Interaction in Communication Technologies and Virtual Learning Environments: Human Factors

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Epistemology is the concept used to describe ways of knowing. In other words, how you know what you know. Sociologists have been interested in how knowledge is produced since the discipline was founded in the 19th Century. How we come to know our world and make sense of it are influenced by social institutions, individual attitudes and behaviors, and our demographic position within the social order. The social order is an historical product which continues to change over time. To facilitate our learning from our socio-historical experiences, sociologists frequently turn to ideas expressed by social theorists. Social theory, whether classical or contemporary, may thus be employed to help us make sense of changes in our social and material world. Although technology is arguably as ancient as our first ancestors, as the chapters in this book reveal, the characteristics of and communications within our postindustrial society vary greatly from those which occurred in the age of modernity. This introductory chapter identifies a few well-known social theorists who have historically attempted to explain how and why social systems, at macro and micro levels, change over time. Next, it contextualizes communication as a cultural product, arguing the best way to examine the topic is from multiple, local perspectives. In the feminist tradition of postmodernist Sandra Harding, it implores us to consider the premise and source of the knowledge sources we use and espouse while communicating and interacting in specific ways and environments. Finally, grounded in the systemic backdrop of social inequality, this chapter encourages readers to begin the task of critical thinking and reflecting about how each of us, as individuals and members of local communities, nations and the world, assuage or reproduces the structurally-derived inequalities which the globalization of communication and technical systems and interacting in a global environment manifests.
Section 1
Communication Technologies in Applied Settings

We Want to Communicate in a Globally-Informed World

Chapter 2
Creating Waves Across Geographical and Disciplinary Divides Through Online Creative Collaboration (OCC)

Nataly Martini, University of Auckland, New Zealand
Jeff Harrison, University of Auckland, New Zealand
Rick Bennett, The University of New South Wales, Australia

E-mail has become so ubiquitous that it has surpassed existing only as a tool of asynchronous communication. E-mail has contributed to the rise of the distributed organization that is widely dispersed across nodes and locations. Email is being used in diverse ways and for an increasing range of unintended purposes. This chapter charts the history of e-mail, from early investigations of handling e-mail overload, to a review of software applications designed to ameliorate unanticipated outcomes. It suggests that while e-mail has been appropriated for information and knowledge management, there has been minimal analysis of this beyond the individual. By presenting a case study of a distributed organization, detailing the process by which e-mail was leveraged for organizational knowledge through the design of an application that enabled visualization of e-mail data, this research shows e-mail technology can become a core repository of corporate knowledge.

Chapter 3
Designing E-Mail for Knowledge Management in Distributed Organizations

Linda Leung, University of Technology Sydney, Australia
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Alastair Weakley, University of Technology Sydney, Australia

Creative Waves: Visualising Issues in Pharmacy (VIP) was a global online project run over 14 weeks during 2007. The project linked over 200 students, educators, mentors and community representatives in a completely online learning environment addressing health promotion. Uniquely, the VIP project brought together the two disciplines of pharmacy and graphic design to collaborate in identifying, researching and designing public health campaigns to tackle significant health issues affecting the people living in the remote Kenyan village of Winam. In this chapter we describe the VIP project itself, the Omnium® Software technical platform that facilitated the online collaborations as well as quantitative and qualitative data describing the student experiences and engagement in the project. Many of the lessons learnt during the VIP project are illustrations of the literature surrounding online learning environments; we provide a summary of the key findings from VIP to benefit developers of future online collaborations.

Chapter 4
E-Mail Interviews with Senior Legal Professional Women in Australia: Examining Computer-Mediated Communication

Angela T. Ragusa, Charles Sturt University, Australia
Philip Groves, Charles Sturt University, Australia
The development of successful interactions utilizing e-mail, as an asynchronous computer-mediated communication (CMC) technology to conduct qualitative social research, relies upon a host of social norms, symbols and meaning systems well articulated by the micro-sociological theory Symbolic Interactionism. This chapter examines some benefits and consequences of using e-mail interviews to collect data from female senior counsels about contemporary stereotypes of successful barristers in Australia. Despite benefits of cost efficiency, ease of traversing geographical distance and a myriad of claims made by researchers heralding the advantages of e-mail as a data collection tool, this research questions e-mail's applicability to recruit busy professional participants and elicit in-depth responses to written interview questions when ongoing dialogue is unsolicited. Drawing upon primary data provided by senior counsels, key examples are provided to demonstrate the potential for miscommunication, paucity of communication and inflexibility e-mail may engender when social interactions, beyond the distribution of research instruments, are absent.

Chapter 5
Information and Communications Technologies and Policy Development for E-Democracy in Malaysia

Abdul Gapar Abu Bakar, Monash University, Australia
Graeme Johanson, Monash University, Australia

This chapter discusses the prospect of Information and Communication Technologies (ICTs) enhancing Malaysia's policy development processes through citizen engagement to enhance the development and implementation of electronic democracy (e-democracy). The Malaysian government promotes a diverse range of ICT initiatives which this chapter seeks to examine through a series of key questions: What are the initiatives and their objectives? How do these initiatives provide opportunities for civic education and citizen empowerment? Has the government through its public administrators actually started to engage citizens in policy development processes online? Are citizens ready to take part in these online initiatives? What sort of contribution can citizens provide to government online? In order to answer these questions, this chapter discusses the role of ICT planning, strategies, and initiatives to improve democratic practices. The chapter discusses four factors influencing the thinking of the Malaysian public service toward local conceptualization and implementation of e-democracy for better policy development. The answers are based on publications in the public domain and preliminary interviews with a handful of key informants.

Section 2
Communication Technologies in Higher Education

We Demand Critical Reflection of Technology's Implications

Chapter 6
The Antecedents and Consequences of Adopting Learning Management Systems in Selected Australian Universities

Jonathan G.M. Pratt, University of Technology Sydney, Australia
During the mid to late 1990s, many Australian universities adopted innovative learning management systems to support online learning in their teaching operations. A recent investigation into the adoption experiences of three selected Australian universities revealed significant diversity in the ways in which this technology was conceived, evaluated and adopted. A fear among Vice Chancellors of falling behind their peers in other respected universities proved to be significant in each university. Although catching up was a powerful catalyst for rapid organisation-wide change, the substantive educational outcomes experienced were somewhat underwhelming, despite an increase in external legitimacy following adoption. This chapter discusses the antecedents, processes, and consequences associated with the adoption of learning management systems in three selected Australian universities. The influence of a range of various internal and external factors on key individuals is identified. This chapter concludes with a number of implications for policy and practice.

Chapter 7
Have We Forsaken Quality and Professionalism for Technological Convenience in the Training of Lawyers in the 21st Century? The ‘Flexible Learning’ Paradigm

Critical questions and issues face legal educators as a result of the challenges and opportunities provided by the advent of information technology. This chapter focuses on the introduction of online learning environments in the legal education context primarily at the point of pre-admission practical legal training. It queries whether parallels can be drawn between changes in technology and changes in the learning and training of lawyers. In turn, it considers whether such changes are for the benefit of the students, their intended profession and the society it is supposed to serve. Can the important communication skills, the cornerstone of legal work, be obtained through flexible delivery modes? What are the perceived limitations, disadvantages of such programs and do they outweigh the advantages? Can the professional ethos of lawyering be conveyed and developed adequately by an online training program? In this context, the literature pertaining to online delivery in the area of legal education is considered. The writer also reflects on observations of teaching instructors in both the on-campus and online courses of the Postgraduate Diploma of Legal Practice, Skills and Ethics (PDLP) at Monash University. The chapter considers course evaluations administered to cohorts of PDLP students. Finally, the chapter proposes the preferred way forward for virtual communicators in producing online programs in this area.

Chapter 8
Vodcasts! How to Unsuccessfully Implement a New Online Tool

Online technology is increasingly used in higher education and training. Recent advances in information and communication technologies (ICTs) have enabled the implementation of an array of tools, such as online tutorials, videos, podcasts and vodcasts, which are utilised within the education and business sectors. In this chapter we describe a study on the uptake of a new online tool by a cohort of internal and distance first year microbiology students enrolled in Pharmacy, Medical Science and Biotechnology programs. Key findings included the central role publicizing of electronic resources plays in the uptake
of new technology. Potential advantages and pitfalls of implementing online ICT in a discipline that traditionally relies on face-to-face instruction and very little virtual learning are discussed making this study relevant to any field considering the adoption of new ICTs.

**We Tend to Feel Like Someone's Watching**

Chapter 9
Diffusion of Technology in Higher Education Classrooms: The Case of the Laptop

*Jill Harrison, Brown University, USA*
*John Ryan, Virginia Tech, USA*

Technology use is contextual and tends to follow, often invisible, ground rules. Within the situational context of a higher education classroom the rules and sanctions regarding technology use become increasingly complex. Many universities in the United States now require that all incoming students have laptops, with the rationale being that technology is an important tool used to help students organize and catalogue knowledge. Laptops allow students to connect to library and campus resources. Further, requiring laptops on a networked campus creates a sense of digital unity rather than digital divides among students and faculty. The message to students is that personal laptops are important and even required. However, within the context of the higher education classroom, laptop use is often being limited or banned by classroom instructors, a contradiction of the larger university message. As Marcuse (1982) noted, technology is a social process. The diffusion of laptop technology into higher education has altered the modes of producing knowledge and the social relationships organized around that production process. The purpose of this chapter is to highlight how the use of this technology is negotiated between faculty and students and how issues of engagement, the self-production of knowledge, and security influence this negotiation. We argue that issues of laptop use in the classroom are rooted in concerns of power, legitimacy, and identity associated with the production of knowledge.

Chapter 10
Lurking in Multicultural Online Educational Forums: “I Wasn’t Invited to the Party”

*Stephen Bax, CRELLA, University of Bedfordshire, UK*
*Mark Pegrum, University of Western Australia, Australia*

Through an examination of the practice of lurking, or vicarious participation, in online educational environments, this chapter shows that online interaction is affected by practical, social and cultural issues which extend well beyond the technological and educational questions typically addressed in discussions of online tools. It focuses on the first phase of the Third Space in Online Discussion project, a set of asynchronous international online forums in which a multicultural cohort of language teachers took part in 2007. After a discussion of the literature related to lurking, both in non-educational and educational environments, the authors present our own data on lurking in a small-scale but in-depth study. They go on to elucidate some of the practical, social, cultural and linguistic reasons for lurking and show that these operate together rather than individually to produce lurking behaviour. They conclude by indicating the strategies they adopted to encourage more active involvement in a later phase of the online educational project.
Chapter 11
Surveillance in the Virtual Classroom

Morgan Luck, Charles Sturt University, Australia & The Centre for Applied Philosophy and Public Ethics, Australia

In this paper the author highlights some of the risks associated with universities establishing surveillance tools within virtual learning environments. Potential problems that may arise from such a move are considered at the student and managerial levels. At the student level the author argues that the adoption of the surveillance tool may result in students, especially the most gifted, feeling pressured to adopt practices that are not best suited to achieving their learning outcomes. At the managerial level the author argues that the surveillance tool provides a means by which subject design could be further influenced by market forces.

Chapter 12
ePortfolios and Preservice Teachers: Governing at a Distance through Non-Human Actors

Peter O'Brien, Queensland University of Technology, Australia
Nick Osbaldiston, Queensland University of Technology, Australia

This chapter seeks to develop an analysis of the contemporary use of the ePortfolio (Electronic Portfolio) in education practices. Unlike other explorations of this new technology which are deterministic in their approach, the authors seek to reveal the techniques and practices of government which underpin the implementation of the e-portoflio. By interrogating a specific case study example from a large Australian university’s preservice teacher program, the authors find that the e-portfolio is represented as eLearning technology but serves to govern students via autonomization and self responsibilization. Using policy data and other key documents, they are able to reveal the e-portfolio as a delegated authority in the governance of preservice teachers. However, despite this ongoing trend, they suggest that like other practices of government, the e-portfolio will eventually fail. This however the authors conclude opens up space for critical thought and engagement which is not afforded presently.

We Need Effective Communication Tools in Supportive Environments

Chapter 13
Is Anyone There? Being ‘Present’ in Distance Education

Andrea Reupert, Monash University, Australia
Darryl Maybery, Monash University, Australia

Research on higher education distance education tends to focus on the technical aspects of distance teaching, with little focus on the personal components of teaching and learning. In this chapter, students are interviewed to identify whether they want a personal presence from their lecturers and if so, what this presence might look like in distance education. Conversely, lecturers are interviewed to determine what they personally bring of themselves when teaching in distance mode. Results indicate that many, but not all, distance students want their lecturers to be passionate about their subject, form relationships and be open and available. However, there were some students, albeit a minority, who wanted to focus
solely on the subject. Other students were clear that even though they valued lecturers' personal revelations, these needed to be directly related to subject materials. Similarly, distance lecturers suggest that while they do reveal aspects of their personality there are also boundaries as to how much they 'give' of themselves. A case study is presented that extends this discussion, provides one approach, through the use of technology, for taking the 'distance' out of distance teaching.

Chapter 14
Critical Issues in Online Resourcing for International and Local Students' Academic Writing

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Notwithstanding the proliferation of web 2.0 modes of text production, the traditional essay or report remains a key component of learning and assessment in higher education. As such, it can pose problems for diverse cohorts of local and international students. In stage one of the current research with a large first-year marketing subject, a substantial proportion of students reported that they felt unprepared and did not fully understand the assessment requirements. Key issues identified were research, writing, and understanding assignment guidelines. The second stage involved the building of a website to address the identified needs and provide support, based on a contextualised view of writing as social practice. In stage three, students were surveyed to assess the helpfulness of the resources and the site was revised. It was concluded that, with appropriate research-based development, one resource can serve both international and local students, but questions remain regarding the future sustainability of such a resource.

Chapter 15
Using Virtual Learning to Teach Postgraduate Nurses: An Educators' Perspective

Michelle L.L. Honey, University of Auckland, New Zealand
Nicola North, University of Auckland, New Zealand

This chapter focuses on the educators perspectives as virtual learning was introduced into postgraduate nursing courses. Drawing on qualitative data the challenges educators faced are described. Technology proficiency varied amongst the educators and this had an impact on the choices they made when transitioning from traditional lecture-format on-campus classes to virtual learning. This study found that virtual learning brings a sharper focus on good teaching practice; changes the role of the educator and emphasises how essential both pedagogical and technological support is.

Chapter 16
Psychological Factors Influencing User Acceptance and Usability: Lectures and Information Communication Technology

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Information and communication technologies allow the transmission of audio and video signals in real time, making meetings and interactions with people in remote locations a possibility. For institutions offering education in multiple geographic locations there is a real opportunity to interact with students
in a virtual teaching space that supplies text, audio and visual cues. However, technological capability can outstrip availability and adoption. This chapter considers the psychological factors influencing usability and user acceptance of educational technology and associated implications for learning and evaluation. Preference for and effort devoted to educational media may be a function of personality. Preference for online or text-based education may be a function of introversion and time spent away from study may indicate extraversion or procrastination. Using student surveys, willingness to engage in videoconferencing or to use mobile phones to support teaching and learning was explored. Within an ergonomic framework the authors detail human factors relevant to the use of videoconferencing and mobile phones to support lectures to remote locations.

**We Are Creating Adaptable Communication Environments**

**Chapter 17**

Social Interactions in Virtual Communication Environments: Using Sakai to Teach Forensic Science ................................................................. 270

*Andrea Crampton, Charles Sturt University, Australia*

*Angela T. Ragusa, Charles Sturt University, Australia*

Forensic science students must not only learn disciplinary-specific subject content, but also need to acquire the interpersonal and communication skills crucial for successful careers in policing and biotechnology. Utilizing various Web 2.0 computer-mediated communication (CMC) technologies, asynchronous and synchronous communication, including chat rooms, podcasts, resource sharing and wikis, enabled the creation of virtual active-learning environments. A virtual crime scene was produced to permit distance and face-to-face university students to conduct a virtual forensics investigation. The virtual model allowed students to gain and become aware of the practical communication skills consistent with 'real-life' forensic crime scene analysis. Specifically, the use of virtual role-play reproduced patterns of dialogue routine among police officers, crime scene officers and lab technicians. CMC technologies not only facilitated these social interactions, but gave distance education students a simulated forensic workplace experience not possible due to cost, location and time. This narrowed preconceived gaps between distance and internal education. Finally, the authors' chapter argues that with careful planning, the use of role playing and scripting can be an effective tool for encouraging pedagogically effective social interactions utilizing new CMC technologies.

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Virtual Learning Communities in Higher Education: Opportunities and Challenges ......................... 285

*Alexandra Ludewig, The University of Western Australia, Australia*

*Karin Vogt, University of Education Heidelberg, Germany*

This chapter will examine the virtual classroom as a social constructivist educational space and identify whether and how a virtual ‘learning community’ emerges in different telecollaborative environments. A qualitative analysis of e-mails, field notes of in-class discussions, as well as a subsequent survey with open-ended questions have shown that virtual learning communities do materialize when certain preconditions are met, such as embedding virtual elements into face-to-face learning environments, sufficient monitoring by staff and the design of suitable learning environments that bring about multiple
perspectives with the help of stimulating prompts and adequate tasks. For intercultural virtual learning communities, an important feature of foreign language instruction at higher education level, several success factors were identified, including a genuine interest in and commitment to the task and collaborators at hand, the willingness to engage in a discourse structure that resembles a real conversation and encourages the exchange of views, and most importantly, the full integration of mediated communication in local classrooms.

Chapter 19
Experiential Learning through Virtual Scenarios

Karen Le Rossignol, Deakin University, Australia

With workplaces potentially including four generations, the differing motivations and learning styles provide new challenges to educators, as well as managers and leaders of these workforces. The Net Generation learner of the twenty first century, born after 1980 and digital media fluent, brings potentially greater collaboration and connection to knowledge and learning as a collective, rather than individual, learning process. A postgraduate Masters in Communication course explored immersive learning in two collaborative virtual and workplace-oriented environments. The Net Generation learners were able to identify the connective and experiential nature of their engagement in the virtual scenario and experiential collaborative project as being both transforming and transferable to the workplaces they were targeting through their coursework programs. The case studies explored the neomillennial learning styles as a media-based framework for designing learning tools and environments appropriate for the twenty first century learner.

Chapter 20
Integrating Online Group Work into First-Year Music Studies in New Zealand: ‘This IS a University’

Nancy November, The University of Auckland, New Zealand

This chapter explores students’ and instructors’ perspectives on an online group work project in a first-year, general education music course at the University of Auckland. From both perspectives, the project was effective in helping students to understand, experience, and apply the benefits of collaborative research. The project also helped students to feel part of a larger community of university-level learners. Several barriers to effective online group learning, and differences of perception between students and educators, were identified. In particular, students did not necessarily subscribe to the social-constructivist ideologies, which underlie much literature examining online group work. Four general guidelines are given to help instructors design online collaborative tasks which are, from all perspectives, clearly appropriate for university-level learners.

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About the Contributors

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