may strengthen the relationships between ethical judgment and ethical intention and between attitude toward privacy protection and ethical intention. This demonstrates that a caring organizational climate plays an important role in ethical decision in computer use. Finally, the results show that when business do not have codes of ethics, employees' level of self-efficacy fluctuate much more widely than when businesses have codes. Thus, an organizational context that adopts codes of ethics can help strengthening the relationship between privacy self-efficacy and ethical intention. The implications to academics and business are discussed.

KEYWORDS

Ethical Decision Making, Information Privacy, Organizational Context

The Hybrid Course: Using Asynchronous Learning Tools in the Classroom

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ABSTRACT

Hybrid courses have become the most recent use of web based asynchronous learning (ASL) tools at colleges and universities. There is no completely accepted definition of a hybrid course, although the generally accepted definition is a course in which a percentage of in person lectures are replaced by some sort of on-line experience. Previous studies of the use ASL tools in support of hybrid courses have focused on the traditional aged, full time, undergraduate student and have had varied results evaluating the effectiveness of these implementations. This study looks at mature part time graduate students and their performance in and response to hybrid classes. The paper looks at several quantitative measures that can be used to determine if the hybrid course has significantly impacted student performance in the course or perceptions of the course. A study that analyzed seven hybrid courses is presented. The results indicate that overall there were no significant differences in student performance between students in the hybrid courses and those in the face-to-face courses. Student evaluation of the course was, however, significantly higher in six of the seven courses. Qualitative comments indicate that many students appreciated the flexibility afforded them by the hybrid course format. The paper ends with a discussion of some important issues and areas for further research and study.

Keywords

IS education, IS curriculum, Learning Models, Hybrid Courses, Asynchronous learning tools, and Group Processes

Global Digital Divide: The Role of Socioeconomic Factors on Information Technology Usage and Expenditure

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ABSTRACT

The primary purpose of this paper is to analyze the influence of socioeconomic factors on usage and expenditure on information and communications technologies (ICT) in 56 countries based on international data (GITR, 2002-2003; World Bank, 2003). Utilizing the unit of analysis of the nation-state, linear regression analyses are conducted to test the paper's framework. The findings show that, when GNP is included, the most important indicator for all dependent variables is gross national product per capita (GNP), while education and scientific workforce attributes reveal secondary significance. Excluding GNP, the most important factors are quality of math and science education, availability of scientists and engineers, and scientists and engineers in R&D, findings consistent with national-level literature. The paper suggests steps that can be taken by the countries and their governments to foster effective use of technology and reduce the digital divide. Among the leading steps are to emphasize national educational improvement.

Keywords

Digital divide, usage, expenditure, education.

The Rise of the Silver Surfer: A Preliminary Study of Computers and the Internet as Providers of Information and Communications to Seniors

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ABSTRACT

This study of seniors, those people 55 or over, examines their attitudes and perceptions towards computers and the Internet. This demographic group currently represents a large proportion of the Australian population, with growing spending power. A distinct lack of research in this demographic group has created a void in available literature to date. Preliminary findings indicate this group to be fairly homogenous, with factors such as gender, income, age and education having little influence on this segment's belief-attitude dimensions. Intention to use the Internet has been found to be largely driven by the importance one places on being able to use the technology to communicate and gather information and by the individual's weighting of the negative issues. This finding was exemplified by the fact that seniors' primary use of the Internet is for e-mail. This research has significant implications for those wishing to provide education to this growing group. Findings indicate that for computers and the Internet educators to succeed in targeting this segment, they need to stress and accentuate the benefits and address the negative aspects. Further, there is a distinct opportunity to specifically target communication technologies in providing training and education.

Keywords

Seniors, elderly, attitudes, perceptions, information technology, internet.

The Challenge of Digital Rights Management Technology to Teaching and Research in Universities

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ABSTRACT

In the 21st Century content will be king—and content is increasingly being created, captured, distributed, and stored in digital fashion. Whether we look to the books and music of the big publishing houses or to the classroom notes and lectures of the traditional university professor, these objects are creations which are born along with a copyright. When a copyrighted object takes digital form the various rights to the object can be priced and controlled by yet other digital artifacts (i.e. programs). This technology is generically referred to as “Digital Rights Management”, i.e. the management of rights through digital mechanisms. From various perspectives and for various reasons Digital Rights Management (DRM) poses one of the greatest challenges for content communities in this digital age. [2] This paper introduces the core technological concepts underlying DRM and goes on to discuss various factors related to it. In particular the paper presents a set of fundamental functional and information architectures for DRM from a logical perspective. An understanding of these models is useful for both business and Information Technology (IT) professionals. After a brief review of copyright, the paper considers the challenges which these architectures, combined with DRM implementations, present to traditional teaching and research in universities.

KEYWORDS

Digital Rights Management, Copyright, Intellectual Property

Factors Influencing Distance Learning Intentions

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ABSTRACT

The growing use of the Internet, Web, email and other information and computer technologies has brought about increasing interest in using these and other technologies to facilitate distance learning. Many institutions see considerable potential benefit from distance learning. However, to gain these benefits, students must accept and engage in distance learning. In this paper, we use diffusion of innovation theory to examine factors that influence students' intentions to engage in distance learning. To this end, we developed and administered a survey, then analyzed the resulting data. Results indicate that students' perceptions of the relative advantage, compatibility, result demonstrability and voluntariness significantly impact their distance learning use intentions. Ease of use perceptions also impact use intentions, but this impact is only borderline significant. Visibility perceptions and subjective norms did not have an influence on use intentions.

Keywords

Distance learning, technology-mediated learning, adoption, use intentions

Pathway to Massive Mobility in Educational Computing

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ABSTRACT

Mobile devices such as Personal Digital Assistants (PDAs) and “smart-phones” are becoming pervasive. Unfortunately, experience in terms of massive institutional integration of mobile devices is lacking. This paper explores technological, architectural, pedagogical, behavioral, economic and political considerations raised by the move towards a mobile devicebased paradigm in a university environment. The strategy, initiatives, and experiences of City University of Hong Kong (CityU) on its path to improve learning interactivity with PDAs in large classrooms are used for illustration. Issues and success measures with corresponding data are presented. This project which began as a single-course pilot has now been escalated to the university’s CIO. Further plans include an investigation of university-wide use and consideration to replace a number of campus desktop computers with mobile devices, thus enabling more flexible computing device use and lowering the total cost of campus computing. Additional considerations are arising as CityU moves from supporting 800 to approximately 16,000 student users of various age groups, as well as programs, faculties, and administrative entities. As a means to structure and explain adoption activities, we draw on Moore’s technology adoption model and Nolan’s stage hypothesis in this article. Issues relevant to the initiation phase of Nolan’s model include high profile opportunities, vendor collaboration, institutional approval, and test successes. Issues relevant to Nolan’s contagion phase include device selection and support, system access, multiple authoring environments, learning motivation, instructor training, and faculty development. Control phase issues include infrastructure, interface standards, portal considerations, learning management system integration, learning management system extension, embedded use, curriculum revision, policy formation, and “have versus have-nots”. In recognition that mobile device introduction is a long way from integration maturity, issues in this phase worthy of consideration include pedagogy and evaluation. The paper illustrates the multi-faceted nature of the problem and need for involvement from multiple stakeholders to achieve a robust and holistic solution to massive mobility in educational computing.

KEYWORDS

Massive Mobility, PDA, Learning, Adoption of Innovation.

Developing Testing Skills in an Introductory Programming Class

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ABSTRACT

Introductory programming courses are often a challenge to both the students taking them and the instructors teaching them. The scope and complexity of topics required for learning how to program in an object-oriented language can distract from the importance of learning how to test. As a result, students often fail to develop the requisite skills for effective testing. This paper describes a testing exercise that has been integrated into an introductory programming course as part of an overall effort to focus attention on effective testing techniques. In a carefully crafted assignment, students learn to develop test cases, check for boundary conditions, and evaluate test results for a program supplied by the instructor. A comparison of the performance on a common programming assignment of students who had participated in the testing exercise to that of students who had not demonstrates the value of following such an approach.

Keywords

Testing, debugging, black-box method.

The Impact of Team Selection Methodology on Team Performance and Individual Team Member Satisfaction

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ABSTRACT

Whatever career paths graduates of management information systems (MIS) programs follow, they will likely end up working in teams a large portion of the time. Therefore, most MIS programs today use team work as one of the structures for student work and evaluation. As in the work place, some teams self-select, that is, one or more team members choose the other members of their team. Other teams – the majority in the work environment, many fewer in the classroom – are assigned by a supervisor, project leader, or the instructor. Our general research question asks: Do you sacrifice satisfaction for performance, or performance for satisfaction, depending on whether you assign teams versus allowing self-selection in forming project teams? We conducted an experiment in four sections of our introductory MIS course across four course projects to examine team performance and satisfaction over time based on whether teams were assigned or self-selected..

Keywords

Teams, team selection, satisfaction, performance.

Use of Notes During Information Technology Exams Improves Student Performance: Fact or Fantasy?

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ABSTRACT

This paper summarizes findings of teaching eight sections of the same college course in the same format with one major exception. Section 1, 3, 4, 5 and 8 had notes available for reference during the final exam whereas Sections 2, 6 and 7 did not. The author's hypothesis that students in the five sections using notes would perform significantly better than the other sections on the exam was not supported. The author also analyzed exam results for the sections allowed to use notes and found there was a significant difference in how students who chose to use notes performed compared to those who chose not to use notes.

Keywords

CIS Education, IS Education, IT Education, Informatics Education

User Interface Design: Course and Curriculum

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ABSTRACT

MIS programs have focused on educating future developers in analysis, design and programming. However, in most of these programs, design is overshadowed by the programming and analysis aspects of the curriculum. The interface is specified by the instructor to be implemented by the students, with little attention paid to how that interface should work for the users. The result is programmers that develop systems that users find difficult to use to perform their jobs. Poor user interface design has a significant impact on user productivity, error rates, and an increased need for user support. In this paper, we (1) examine problems caused by poor interface design, (2) describe characteristics of good design, (3) examine teaching of the design process, (4) propose a change to the IS2002 Model Curriculum to support the education of interface designers, and (5) propose a course on interface design for that curriculum.

Keywords

Interface Design, Curriculum Development, Software Quality

Content Versus Context in an Introductory Computing Course

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ABSTRACT

This research considers the value-added potential of an introductory computing course as more than just limited to computer literacy. The proposed approach frames the course content around the documentation and presentation of a business plan. A business plan provides a vehicle for teaching information concepts and computer applications in the context of business analysis and communications. The direction and implications of this context are discussed.

Keywords

Introductory computing, computer literacy, business core, teaching approach.

Publishing in IS/IT Education Journals

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ABSTRACT

This Panel Session will focus on the topic of publishing in IS/IT education journals. Panelists will share their experience as Editors with the audience in the areas of submitting IS/IT education papers, quality issues, the review process, being a reviewer, and other issues pertaining to publishing of IS/IT education papers. Three journals will be highlighted: the *Journal of Information Systems Education (JISE)*, the *Journal of Informatics and Research (JIER)*, and the *Journal of Information Technology Education (JITE)*. Attendees will be encouraged to ask questions and explore publishing opportunities with the journals represented. The panel members will answer questions and present helpful hints for potential authors.

Keywords:

Publishing; Submitting research papers; Quality

Are Students Learning and Retaining What We Are Teaching? Assessing the Use of Information Technology

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ABSTRACT

This research paper focuses on how an undergraduate program at an AACSB-accredited business school will be incorporating assessment on the use of information technology in the curriculum. To meet the new AACSB standards regarding assessment and adequately determine “if and what students are learning?”, this research presents the technology learning goals, the associated learning objectives and the specific technology-related behaviors and actions that are assessed. This paper presents the motivation for an assessment program, how the assessment will be implemented, and at what point in the undergraduate program will the assessment be incorporated. A related instructional module that will be used to assist students who do not satisfy the assessment requirements is described, as well as, a pilot study to test the measurement instruments.

Keywords

Assessment, Technology, Pedagogy, Business computers skills

Bridging Entity-Relationship and Relational Data Models

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ABSTRACT

Conceptual database design is a difficult task for novice database designers. To identify the problem areas in conceptual database design, the authors break down the design task into three subtasks: simplified entity-relationship diagram (ERD), normalization (relational model) and enhanced (normalized) entity-relationship diagram (EERD). This paper describes research design, results of a laboratory study that employed novice database designers to identify their performance and the problem areas from exercise and survey. Results indicate that relational model and EERD are the error-prone area for most of the students.

Keywords

Data Model, Entity Relationship Diagram, Relational Model, Normalization.

Developing (and Assessing) Higher Order Thinking Skills in MIS Courses Using Cooperative Learning Teams

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ABSTRACT

This study investigates the common meanings of several often utilized terms (although not always with an agreed upon meaning) in education research, including critical thinking, higher order thinking, and cognitive taxonomy of objectives, and discusses the intersection among these dimensions. From a practical standpoint, we also discuss cooperative learning assignments that facilitate the development of these high-level cognitive skills and use one MIS course's simulated consulting engagement project assignment (designed as an experiential cooperative learning activity) as an explicit example, particularly in terms of the challenges of assessing such skills.

Keywords

Critical thinking, cooperative learning, rubric.

Forcing Early Binding of Security Using a Design Reference Monitor Concept in Systems Analysis and Design Courses

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Security information systems are a concern of organizations and governments. However, the topic of security in information systems is addressed lightly in a set of textbooks commonly used in Systems Analysis and Design and Database Design courses. Students will not learn the importance of information security without supplemental materials. At best, information system security will be viewed as a late binding decision in systems design. We propose using the Reference Monitor (RM) as a conceptual framework to introduce security into Systems Analysis and Design courses and subsequent design/implementation courses.

An Exploratory Study of the Influence of Group Formation Choices on Academic Performance

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ABSTRACT

In the Business Information Systems discipline with its inherent multi-disciplinary and applied foci, team working skills are seen as especially critical by employers and are specifically incorporated into desired graduate attributes by many universities. Past research has focused on the benefits of group working but little work has been conducted to examine the relative contribution of group formation choices on academic performance. This paper reports on the first phase of a study that develops and validates a data collection instrument and identifies four underlying factors that influence formation of groups -- convenience, social cohesion, task management and technical skills/knowledge. The results suggest that complementary technical skills are by far the most influential factors in influencing the group formation, along with the social cohesion. The study found that the IT students have a positive attitude and enthusiasm towards group work, while the commerce students appear to have generally less positive impressions of group work.

Keywords

Group work, social cohesion, technical skills, task management, academic performance.

XML - An Essential Addition to the Database Systems Course

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ABSTRACT

The increasing popularity and acceptance of XML for data communication and document processing has extended into database systems, where its importance has necessitated considerations for inclusion into the database curriculum so that students have an initial foundation in the utilization of XML prior to graduation. This paper presents a workable teaching approach for incorporating XML into a traditional database systems course by supplementing the topic content with lectures based on existing XML support in relational database and utilization of a software tool that reinforces the concepts with practical experience.

Keywords

Database, XML, Curriculum, Pedagogy, SQL

Academic Advising Services for IS Students: What are Student Expectations and What Support Can Technology Provide?

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ABSTRACT

Academic advising is an important activity for university programs in Information Systems (IS), as well as other academic areas. Given the significance of academic advising services, it is worthwhile for university programs to explore ways to assess, enhance, and support their services. The purpose of this manuscript is to provide an overview of a project undertaken to enhance academic advising services for IS students. The first part of our project involved an assessment of our advising services based on an internal audit and a survey of students using a modified version of the SERVQUAL service quality instrument. The second part of the project focused on the development and assessment of a WWW-based system to support academic planning. Our study will be of interest to those interested in the assessment of advising services and the ways that technology may be used to support academic advising.

Keywords

Academic advising, service quality, SERVQUAL, support systems.

Improving Students' Learning Through Constructive Alignment

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ABSTRACT

This paper reports the teaching of Information Systems Analysis through the Constructive Alignment approach which aims to strengthen the integration of intended learning outcomes, teaching and learning activities, and assessment methods. Some clear evidence has been found from both questionnaire surveys and qualitative data from student interviews of the positive impact on student learning. This paper discusses the Constructive Alignment model that has been adopted, focusing on how the components of learning outcomes, teaching and learning activities, and the assessment methods are aligned. Both the statistically analyzed results of the questionnaire surveys and the results of the qualitative interviews with the students are presented. These results indicate that the aligned curriculum is able to achieve not only the desired learning outcomes in the specific subject, but also the outcomes for the generic skills involved in life-long learning and all-round development. Some experience involving the curriculum approach will also be discussed.

Keywords

Constructive Alignment, Collaborative Learning, Student-Centered Learning, Improving Students' Learning.

Geeks, Girls and IT Courses: Patterns of Participation

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ABSTRACT

This paper examines recent trends in declining enrolments in higher education IT courses through a gender lens. Early analysis of a survey on undergraduate students enrolled in IT degree courses at an Australian University of Technology shows a distinct pattern in the parental backgrounds of women in ICT, and also a noticeable variance in the use of IT between female students and male students. While this study supports earlier studies, some of these trends are contrary to prior research in this field and provides further insight into this problematic issue.

Keywords

Gender in IT, Higher Education, ICT education

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