Reflections on practice:
Course development and online teaching

Dolene Rossi, Faculty of Arts, Health and Sciences, Central Queensland University,
d.rossi.@cqu.edu.au

Leone Hinton, Division of Teaching and Learning, Central Queensland University,
l.hinton@cqu.edu.au

Abstract

This paper explores, from the perspective of two first time online educators, the positive and negative aspects of course development and online teaching using *Blackboard*, the central learning management system adopted by a regional university in Australia**.** Positives include observation of student achievement and the development of an appreciation for the educational potential of computer mediated learning. Negatives include certain assumptions about the use of technology within education, the nature of communication within online environments and staff and student support issues. The authors propose a number of modifications, based on their observations and experience. Despite a range of personal and professional challenges the authors emerged convinced that student learning may be significantly enhanced by appropriately structured, supported and supervised online courses.

Introduction

The rapid development and implementation of technology has placed the educational environment in a state of flux (Andrews & Crock, 1996). Scholars are aware that education's intersection with technology is not simply a trend of old approaches being replaced by the new and acknowledge that advances in information technology are changing access to knowledge, the process of learning and the delivery of education and training (Hodgins, 2000). In this respect technological innovation is creating a relentless demand for new skills (Hodgins, 2000) and presenting a number of challenges for both teachers and students learning or facilitating within computer mediated environments (Andrews & Crock, 1996; King, 2002; Rourke, Anderson, Garrison, & Archer, 2001).

Human, Kilbourne, Clark, Shriberg, and Cunningham (1999) identify a need to contribute to the 'scholarship of teaching' by documenting and evaluating early experiences in web-based university courses. In order to provide insight from their teaching practice the authors use a reflective framework to facilitate a critical analysis of their experience and identify a number of issues associated with the use of technology in education which are specifically related to course development and online teaching.

Telling our story

The method

Schon (1983) suggests that one of the defining characteristics of professional practice is the capacity to reflect and so engage in a process of continuous learning. In order to be productive, the reflective process must involve a synthesis of the experience and incorporate analysis, critical thinking and evaluation. It has been suggested that when applied to educational practice, reflection has the capacity to improve the quality of teaching and learning (Ghaye & Ghaye, 1998; Fernadez, 1997) as it leads the educator to question and improve their understanding about changing contexts in teaching and learning (Ghaye & Ghaye, 1998).

A distinction is drawn between reflection-in-action and reflection-on-action (Schon, 1983) and while the former relates to the modification and development of ideas using a problem solving approach during practice, the latter involves retrospective reflection on past practice (Burton, 2000). In subsequent literature, the significance of reflection before action is also acknowledged, in recognition of the need to think about what we want to do and how we intend to practice before we actually implement change (Greenwood, 1998). While it is important to identify the contribution of each in relation to experience (Burton, 2000), the focus of this paper is on past practice thus the emphasis is upon reflection-on-action. The value of identifying both intended and unintended outcomes is also accepted (Burton, 2000) and examples of these based on the authors experience are documented.

Atkins & Murphy (1993), maintain that it is possible to discern at least three key phases in the reflective process. The first phase is triggered by an awareness of uncomfortable feelings and thoughts, which generally arises from a realisation that the knowledge being applied is not in itself sufficient to explain what is happening in that particular situation. The second involves a constructive critical analysis of the situation, which includes an examination of both feelings and knowledge. This leads to the third phase, which involves the development of new perspectives, which occurs as new ideas are integrated into practice and tested, thereby validating the process (Atkins & Murphy, 1993). The authors use these three phases in conjunction with the issues that arose during the development and delivery of the course to structure this paper.

Reflection is a complex process, which involves a degree of professional self-criticism, which many find threatening (Ghaye & Ghaye, 1998). The nature of the threat is evidenced by the fact that despite the importance of personal and process knowledge (Taylor, 1997) there is a neglect of the personal and emotional in discussions of teaching in higher education. Generally emphasis is placed upon content expertise, technical skill and communication methods rather than relationships and states of being. Yet in order to be meaningful the analysis of experience must be balanced and a balanced approach includes more than a review of the technical aspects involved in the facilitation of student learning (Ghaye & Ghaye, 1998). Reflecting in and on their teaching practice the authors recognized the impact that they had, both as individuals and educators on the process of learning and the outcomes derived from the process.

The online course

The online course on which the authors reflect has been a core course within a health program for approximately ten years. The aim of the course is to increase

the students' awareness of the components of communication and to facilitate development of knowledge and skills that will enable them to communicate as effective members of a healthcare team. Historically, the subject has been offered both on-campus, across multiple campuses and off-campus through print based materials. Subject enrolments generally exceed 170 per annum and the majority of students enrol on-campus.

Previous evaluations from on-campus students indicated a desire for more discernable links between subject content and the application of communication theory in health settings. Off-campus students expressed a perceived inequity to engage with the educator and fellow students, in the subject materials and assessment items. When afforded the opportunity to develop an online course staff believed that a virtual learning environment might provide the opportunity to meet the needs of both student groups. The intention was to structure an authentic learning experience, with clearly demonstrated links between content and practice, and to provide the cohort of off-campus students with an interactive learning experience that would reflect the educational experience of on-campus students. The authors (one of whom was the course coordinator) also wanted to explore the use of technology within their teaching practice. Neither had previous exposure to e-facilitating or e-learning and there was no doubt that the online environment would add an additional dimension to their educative experiences. The decision to offer the course online provided the teaching team with an opportunity to evaluate the educational application of technology and the outcomes from a computer mediated learning environment, a process assisted by the award of a teaching and learning grant.

One hundred and seventy seven students were enrolled in the online course; they were provided with no alternative mode of delivery. The course is offered to students within the first term of their first year and the change of offering met with considerable student resistance. Many students are challenged in their first year of university as they have preconceived ideas about teaching and learning experiences they will encounter (Andrews & Crock, 1996). Upon the decision to change to the single mode the teaching team was reduced from four campus-based lecturers to one staff member. Prior to the start of term the course coordinator received and gratefully accepted the offer of assistance from a colleague with prior knowledge of the course**;** however, teaching within the online subject was not factored into the volunteer's workload. Berge (1995) identifies a number of educational roles that may at times be fulfilled by teaching staff. These include pedagogical, social, managerial, and technical, responsibilities. While Berge (1995) reports that these roles will only on rare occasions be carried out in their entirety by one individual, the reality within this course was that both educators were required to fulfil all four roles for the duration of the twelve-week term.

Course development and assumptions about online teaching and learning

The authors discussed on several occasions the appropriateness of adopting a technological approach within a course that required development of a range of interpersonal and professional communication skills and, while both felt that computer mediated learning would provide an appropriate alternative for distance education students, they were of the opinion that course content could be delivered and learning facilitated more effectively within a more traditional learning environment. The authors' reservations about the use and capacity of technology within this course were shared by colleagues within the School. A basis for these

assumptions can be found in the literature. For example, the perceived benefits of traditional learning environments are that they provide greater opportunities for interaction, decreased opportunities for procrastination, immediate feedback and more meaningful learning activities (Leasure, Davis & Thievon 2000). On the other hand, the benefits of computer mediated learning relate to cost effectiveness, convenience and flexibility (Leasure et al., 2000). Despite claims of pedagogical benefits from online learning environments there is a reputed lack of empirical data (Rourke et al., 2001) and little is known about what teaching and learning practices contribute to positive outcomes (Billings, 2000).

Changes in educational delivery do not in themselves cause any significant impact upon the learning outcomes of students (Gold, 2001). Therefore there is a need to focus more on pedagogical initiatives within online learning environments during course development (Gold, 2001; Ladyshewsky, 2004). Indeed, much of the criticism levelled at computer mediated environments stems from inappropriate use of the medium characterised by the practice of posting material onto the Web and calling it e-learning (Ladyshewsky, 2004). Gold (2001) maintains that without proper pedagogical training and online experience teachers will replicate their best practices onto the online medium.

During August and September 2003 a series of workshops were offered, designed to provide academic staff with the skills necessary to construct and manage their online course. The coordinator was provided with about 11 hours of instruction on the learning management system, Blackboard, which included how to build an online course, the use of communication and assessment tools and guidance on group and course management. Two things became apparent during these sessions. The first was the technical ineptness of the coordinator and the second, more alarming discovery, was that Blackboard was new within the University. This meant that courses offered early in 2004 would serve as a pilot for the new system and that the course coordinator would not be alone in having to becoming familiar with the new software and learning environment.

There is a relentless demand for new skills created by technological innovation (Hodgins, 2000) and while the focus is upon the challenges for teachers and students (Andrews & Crock, 1996; King, 2002) technical and multimedia support staff are also affected. Technical support afforded through the orientation workshops and the availability of a mentor during course delivery proved invaluable and ensured that teaching staff were able to continually utilise a range of new technical tools within their teaching practice. However, during course development multimedia support staff were focused upon issues of quality, uploading and formatting of content and ensuring Internet links were active. So their primary expectation of the coordinator was to provide static content. The course coordinator on the other hand, viewed the process of course development as evolutionary. In terms of course development this meant that content was continually reviewed and amended as new material and activities were added. The course developed slowly and given time constraints and divergent priorities the process was frustrating and stressful for both teaching and multimedia development staff.

There is a general perception that the opportunities and potential of online learning environments have been poorly exploited (Oliver & Herrington, 2003). Despite the interactive capacity of the medium (Rourke et al., 2001; Leasure et al., 2000) much of the focus in relation to instructional design and course development has consisted of converting traditional content into a technical format (Ladyshewsky, 2004). In this course, although the coordinator lacked online experience she did

have pedagogical training and sought to maximise the interactive qualities of the medium in the course design. In retrospect the focus of support staff was clearly upon the transfer of content to a technological format**;** perhaps it would have been useful to have the additional support of an educator with online experience during this phase. Towards the end of the process, consultations became less productive primarily due to the increasing technical ability of the coordinator, who still needed technical support but could load most of the content into the course without difficulty. The outcome was some blurring of roles, responsibilities and priorities.

Technological issues

The process of course development and course delivery proved extremely challenging. The prevailing sensation, 'in practice' was one of powerlessness and having no control. While several difficulties arose due to deficits in technological knowledge and the inexperience of the coordinator, by far the greater number and more significant complications were related to system and software issues and from assumptions about the types and levels of support that would be required to establish and maintain an effective, interactive, online learning environment. This is reinforced by Berge (1995) who stated that good computing power and reliable telecommunications infrastructure were absolutely necessary for successful online instruction.

While many students stated a preference for internal study and suggested course content could not be addressed in an online environment, others were more concerned about their lack of computer skills and technical abilities. The online mode of delivery became an issue during the term and resistance was noted in student interactions and reported in the evaluations. There is undoubtedly a need for adequate socialisation and support of students particularly for first-year students who are taking web-based courses. Students were offered a brief non-compulsory introduction to Blackboard during orientation week. Unfortunately there were too few sessions for the number of students who would be exposed to Blackboard during this term. Students also had the option of a self-guided online tutorial, however, due to a lack of technical and online experience many students had difficulty accessing this. An additional difficulty arose because the course was not available to students until the first day of the teaching term, which meant that students had no prior access to course material. Student transition to online learning was difficult and the change had a negative effect within the course.

During the first term of the learning management system operation there were persistent software problems, coupled with severe budgetary cutbacks in support services. The immaturity and instability of the system proved problematic for teaching staff, students and system support personnel. The learning management system was frequently unavailable at key times of assessment submissions to students and staff. Initially the majority of teaching staff time was spent responding to and addressing the technical difficulties arising in the system. The staff to student ratio certainly contributed to the difficulties experienced by staff. The difficulties experienced within this course were not unique and repercussions were acknowledged university wide. By the end of the term it became clear that the problem with the learning management system was far more complex than first thought. A report was commissioned by senior executives at the end of the term to investigate the problems and a risk management process was instigated to reduce the level of problems for future courses.

One of the most disconcerting aspects of the online environment was a lack of data integrity. During the twelve week term Health Communication migrated several

times and on each occasion areas of content were 'lost'. The loss of data was significant for a number of reasons. Initially students lost access to additional resources that had been made available within the course—while the link remained the data did not. This particular loss influenced the outcome of an independent evaluation conducted at the end of term which used a range of criteria to evaluate the quality of the course. The most significant impact of data loss was upon the collection of data from student postings at the end of the course. Given the lack of empirical evidence to support claims about the potential of online learning environments and calls to investigate the nature online teaching and learning (Rourke et al., 2001) it is essential that a means be found to retain and maintain the integrity of all course data. This is important for course improvement and research purposes.

The nature of interactions

Students and teachers do not interact in the same way in online learning environments as they do in face-to-face environments. As well, students do not always conform to the expectations of those facilitating their learning within these environments (Curtis & Lawson, 2001). Somewhat naïve of these issues the authors had not given due consideration to the impact computer mediated communication would have on interactions within it.

By far the ugliest aspect of this course was the nature of some of the student-to-teacher interactions. While a number of these exchanges were expressions of student frustration related to being online, others were considerably more personal and confrontational. These aggressive student exchanges (student-to-student and student-to-teacher) were more difficult to fathom and professionally challenging to manage. Having had no previous exposure to student communication of this kind the authors explored potential reasons for their antagonism and discussed the impact of the postings. The exchanges had a negative effect upon the learning environment and the self concept of the recipient of the messages. In order to learn from their experience it was important for the authors to critically review the nature of interactions within the online environment.

As students would not be able to observe the non-verbal behaviour of their peers or teachers within the online environment the authors anticipated that students may be disadvantaged and experience difficulties in this area. However, it became apparent early in the course that students would be exposed to the nuances of non-verbal communication through the use of text and symbols to express emotions. For example happiness, anger and frustration were conveyed by the use of smileys, capitalisation and exclamation marks. Ultimately, there was no doubt about the nature of non-verbal communication within the online learning environment. Interestingly, research suggests that the inability of computer mediated communication to transmit non-verbal cues will have a negative effect on interpersonal communication, leading to more intense affective and immediate interactions (Short, Willams, & Christie, 1976, cited by Rourke et al., 2001). Subsequent research reinforces this view and indicates that the lack of non-verbal cues may lead to uninhibited communication such as hostile and intense language, greater self-absorption and a resistance to defer to higher-status participants (Sproull & Keisler, cited by Rourke et al., 2001) This was evidenced within this course and contributed to the negative nature of the responses of some students.

The teaching team was particularly intrigued by the degree of self-disclosure within the course. Although students were encouraged to draw from personal and professional experience and specific content emphasised the role of self-disclosure

in relationship development, the extent of their disclosure was both unanticipated and unprecedented. Research indicates that online environments engender a sensation of being open with each other which leads to an increase in the incidence of self disclosure (Rourke et al., 2001). Students in online courses also show much more inquisitiveness, expressiveness, risk taking and decreased inhibition (McGrath, 2000), which may also have had some negative impact upon the nature of student communication. Conversely it positively illustrated these issues in some profound moments of learning for some students.

Social presence, a component of interpersonal communication in online environments is a critical determinant of effective learning. It is characterised by expressions of emotion, feelings and mood. Social presence relates to the ability of individuals to project themselves into a community of enquiry (Rourke et al., 2001). Some of the students' comments would suggest that they perceived a low level of social presence from one of the teachers and a high level from the other, as one was perceived more approachable than the other. Certainly staff to student ratio was a contributing factor, however, there is no escaping the fact that at times the teacher's use of the medium was more pragmatic rather than social which would, given the research, convey the impression that she was unapproachable. Ideally the number of students one facilitator can support in a constructivist learning framework ranges between six and thirty (Gold, 2001), but this course had two teachers to one hundred and seventy-seven students.

Andrews and Crock (1996) maintain that, for some staff, although the theory of using technology interactively is good it may be much more difficult to achieve in practice and to do so effectively takes time, practice and support. Gold (2001) on the other hand would argue that teachers must experience online learning before they can be expected to be online teachers. The rationale being that the transition from in-class room instruction to online instruction is complex to the extent that it requires specialised training in both the technical aspects of delivering quality educational materials and ways to foster knowledge acquisition within the new learning environment. From our experiences, the authors now agree with Gold's (2001) assertions.

One of the major challenges facing educators today is the engagement of students in active learning environments (Kofoed, 2004) and although computer mediated instruction supports interactive teaching and learning approaches (Leasure, et al, 2000), two-way interaction is not an inherent part of technology (Tu, 2002). Tu maintains that carefully constructed instructional designs are essential when attempting to foster relationships between learner content and technology (Tu, 2002). A view supported by Hiltz, Coppola, Rotter, Turoff, and Benbunan-Fich (2000) stated that pedagogy has a direct impact on the results of learning and that the effectiveness of a course cannot be separated from the theoretical grounding of the instructional design. Through a range of weekly activities, students were provided with opportunities to reflect upon existing knowledge and skill and encouraged to share in small groups. Many were observed drawing from personal and professional experiences in order to complete these activities. We recognised that students are often assessment driven so certain 'incentives' were incorporated to encourage student interaction through the allocation of marks for group responses and the overall quality of the responses. Assessment items necessitated student collaboration and reinforced the importance of being able to work as a member of a group and provided students with an opportunity to identify for themselves the characteristics of effective and ineffective groups. One student encapsulated the social and educational value of the instructional design

commenting, "*The fact that it was group orientated enabled a more pleasant adjustment to university. People grew before our eyes*".

Demonstrated achievement of learning outcomes

Yet another interesting feature of a computer mediated environment is the ability to observe, monitor, redirect and record the interactions that take place. Educationally this feature can provide a transparency about the process of teaching and learning and offers benefits not realised within traditional environments. Within this course each academic assumed responsibility for facilitating the learning of numerous groups. Independently they observed varied cognitive depth in the weekly discussion activities and could identify students who engaged regularly in meaningful dialogue. They were also able to retain a record of student-to-student and student-to-teacher exchanges which demonstrated the students' understanding of course content, theory and application. Interestingly, research supports the view that exchanges within asynchronous environments may be of greater intellectual quality than those that take place face-to-face (Ladyshewsky, 2004).

The most rewarding but surprising aspect of this course relates to the proficiency with which students demonstrated achievement of learning outcomes, evidenced by student grades and the nature of student posts within the online course (Helbers, Rossi & Hinton, 2005). Although such demonstration is the desired result at the end of any educational course the students' successes and the extent to which they verified their ability within this particular course was completely unexpected. While there are many examples of interactions that demonstrate student achievement within this course, several are of particular note. Throughout the term students demonstrated self-awareness in relation to their communication with others and were able to analyse and evaluate the potential impact and outcome of their exchange. On one occasion a student began a discussion thread about communication models. The comments posted were uncharacteristic and somewhat negative about the use of an online medium within a communication course. Upon reflection and after several attempts at trying to remove the posting the student e-mailed a lecturer to request that the thread be deleted from the discussion board. The student explained that the comments conveyed a personal, unconstructive opinion which may lead to a negative response from colleagues. The student also expressed concern that the remarks may cause unnecessary difficulties for the teaching team and indicated a new appreciation for the consequences of communication, acknowledging that "*you cannot take back what you say or in this case what you e-mail*". Peer learning and teaching was evident where students frequently demonstrated their ability to be effective members of a problem solving group as without prompting they responded quickly and appropriately to questions and appeals for assistance posted by fellow students, often resolving the issue before teaching staff had an opportunity to reply. Some of the most surprising demonstrations of support were those from students for teachers. These postings conveyed an ability to analyse the impact of interactions, demonstrated impartial appreciation of the needs of others and a capacity to meet those needs within a complex teaching and learning environment.

Conclusion and new perspectives

The authors are satisfied that the learning outcomes for this course were achieved and students demonstrated proficiency even though it was the first offering of the course in this mode and probably their first experience in online learning in higher education. This suggests that the purpose, content, procedures and methodology

used to develop the course were sound. Although the interactive teaching and learning strategies within the course were successful, a number of areas could be improved. For 2005 the course coordinator proposed to decrease the number of weekly activities to give more time to bed down key theory and concepts and encourage further discussion around areas of particular interest. It would also allow more time to scaffold students' learning, an essential element in a constructivist model of learning by which the teacher makes explicit the links between previous and new learning (Cottrell 2001).

Blacker (2005) suggests that learning management systems, like Blackboard, which major in content delivery, do not lend themselves to student centred teaching and learning approaches. However, the evaluative research in this course suggests that, although the teachers were inexperienced in online environments, it would appear they have effectively used the interactive tools of the learning management system. So the issue then is the difference that the teachers make to student learning outcomes and experiences in these types of environments.

The success of online learning depends not only on the quality of its instructional design but also on the academic and technical support provided to learners and instructors. Within the next offering the coordinator proposes to incorporate a series of activities to assist students develop the technical skills necessary for the course. These activities will be integrated within weeks one and two and include the use of communication tools, location of resources, the submission of attachments and use of assessment tools. All students enrolled in an online course will also receive a manual to assist and reinforce these activities.

The difficulties associated with data integrity may well be relevant to students. On-campus and off-campus students are provided with or have access to a range of course materials retrievable later in their studies, while online students can only access their course materials during the term in which they undertake the course, unless they make copies of the online materials, which seems somewhat inequitable and disadvantageous to students of online courses. Currently there are no means to provide access to online course material for unenrolled students. This is an issue that merits further investigation. Perhaps content could be copied to compact disk and retained in the library for student access, much as previous course profiles and course resources have been. From a teaching perspective, staff will retain in some form a copy of essential course data.

The hostility experienced in 2004 was not confined to this course and was acknowledged with the Blackboard report commissioned by the University executive. Although the report recognised the need for student orientation to Blackboard and recommended some means of managing student expectations within online courses, the report did not acknowledge differences between online and face-to-face environments that may have impacted negatively upon the experience of both teacher and learner. The assumption here was that student frustration was related to the learning management system only.

Based on the authors' experiences and available research evidence it is clear that within the subsequent offering of this course teachers must adjust to the learning environment and endeavour to project a higher level of social presence, which should, theoretically, reduce student hostility and potentially enhance their learning. Thus, in future the teacher has the opportunity to positively influence student learning and have some sense of what the course may have been like had the mode not changed.

The authors believe that appropriately structured online courses can enhance student learning. A divergent opinion about the use, capacity and application of the medium and specific software suggests it is essential that further research is undertaken to explore this. It is also important that educators constantly reflect on their practice and respond rapidly within such an environment.

References

Andrews, T., & Crock, M. (1996). Putting the pieces of the puzzle together: Preparing students and staff for changes in educational environments. In *Proceedings: Processes of community change* (pp. 195–202). Rockhampton, QLD, Australia: Central Queensland University.

Atkins, S., & Murphy, K. (1993). Reflection: A review of the literature. *Journal of Advanced Nursing, 18*, 1188–1192.

Berge, Z. L. (1995). Facilitating Computer Conferencing: Recommendations From the Field. *Educational Technology. 35*(1), 22–30.

Billett, S. (1996). *Situated learning: bridging sociocultural and cognitive theorising*.

Learning and Instruction. 6(3), 263–280.

Billings, D. M. (2000). A framework for assessing outcomes and practices in Web-based subjects in nursing. *Journal of Nursing Education, 39*(2), 60–74.

Blacker, G. (2005). *Modeling around anger—Some initial reflections*. Retrieved January 18, 2005, from http://www.bath.ac.uk/dacs/cdntl/pMachine/morriblog_more.php?id=370_0_4_0_M

Burton, A. J. (2000). Reflection: Nursing's practice and education panacea? *Journal of Advanced Nursing, 31*(5), 1009–1017.

Cottrell, S. (2001). *Teaching study skills and supported learning*. New York: Palgrave.

Curtis, D. D., & Lawson, M. J. (2001). Exploring collaborative online learning. *JALN, 5*(1), 21–34.

Ghaye, A., & Ghaye, K. (1998). *Teaching and learning through critical reflective practice*. London: David Fulton Publishers.

Glen, S., Clark, A., & Nicol, M. (1998). Reflecting on reflection: A personal encounter. In C. M. Downie & P. Basford (Eds.), *Teaching and Assessing in Clinical Practice* (2nd ed., pp. 299–311). London: University of Greenwich.

Gold, S. (2001). A constructivist approach to online training for educators. *JALN, 5*(1),35–57.

Greenwood, J. (1998). The role of reflection in single and double loop learning. *Journal of Advanced Nursing, 25*, 1048–1053.

Helbers, D., Rossi. D., & Hinton, L. (2005). Student use of an online learning environment: Comparisons of group usage within a first year Health Communications course. *Studies in Learning, Evaluation, Innovation and Development. 2*(1) (July). Special Theme Issue—Learning from Change (Part 1). Retrieved August 8, 2005, from http://sleid.cqu.edu.au/

Oliver, R. & Herrington, J. (2003). Exploring technology-mediated learning from a pedagogical perspective. *Journal of Interactive Learning Environments, 11*(2), 111–126.

Hiltz, S. R., Coppola, N., Rotter, N., Turoff, M., & Benbunan-Fich, R. (2000). Measuring the importance of collaborative learning for the effectiveness of ALN: A multi-measure multi-method approach. *Journal of Asynchronous Learning Networks*, *4*(2). Retrieved January 18, 2005, from http://www.sloan-c.org/publications/jaln/v4n2/v4n2_hiltz.asp

Hodgins, H. W. (2000). *Into the future A vision paper: Commission on technology and adult learning*: American Society for Training & Development (ASTD) & National Governor's Association (NGA). Retrieved January 13, 2005, from http://www.intemettime.com/itimegroup/astd_web/index.htm

Human, S. E., Kilbourne, L. M., Clark, T. D., Shriberg, A., & Cunningham, B. (1999). Using Web-enhanced instruction in an interpersonal skills subject. *Journal of Management Education, 23*(5), 584–606.

Kelly, A. V. (1999). *The curriculum: Theory and practice* (4th ed.). London: Paul Chapman Publishing Ltd.

King, K. P. (2002). Educational technology professional development as transformative learning opportunities. *Computers & Education, 39*, 283–297.

Kofoed, J. (2004). Can students improve performance by clicking more? Engaging students through online delivery. *Studies in learning evaluation innovation and development, 1*(2), 9–18.

Ladyshewsky, R. K. (2004). E-Learning compared with face to face: Differences in the academic achievement of postgraduate business students. *Australasian Journal of Educational Technology, 20*(3), 316–336.

Leasure, A. R., Davis, L., & Thievon, S. L. (2000). Comparison of student outcomes and preferences in a traditional vs. World Wide Web based baccalaureate nursing research subject. *Journal of Nursing Education, 39*(4), 149–157.

McGrath, C. (2000). A new voice on interchange: Is it talking or writing? Implications for the teaching of literature. *Journal of Educational Technology Systems, 26*, 291–297.

Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (2001). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education, 14*(2). Retrieved January 13, 2005, from http://cade.icaap.org/vol14.2/rourke_et_al.html

Schon, D. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Taylor, E. W. (1997). Building upon the theoretical debate: A critical review of the empirical studies of Mezirow's transformative learning theory. *Adult Education Quarterly, 48*(1), 34–59.

Tu, C-H. (2002). The measurement of social presence in an online learning environment. *International Journal on E-Learning*, 34–45. Retrieved January 15, 2005, from http://www.aace.org/dl/files/IJEL/IJEL1234.pdf