
Editorial

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John M. Carroll is Edward Frymoyer Chair Professor of Information Sciences and Technology at the Pennsylvania State University. His research interests include methods and theory in human-computer interaction, particularly as applied to networking tools for collaborative learning and problem solving, and the design of interactive information systems. He serves on several editorial boards for journals, handbooks, and series and is Editor-in-Chief of the *ACM Transactions on Computer-Human Interactions*. He received the Rigo Award and the SIGCHI Lifetime Achievement Award from ACM, the Silver Core Award from IFIP, the Goldsmith Award from IEEE. He is a fellow of the ACM, IEEE, and HFES.

1 Introduction

Of late it is notable that in various mailing lists related to Information Systems, there is an endless debate on the importance of information systems or the value of IT towards competitive advantage. One of the last provocative papers by Nicholas Carr, the famous IT does not matter in *Harvard Business Review*, seems to be just the top of the iceberg. If one judges the real stuff then they will simply conclude that Nicholas just found a nice way for promotion. But if one goes beyond the verbalisms, then several conclusions provide an excellent input for the rationale of this special issue.

Information systems need to be anchored in real societal needs

Society is a complex construct so we must go beyond the typical business considerations. Information Systems, in the context of the knowledge society, must integrate their research agenda in socially sensitive areas.

Information systems must follow the technological change in their curricula

The Fundamental and Advanced IS courses need refreshment. Not only in terms of emerging technologies (we live in the Era of Web 2.0, Semantic Web, Ubiquitous and Pervasive Computing) (Lytras and Sicilia, 2005; Naeve, 2005; Sheth and Lytras, 2007) but also in terms of strategies. Academics usually provide basic knowledge in Fundamental IS courses which is outdated mostly because of the advanced computer literacy of young students. In addition, academics are usually exhaustive in Categories of Information Systems, but the real market of custom software is speeding forward at unforeseen rates. We must find ways to integrate academia and industry in Teaching IS.

Information systems teaching requires new approaches in the packaging of learning content and in the integration of learning/teaching communities

In a knowledge-rich world it is extremely important to set as one of the highest priorities the development of Reusable Learning Units for Information Systems Education as well as several Open Publications that will exploit the capacity of the community to apply collaborative filtering and the collaborative annotation of learning resources. Web 2.0, as well as the Semantic Web, are excellent approaches that provide specific guidelines to this end.

Information systems teaching strategies must provide a joint engineering and business perspective

One of the biggest challenges for Teaching Information Systems is to develop a holistic approach aiming to develop technical and managerial/business competencies as far as students are concerned. This is a key requirement also for bringing together the Computer Science and Information Systems research communities that suffer from several misunderstandings.

Information systems teaching must exploit R&D projects, real world cases and industry show cases

The exploitation of real world examples, case studies with problem solving approaches, constructivist, experimental and exploratory approaches for learning are key reflective strategies in an extremely demanding world.

We stop this list here on purpose. The members of Editorial Board of IJTCS will be really pleased to publish, in forthcoming issues, papers related to reflections on the Teaching Challenges for Information Systems. We are encouraging the IS research community to participate in this dialogue. IJTCS would be happy to serve this purpose. Feel free to send your position papers to the Editor-in-Chief of the journal. In the next section we provide a short presentation of the papers in this special issue.

2 Paper presentation in the inaugural issue

In this special issue we deployed a mixed strategy of personal invitations and open call. The final collection of accepted and invited papers contributes to the literature. In this section we summarise the papers of the special issue.

An Interview with Michael D. Myers, ‘The field of IS has always been about RELATIONSHIPS, not things in themselves’: In this interview, given to Miltiadis Lytras, the President of the Association for Information Systems, <http://www.aisnet.org>, Professor Michael Myers, provides his thoughts for the discipline of the Information Systems and his personal opinion for some of the key themes.

In the second paper, Les Sztandera and John F. Sanford provide their ‘Thoughts on the future of education in information technology’: Education for students preparing to enter corporate information technology departments will need to deal with a vast array of technologies that are becoming commoditised. This paper outlines fundamental concepts. It further presents the need for dynamic case models that can present real-world problem solving concepts that are not only technical but also business-related. As a means of assuring that curricula meet industry real-world situations the paper proposes that the future will allow a web based knowledge management system for evaluation by practitioners.

The third paper is authored by John M. Carroll and Marcela Borge. It is entitled: ‘Articulating case-based learning outcomes and assessment’ Contemporary classroom practices have evolved, and are continuing to evolve toward an emphasis on authentic learning activities. To a considerable degree, lectures and proscribed classroom exercises are being replaced with more open-ended, problem-based activities that are frequently carried out by groups of students (i.e., collaborative learning). Authors are investigating the use and assessment of such learning activities in a usability engineering course for 3rd and 4th year Information Science undergraduate students at the Pennsylvania State University. This paper advances their project by attempting to better articulate the specific learning objectives of case-based activities employed in this course and the appropriate assessment goals and methods for these learning objectives.

Judy L. Wynekoop, Kazuo Nakatani discuss ‘A shift in content of the IS fundamentals course’ and provide fresh ideas for the traditional IS Fundamental Course.

In light of the recent discussion of whether information systems, as a field of study, should stay focused on its technology core, a survey of IS instructors took place in order to determine the current and growing emphasis of the introductory fundamentals of IS course. In general, topics relating to technology applied to business improvement are currently emphasised, while business topics are becoming increasingly important. Purely technological topics are currently seen as the least important and not gaining in importance.

Duncan Shaw, Brendon J. Woodford, George L. Benwell in ‘Educating future IS professionals through real-world integration’, report on teaching information systems analysis in a way that takes the classroom into the real world to enrich students’ understanding of the broader role of being an IS professional. Through exposure to less controllable and more uncomfortable issues (e.g., client deadlines; unclear scope; client expectations; unhelpful colleagues, complexity about what is the problem, never mind the solution) authors aim to better prepare students to respond to the complex issues surrounding the deployment of systems analysis methodologies in the real world. In their paper the authors provide enough detail on what these classes involve to allow a reader to

replicate appealing elements in their own teaching. This paper is a reflection on integrating with the real world when teaching information systems analysis – a reflection from the standpoint of students who face an unstructured and complex world and of lecturers who aim to prepare students to hit the floor running when they encounter that world.

Wm. Benjamin Martz, Jr. and Teuta Cata, in 'Business informatics as a research discipline' develop a research model for the business informatics discipline. Borrowing concepts from a range of complementary areas, including Warfield's General System's Design, McGrath et al.'s Knowledge Accrual Process, the ongoing IT Artifact discussion in the information systems literature base, and the characteristics of information, a model is developed and discussed.

The final section of the paper reconciles the model with several of the key concerns currently found in the academic discussion around information systems as a discipline. A final definition using Mason and Mitroff's format as a guide is offered: A research programme in business informatics manipulates the COMPONENTS of IT ARTIFACTS from as many RESEARCH PERSPECTIVES as possible so as to understand the RELATIONSHIPS between those components and to ACCRUE THAT KNOWLEDGE in such a way so that the ARCHIVED KNOWLEDGE becomes useful (effective and efficient) for business organisations.

Philip M. Drinkwater, Christopher P. Holland and K. Nadia Papamichail, in their paper entitled 'Electronic cases: a problem-based learning approach to management development' present their Electronic Cases approach. Electronic case studies (e-Cases) are hyper-text documents that focus on a single company or business theme. An e-case differs from a traditional case study in that it is a dynamic account of a business situation. The hypertext links point to data that are automatically updated, such as company websites and secondary data in areas such as financial accounts or market overviews. The approach encourages participants to develop problem based strategies centred on the concept of jigsaw learning. The ideas and concepts have been applied over a period of over ten years in various courses such as specialist Masters, MBA, executive and company-based courses in Europe, the USA and South Africa. A range of e-case examples has been developed and this paper serves as a note for instructors on how best to exploit their use on management courses. Feedback on the experiences of other instructors is welcome.

Aleksej Heinze, Chris Procter and Bernard Scott in 'Use of conversation theory to underpin blended learning' are concerned with the search for a viable pedagogical theory for a part time information technology course facilitated by blended learning. It was initially thought that the Conversational Framework would provide this, and could be examined utilising action research. The authors examine the Conversation Theory related literature and their action research data, including staff and student interviews and focus groups. The findings suggest that despite some theoretical alignment to Blended Learning, there is a need to amend and enrich the Conversational Framework in order to make it more applicable.

Kevin Deeb in 'The impact of social technologies on student performance in a collaborative learning environment' presents the design structure of an integrated IT senior capstone course that engages students in web-blended learning activities. Results support significant improvement in academic performance and advancement in the collective and intuitive knowledge of students at both the social and technical levels.

Anxo Cereijo Roibas, in 'Teaching appropriate ethnographic methodologies for pervasive computing' discusses the inclusion, in the undergraduate and postgraduate educational HCI curriculum, of the use of different experimental in situ and other data gathering and evaluation techniques in the quality assessment of pervasive computing systems.

Lyn Antill contributes to the special issue with an interesting research paper entitled 'Towards active case based learning in IS': Persistent difficulties in getting students to understand certain topics in Information Systems led the author to think very hard about what to get across, why the students found it hard and how it might be better presented. The thinking starts by questioning what we mean by IS and what constitutes the predominant content of IS research papers, texts and courses. Given the objectives for the particular courses taught at NBS, the paper describes some of the problems currently being met, particularly the 'concrete' thinking and 'surface' learning of many of the students and their primary concern with a degree as a passport to a job. To improve the students' performance, a number of suggestions are made concerning ways with which the use of experiential and case based learning could become more extensive. Finally, the paper describes a simple example introduced in the past year and explains the objectives and proposed method for the next planned change.

Dimitris Vrakas, Grigorios Tzoumakas, Fotis Kokkoras, Nick Bassiliades, Ioannis Vlahavas, Dimosthenis Anagnostopoulos, in 'PASER: a curricula synthesis system based on automated problem solving' provide a technologically oriented example. Their paper presents PASER, a system for automatically synthesising curricula using AI Planning and Machine Learning techniques on an ontology of educational resources metadata. The ontology is a part-of hierarchy of learning themes which correspond to RDCEO competencies. The system uses an automated planner, which, given the initial state of the problem (learner's profile, preferences, needs and abilities), the available actions (study an educational resource, take an exam, join an e-learning course, etc.) and the goals (obtain a certificate, learn a subject, acquire a skill, etc.) constructs a complete educational curriculum that achieves the goals. PASER is accompanied by a Machine Learning module that classifies textually described users' learning requests into competencies registered within the ontology. Furthermore, the ML module interactively assists content providers in constructing educational resources metadata (LOM records) that comply with the ontology concerning both learning objectives and prerequisites.

We do believe that this collection of papers is an excellent contribution to the literature of the Information systems research. We are happy to finalise this special issue and we are really looking forward to your comments. We would like to express our gratitude to the personnel of Inderscience, and E-Edit Solutions for their great support during all the phases of development.

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