

The roles we play in ICT based learning design: Do academics have it all?



Julie Fleming

Central Queensland University

Karen Becker

Queensland University of Technology

Technology has had a significant impact on the pedagogical practice of academics in the tertiary education sector. For most academics, this has meant a struggle to adapt to potentially different approaches to learning design. At worst, technology has resulted in nothing more than the use of traditional methods of learning design in an online environment; delivering content in a seemingly linear way that offers little opportunity to enhance learning and teaching. For others, online facilitation of learning presents opportunities to transform learning into an engaging and authentic experience for the student, utilising sometimes unique approaches available only in the online environment.

This paper presents findings from a review of courses offered online across a range of disciplines, and particularly focuses on varying approaches to course design and implementation. In particular, the review of these courses and their implementation sought to better understand the roles being played by academics in the design and development of learning in an online environment, through a lens developed by Goodyear, Salmon, Spector, Steeples and Tickner (2001). The findings of the review highlight the importance of a range of competencies for effective design and delivery of online learning. The authors argue that academics may not be the most appropriate individuals to fulfil some of the roles required for the effective design and implementation of online learning.

Keywords: roles in ICT; course design; online learning

Introduction

Australian universities regard online technology as a practical medium to deliver learning. This medium has become commonplace in order for universities to reduce costs and remain competitive in a global environment, which is truly borderless. While mainstream in most Australian universities, these valuable tools bring with them a need to consider the processes and infrastructure that can support university staff in designing, developing and working in the online environment.

As online learning has evolved, so to have the roles of the student, academic and institution. Some academics struggle with the particular roles they are expected to play in course development and delivery in this online environment. It is also evident that some institutions, even though willing to adopt and use new technologies in teaching, often expect the academics to play a range of roles which arguably are not best played by those with traditional academic teaching skills and experience.

Central Queensland University (CQU) is a regional university with campuses in regional Australia. In addition to these regional locations, the university also has campuses in Brisbane, Gold Coast, Sydney, Melbourne and a number of off-shore locations to service an international student cohort. In order to support its online teaching endeavours, CQU has provided significant investment in technological infrastructure. Increased access and bandwidth to the World Wide Web and the implementation of a learning management system (Blackboard), CQU is well placed in terms of technology and support to deliver via a flexible learning approach to its national and international student cohorts. While the extent of the use of online delivery varies greatly across faculties and disciplines, the researchers suggest that a minimal level of an online presence for each course could be used by all academics to at least supplement traditional teaching environments. Strategically, CQU has developed a multi-modal approach to its undergraduate and postgraduate programs in order to better service its student cohort. Integral to this approach is the adoption of online teaching and learning, which in turn has implications for the roles and requirements of all academics.

This paper first examines the approach CQU has taken to online delivery and reviews the current literature and research findings in relation to the challenges and experiences of delivering and assessing in an online environment. The experiences of academics within CQU are used to reflect upon the key roles in online learning developed by Goodyear et al. (2001). This analysis also provides an opportunity to share some of the positive ways academics are dealing with the challenges of online delivery. Finally, some recommendations are made as to how universities and other learning institutions can capitalise on the potential opportunities offered by this teaching and learning medium, and begin to ensure that all those involved are supported by adequate infrastructure, processes and professional development.

Online delivery: Its challenges and its potential

As with most new technologies used in education, academics have bought into online delivery in varying degrees. For the most part, it has been driven by a top-down approach (Oliver, 2005; Pannan & McGovern, 2003). Richardson (2001) has noted that it is often a fringe activity that is undertaken by an enthusiastic minority of academic staff. In most institutions however, a minimum online presence is often mandated for all course offerings. This mandate then requires academics to become engaged whether they prefer this teaching and learning approach or not.

Even though in the case of CQU, the use of the learning management system is mandated to a minimum level, the extent to which a course is 'online' is often difficult to determine. Many of the approaches used at CQU involve an online presence to some extent, usually at the discretion of the Course Coordinator. In a study of Australian universities' use of online delivery, funded by the Department of Education, Science and Technology (DEST), Bell, Bush, Nicholson, O'Brien and Tran (2002) categorised online delivery into one of three distinct groupings:

Mode A. Web supplemented, where participation online is optional for students

Mode B. Web dependent, where participation online is required and is defined using three sub-classifications:

- i. web content dependent (students must use the web to interact with the education content necessary for study)
- ii. web communication dependent (students must use the web to communication with staff and/or other students)
- iii. web maximum dependent (students must use the web both to interact with content and to communicate with staff and/or other students)

Mode C. Fully online, where there is no face-to-face component.

At present, CQU has courses ranging across the full spectrum of these categories although many of the existing offerings exist as Mode A or Mode B courses.

The dominant online teaching method is still tied to the transmission of information; with academics delivering content. While some are moving beyond these traditional forms of academic teaching, most lecturers find it difficult to meet the pressures and demands of dealing with online delivery. As Laurillard (2002, p. 20) states "the potential of the technology to serve a different kind of learning cannot be exploited by an academic community that clings only to what it knows". Laurillard (2002, p.2) argues that "universities must adapt to this change and become leaders in the application of technologies as learning tools and adopt strategies that facilitate active learning. This challenges the conventional approach where the academic has the role of an expert delivering knowledge to the learner". The review reported in this paper reinforces the need to reconsider the varying roles required to deliver effective online learning, and highlights that conventional approaches are not sufficient.

There is an implicit assumption that academics are technically literate as well as possessing an ability to design, develop, implement and facilitate online learning and teaching. Academics however, have different capabilities and levels of technological literacy. In some cases, these expectations are well outside the traditional skills required of an academic. In fact, the significant shifts in behaviours required for academics to deliver online learning in an effective manner are often underestimated. As Ruth (2006, p. 237) highlights, "the differences between on-campus and online teaching forced me to discard all of my assumptions about means of assessment, discussion, lectures, and my role as a teacher, among other things"; indicating the need for a fundamental change in behaviours and skills required by practitioners to engage effectively in an online learning and teaching environment. However, it is also claimed that being forced to teach online and reconsider teaching approaches to accommodate online delivery, also enhances teaching capabilities as a whole; as it often forces the focus onto underlying learning design issues such as

appropriate structuring and sequencing of knowledge, and encourages a more student-centred focus (Ruth, 2006).

If universities are to benefit from the use of online technologies, it is critical to assess how universities can provide support for the staff involved in this delivery medium. Coaldrake (2000) highlights the changing nature of the role of an academic, and argues that due to the changing nature of tertiary education, “boundaries between distance education and on-campus delivery are blurring, and the distinctions in staff work underpinning the two modes will become harder to sustain” (Coaldrake, 2000, p. 12). Coupled with this changing nature of higher education, is the claim that online teaching has been found to increase workloads over and above that required by traditional methods, in one study up to 14% higher (Tomei, 2006). The study by Tomei (2006) also pointed to the less predictable nature of this workload spread across a semester, with fluctuations occurring at specific points in the student’s learning experience.

The solution to the issues raised by different requirements when delivering online may lie in development of support mechanisms and provision of professional development opportunities for the staff involved in online modes of delivery. There appears to be a need for purposeful and structured professional development for the academics involved in online delivery; focussing not just on the use of a learning management system but also on the pedagogical issues arising from the use of such technologies. In many cases, the academic requires professional development in new and different skills, not those developed in the traditional teaching and learning environments. Whilst some universities have embarked on professional development programs and found these to be of substantial benefit (Weaver, 2006), it would appear that many universities have not taken an integrated approach. The following section outlines the particular competencies required by academics to actively engage in online delivery, and highlights the variety of skills required.

Review methodology

In 2006-07 a team of academic staff was established and charged with reviewing the structure and content of courses offered online within the university. As part of the review process a small sample of courses, representative across education and business disciplines, were examined and the structure of the online offerings were analysed to determine what approaches had been used in the design and layout of the online material. The content was also analysed to ascertain whether the courses were considered to be Mode A, B or C in relation to the Bell et al. (2002) categorisation of courses. The findings reported in this paper are the result of a review of courses offered in business and education. The content analysis also examined the extent to which the courses were making use of online technologies. After the analysis, academics involved in the courses were surveyed and asked to explain their approaches to design and implementation of the course, focusing particularly on the roles identified by Goodyear et al. (2001). The following discussion provides an overview of the findings from the review, focussing on each role in turn.

Roles in online teaching and associated competences

Goodyear et al. (2001) identified eight key roles and associated competencies for online teaching: content facilitator, process facilitator, adviser-counsellor, assessor, designer, technologist, researcher and manager-administrator. Each role has been analysed using the experiences of academics working in an online learning and teaching environment. One of the comments from a respondent aptly summarised the potential of overlooking the broader implications of online design and delivery:

Never really thought of myself in any of these roles. Just thought of myself as the CC (course coordinator) and lecturer and did what I had to do to get a course “out there”

This comment highlights the challenges facing many individuals as they attempt to deliver creative and meaningful online learning for students. While these experiences are those of cross-disciplinary academics in a single university, they are relevant to any teacher entering the world of online learning for the first time.

The content facilitator

One of the more traditional roles of an academic, is that of the content facilitator. This role requires the academic to have knowledge within the field of study and the ability to transfer this knowledge to the learners. Regardless of how content is delivered, the academic must be aware of appropriate resources, maintain a focus on the content of the learning and be able to provide relevant examples and application

of content in order to facilitate learning (Goodyear et al., 2001). This role was one that all academics within the review felt comfortable. Most had delivered in a face-to-face classroom, via hard copy distance education modes and therefore had the experience of designing learning experiences and materials from this perspective.

Typically, lectures, tutorials and workshops have been the main mechanisms used for the facilitation of development of content knowledge. However in more recent times, even in a traditional classroom, the range of methods of facilitating and delivering content knowledge has widened. When teaching online, the ways to facilitate this acquisition of content knowledge are many and varied, often depending on the extent to which the course is 'online', whether Mode A, B or C. The courses reviewed were mostly Mode B (web-based content dependent), with study material being provided within the learning management system.

Some of the courses reviewed were clearly Mode A level of online, providing learning materials from on-campus classes as supplementary material for those studying in distance mode. As Bell et al. (2002) notes, the online provision of learning materials used in face-to-face classes equates to using the learning management system as little more than a repository. In fact, some designs provide the online material in a way that provides information to engage the students, but not enough to be able to gain all information without attending face-to-face sessions. This approach could be seen as a way of trying to encourage (or one may say force) physical attendance (Blicblau, 2006), thereby reinforcing a traditional approach to university education.

Provision of additional materials such as study guides to scaffold the learning is also a common feature in online environments. Some institutions and individual academics have used this as a way of providing print material without the expense and time constraints of physical production and distribution. Many of these still make the assumption that students wish to have a hard copy of such documents and therefore provide this in a format that allows for printing (Blicblau, 2006). Whilst this assumption may hold true, particularly for students reliant on dial-up access or those who typically study away from a computer, it is also being used at times without due consideration for the differing requirement of presentation on-screen as opposed to hard copy. Taking content and simply placing it online has come under criticism and is often referred to as a 'shovelware' approach (Morrison & Anglin, 2006). This approach was certainly identified in two of the courses reviewed.

However, some online learning facilitators are trying to break this idea of shovelware, by turning to other ways of presenting online content. In one of the courses, Course Genie™, a packaging tool that allows the course designer to structure the study guide in a format more appropriate for online presentation was used. This is one method useful in overcoming some of the issue associated with shovelware. However, even tools such as this, are only useful if sound approaches to course design have been utilised; something that will be examined further when considering the role of Designer.

The process facilitator

As well as providing access to the content knowledge, an academic is also required to be a process facilitator; responsible for ensuring an effective learning process is available to suit the needs of all learners. The more traditional methods have long been criticised for their limitations and inability to appeal to a wide variety of learning styles because they have been based on a teacher-centred approach. The gradual shift in the instructional paradigm has moved away from the teacher to become more student-centred (Laurillard, 2002). Mayes (2002) observed that as a result of research there are shared theoretical assumptions about the shift to constructivism where learning is primarily developed through activity with an emphasis on social contexts.

Goodyear et al. (2001) suggests that process facilitator is a 'one-to-many' role, where the facilitator is responsible for interacting with the students as a group; often achieved through the use of discussion boards, chat rooms and other group facilities; facilities that were regularly used in the courses reviewed. For some academics, the role of process facilitator is a challenge as it forces them to become more than a content expert. As Ruth (2006, p. 238) explains, "since the dynamics of an online class prevented me from being primarily a conveyor of information, I had to do something else." For many academics not being central to learning and discussions or in control of students activities, can represent a threat and a challenge.

Online learning environments provide a unique opportunity for the academic to establish a community of learners, where the academic manages a process rather than providing all input and expertise. One of the

common experiences found during the review, was the realisation by the academic, that by using discussion lists, not only were they sharing information in a captured form for all students to access, but in many cases, other students answered their peers' questions before the lecturer; building a sense of a learning community. This creates a new view of the role of the academic, "if having an e-mail discussion as the course centre meant that I transitioned from lecturer to environment creator, then online students likewise shifted from being listeners to users of course content" (Ruth, 2006, p. 238). This development also challenges the academic to consider further how they facilitate the learning; when to engage in the discussions, and often more importantly, when to allow learners the freedom to interact within their learning community without the direction of an authority figure. As Shovein, Huston, Fox and Damazo (2005) highlight, this provides a more appropriate environment for adult learners and reduces the role of academic as gatekeeper; providing all learners with a better opportunity to engage and reflect on their own experiences as an integral part of learning.

The challenge for academics and universities alike is to value the role that an academic plays in mediating online learning; and for academics in particular to challenge their position in the learning environment. In many cases, it requires the courage to relinquish the position of expert in favour of a role of guide; something which is foreign to many.

The adviser-counsellor

Academics in a typical face-to-face environment are accustomed to the role of adviser-counsellor, with students seeking one-on-one assistance and advice during their learning experience. This level of connection with students in an online environment is one with which many academics new to the environment struggle. Email was reported by the academics as a common means of support used for online learners. Two academics' who have been working in an online environment for some time, identified the links between the Adviser-Counsellor and Process Facilitator roles; and reported taking information from one-on-one emails and feeding applicable content into discussion forums in order to share answers and information with all learners (one-to-many). One of the newer academics reported struggling with the role of adviser-counsellor, and found that he often did not have the appropriate knowledge to provide the necessary support; either in terms of course administration or personal problems. Due to a lack of confidences, he was more likely to refer students to either an administrative staff member or university counsellor for what he termed the "big issues".

One of the key challenges for academics undertaking this role is to develop a new set of skills based on the ability to build rapport in an environment that does not provide the face-to-face contact upon which most have relied. Email has long been criticised for its lack of ability to convey context and non-verbal cues, leading to a higher chance of miscommunication. The key to playing the role of online adviser-counsellor is to find ways to overcome these barriers or find new ways to engage with individual students.

The assessor

The role of assessor within the online environment is just as important as it is in face-to-face teaching. The assessor provides feedback and grades to validate the learners work. This may require a number of new skills and strategies for academics teaching online. Firstly, they must have a knowledge of online techniques to enable appropriate assessment to be carried out. Secondly, they must ensure authenticity of student work. And thirdly, must appreciate the ethnic issues surrounding the online environment. Since an online course can and is accessed globally, an understanding of the cultural diversity of the student cohort must be accommodated. Consideration must also be given to the access allowed to online courses by staff who may not be directly involved in the course. CQU has thus become reliant upon clearly articulated policy and procedures that attempts to ensure netiquette and confidentiality for all involved in the online learning and teaching process.

There is an implicit link with the role of assessor and the role of designer. In many institutions, these roles are one and the same. Regardless, the assessment must be fully integrated into each learning activity. It is often difficult for the online academic who 'teaches as they were taught' to move beyond a standard assessment procedure; that is to teach and test as separate, and often mutually exclusive activities. Oliver (2005, p. 2) states that "such settings are often not conducive to ICT". In an online environment however, an authentic based assessment can be a rich learning experience if matched with well structured learning outcomes (Herrington, Oliver, & Stoney, 2000).

During the review, a range of assessment techniques and strategies were being used in several courses that take advantage of the technology available in an online environment, which can lessen the degree of

the involvement for the assessor. Software such as BAM (blog aggregated moderation) and SPARK (self and peer assessment resource kit) are being used to assist academics to evaluate newer modes of online assessment such as blogs and online groupwork. Learning management systems such as Blackboard provide numerous other assessment tools such as quiz, reflective journals and discussion lists which when aligned to assessment can encourage learner engagement and produce positive learning outcomes. Some of the academics involved in course design showed an understanding of the use of formative assessment in the online environment, as much as face-to-face. One academic was using quiz functions within the learning management system to allow students to evaluate their progress, and although this was not assessable, the student was not provided with additional material until an attempt at each quiz had been undertaken.

The second component of online assessment is the grading of the work. Written submissions can be submitted and then marked electronically for return to the student. As one academic noted:

Have to say it (online submission and marking) worked really well. I can type faster than I can hand-write, so could incorporate comments through track changes and students could read my notes. Also it made it really easy for moderation and for reviews of grade. Was very happy with the system and I think the students appreciated getting results back a lot more quickly than through the mail.

The majority of courses reviewed however, had not engaged with use of online assessment, opting for the more traditional approaches to assessment. Participation in online discussions was considered as assessable for one course, however that was also proving problematic. Even within the activity of marking online submissions such as essays or reports, the online environment provides additional enhancements such as plagiarism detectors. Use of these technologies presents benefits not just to those committed to full online delivery, but again, can reap rewards even partnered with more traditional approaches. Again, however, learning to mark electronically rather than in hard-copy requires a substantial change in mind and skill sets on the part of the academic and in order to be efficient, also requires minimum standards of technology. Universities will find that unless support is given to develop a new set of skills for marking electronically and investment in appropriate technologies, electronic marking will not gain widespread acceptance.

The designer

Unlike the facilitator roles, the designer's work is predominantly performed before the course is made available to students. This role is also one of the most important, as it specifies and structures the learning to be undertaken by the student. The designer must consider relevance between activities and learning outcomes; must select appropriate media and technology and must design appropriate assessment that aligns to criteria.

Good instructional design requires a framework that includes analysis of the students' current knowledge, and potential needs and expectations. Questions such as 'what do students need to know?' and 'what do students need to be able to do?' will assist when setting goals and objectives that build on strengths and existing knowledge. Further to this is choosing an appropriate teaching strategy. Ascough (2002, p. 22) notes that "as with face-to-face instruction, the learning environment can be designed in such a way as to maximise the potential for student learning (and) ...engagement and motivation must deliberately be built in..."

One of the most surprising results from the review of courses for this analysis was the lack of recognition of the importance of the design phase of a course specifically for online purposes. Most of the academics acknowledged very clearly their role as content and process facilitator, but made little reference to design of a course specifically for the online environment. The exception to this was the academic who had used Course Genie™ to make content delivery more conducive to the online environment. Coming from the education discipline, he was cognisant of the fact that online delivery required a different approach to design; less linear whilst harnessing the benefits of the World Wide Web.

Designing online tasks or activities requires knowledge of not only instructional design, but knowledge of the available technology to meet learning outcomes. It is an important and complex role requiring competence and performance in course design. "The challenge lies in adopting the right tools for the right situations and in ensuring the adoption of new technologies is educationally driven rather than technologically driven" (Blicblau, 2006 p. 245). Ascough (2002 p. 17) also calls for those involved in online delivery to consider pedagogy before technology "a note of caution... that the use of technology

should be driven by sound pedagogical principles. Putting pedagogy before technology will insure quality education no matter what the content or mode of delivery". This makes the role of the designer paramount to the success of the course design.

It has been noted by Twigg (1995) that in an effective learning environment most of the learning takes place outside the classroom. This has implications for instructional strategies in the online medium that include synchronous and asynchronous communication such as discussion boards, real time chats and reflective journals. Al-Bataineh, Brooks and Bassoppo-Moyo (2005, p. 286) suggest that in order to maximise online discussion boards, "it may be advisable for such boards to propose questions whose responses themselves will lead to further reflection and inquiry". This approach was also used extensively by the education academic mentioned previously who was able to generate substantial activity on discussion boards, much to the surprise of others who had significantly less activity even when they had made involvement in discussion boards a part of student assessment.

The importance of pedagogical input into the design and delivery of online courses rests with the associated competencies of the designer. Because each designer will have their own set of pedagogical skills, knowledge and mindsets, the design and development of each course will also vary. It was noted during the review that those courses developed by a group of individuals with a variety of skills and knowledge has resulted in a pedagogically sound learning product.

The technologist

As outlined in Goodyear et al. (2001) "the technologist is concerned with making or helping make technological choices that improve the environment available to learners". These competencies include understanding the capabilities and limitations of the available technologies as well as the skills and techniques to use different media, for example, graphics, animation, video, and audio. An appropriate mix of media needs to be selected for each learning objective. There are of course, many uses for technology. What we must remember is that integrating technology into our curriculum and online courses, is contributing to our students' employability; few jobs are exempt from the use of technology in the contemporary employment setting. Students must be exposed to not only the use of technology but managing it as part of their daily lives.

Overarching technology (i.e. the adoption of the learning management system, Blackboard) is centrally driven at CQU. Within the LMS however, are different types of technology that can be selected in order to enhance the learning environment. These can be chosen at the discretion of the academic. During the review, it was apparent that the academics did not lack the willingness to try something new, but often admitted to not having the knowledge to choose the most instructionally sound option; leaving them at the mercy of the 'next big thing'.

The technologist objective is to provide flexible and accessible technological opportunities that are embedded in learning activities. An example identified during the review was a trial conducted using podcast technology to depict short role plays. This medium was chosen to meet an identified learning need of depicting theory in action. It was not chosen simply because it was available. It is therefore essential that the technologist role include maintaining knowledge and currency with technological change, and the most appropriate uses of the technology in a learning environment. Even though podcast technology is still considered relatively new in the educational setting, it was used in two of the courses that were reviewed. In both instances, the academic had identified the potential usefulness of the medium and had chosen to trial it within their own teaching environment.

The researcher

The role of researcher as identified by Goodyear et al. (2001) refers to the extent to which academics engage in the scholarship of teaching; systematically gathering data to analyse the experiences, effectiveness and outcomes of online teaching. Some key competencies associated with this role include evaluation of online delivery, analysis of data and experiences in order to improve online learning experiences, conducting research and developing theory related to online delivery (Goodyear et al., 2001). A search of educational journals will show a growing number of academics researching and publishing in the area. However, in relation to the number of academics now engaged in online teaching and learning, it is not a large percentage of the total number teaching in this environment.

Based on the experiences at CQU, it is apparent that some of those who might be considered 'early adopters' of the technology, have certainly engaged in research of their teaching (Becker, Kehoe, & Tennent, 2007; Fleming, 2006; Fleming & Cribb, 2005; Jones & Gregor, 2004; Jones, Luck,

McConachie, & Danaher, 2005; Kehoe, Tennent, & Becker, 2005). Again, in contrast to the total number of academics now engaged in this activity, this is still a small percentage. On reflection, this may be attributable to a number of factors including the changing nature of the work of an academic, and the increasing use of non-traditional forms of employment within academia.

The changing nature of the role of an academic often emphasises research in your discipline field well above research within the area of teaching and learning; and this was emphasised particularly by one of the academics in the review. She was very keen to integrate her discipline research into her teaching but had not considered doing empirical research into her teaching methods; noting that it was not her key research focus. She commented, "I've used the stats incorporated into Blackboard but not in a consistent or planned way, more haphazard". The research related to teaching and learning, is often seen more in the realm of 'scholarship of teaching' rather than true research; and is often consequently believed to be of lesser value. This was a widespread belief amongst the academics. Secondly, and possibly most applicable in the case of CQU is the use of sessional or contract staff in delivery. One of the academics involved in the review was a part-time lecturer and therefore did not see that the role of Researcher fitted within his scope of work. Sessional staff present significant challenges for the management of learning in the online environment.

As previously discussed, the roles suggested by Goodyear et al. (2001) can be undertaken by different individuals, however this leads to the importance of identifying who might be best placed to conduct research into online learning activities. Traditionally, it could be anticipated that the academic delivering the content, and who most likely had developed the course, would conduct appropriate research. However, casual and contract staff are generally working within very clear boundaries, none of which are necessarily related directly to conducting research on outcomes. Therefore it is critical that universities recognise the importance of evidence-based practice in online learning environments, and place sufficient emphasis on conducting research in this area. Until this occurs, the role of researcher will be relegated to the minority who choose to undertake this role more for personal fulfilment than recognition of its value to the institution and student learning.

The manager-administrator

The role of Manager-Administrator relates heavily to the administrative tasks behind the delivery of a course in an online environment; enrolment, timetabling, and course structuring for example. As with most institutions, the management of the learning environment at CQU is controlled centrally by a number of university-wide divisions, leaving these issues well outside the realm of the individual academic. The academics within the review were unanimously aware that this was not a role for which they were responsible; very few would argue that this division of labour should be otherwise. However, sometimes the interface between this role, and those played by the academic can be blurred, and can leave the academic unclear of the processes available for administration. This disjoint can at times result in academics engaging in manual processes which may have automated solutions. One recent example found during the review was the situation of an academic enrolling students into individual tutorial groups within the learning management system, when a central service with the ability to do this exists. The solution to this situation rests in ensuring that sufficient mechanisms are available for those filling each role to understand the capabilities of the other, which in turn relies on the institution providing support and information sharing mechanisms between academics and central services.

Conclusion and future directions

This paper provides the findings of a review of online courses, investigating the varying roles and competencies required for online teaching developed by Goodyear et al. (2001). While it has been demonstrated that some of these roles overlap and can be the responsibility of a single academic; for example, facilitating content and process, assessing, and counselling, it has also become evident that there is a need for differing competencies when examining the other roles required, for example, technologist, administrator, researcher and designer. In addition, it was clear that the role of researcher was the least actively played within the realm of online delivery. This result reflects the lack of recognition of the importance of empirical research, particularly into teaching technologies, as an integral part of the ongoing development of quality course offerings. Also of concern, was the lack of recognition of key design elements within the course offerings; some acting as little more than repositories for traditional teaching materials. At least some of the academics did not see any difference between traditional facilitation, and the need to revisit course design prior to it being placed in an online environment.

The roles as described have articulated the need for a team-based approach when designing online courses. The fact that online education offers increased opportunity for interaction implies that increased levels of participation are also required. We need to develop a holistic understanding of these roles in order to ensure an environment of partnership, participation and continuous learning if our institutions are to remain competitive in the knowledge society.

It is fundamental that these roles be clearly understood before embarking on designing, developing and teaching in the online environment. There is a deliberate need for institutions to make necessary changes in their adoption and development of online courses that take note of the skills required for online teaching, as outlined in this paper. Most institutions have access to the appropriate technology, multimedia, applications and creative staff. It is time to move from a past where teaching was an individual pursuit into an era where partnership and team work are valued, respected and necessary so as to transform learning into engaging and authentic experiences for our students. Delivering creative and meaningful online learning is dependent upon the roles we play. If online teaching is to become a truly sustainable academic activity, then teamwork is an imperative.

This review is the first step in a larger project to further develop the roles for online teaching into a specific set of competencies able to guide tertiary education institutions in identifying the most appropriate staff to fill these roles and to develop professional development opportunities around the required competencies. Only when all roles can be adequately filled, will online learning truly deliver to its fullest potential.

References

- Al-Bataineh, A., Brooks, S. L., & Bassoppo-Moyo, T. C. (2005). Implications of online teaching and learning. *International Journal of Instructional Media*, 32(3), 285-294.
- Ascough, R. S. (2002). Designing for online distance education: putting pedagogy before technology. *Teaching Theology and Religion*, 5(1), 17-29.
- Becker, K., Kehoe, J., & Tennent, B. (2007). Impact of personalised learning styles on online delivery and assessment. *Campus Wide Information System Journal*, 24(2), 105-119.
- Bell, M., Bush, D., Nicholson, P., O'Brien, D., & Tran, T. (2002). Universities online: a survey of online education and services in Australia: Department of Education, Science & Training (DEST).
- Blicblau, A. S. (2006). Online delivery management for teaching and learning. *European Journal of Engineering Education*, 31(2), 237-246.
- Coaldrake, P. (2000). Rethinking academic and university work. *Higher Education Management*, 12(3), 7-30.
- Fleming, J. (2006). Cast off those shackles: Moving from 19th century perceptions of technology. Paper presented at the 4th International Lifelong Learning Conference, Yeppoon.
- Fleming, J., & Cribb, J. (2005). New technologies and new languages for new workplaces. *Malaysian Journal of Distance Education*, 6(1), 27-42.
- Goodyear, P., Salmon, G., Spector, J. M., Steeples, C., & Tickner, S. (2001). Competences for online teaching: A special report. *Educational Technology, Research and Development*, 49(1), 65-72.
- Herrington, J., Oliver, R., & Stoney, S. (2000). Engaging learners in complex, authentic contexts: Instructional design for the web. Paper presented at the Moving On Line Conference, Brisbane.
- Jones, D., & Gregor, S. (2004). An information systems design theory for elearning. Paper presented at the 15th Australasian Conference on Information Systems, Hobart, Tasmania.
- Jones, D., Luck, J., McConachie, J., & Danaher, P. (2005). The teleological brake on ICT's in open and distance learning. Paper presented at the Conference of Open and Distance Learning Association of Australia.
- Kehoe, J., Tennent, B., & Becker, K. (2005, 2-6 July). Using the web to enhance tertiary education learning experiences. Paper presented at the The 11th Australasian World Wide Web Conference, Gold Coast.
- Laurillard, D. (2002). Rethinking teaching for the knowledge society. *EDUCAUSE Review*, 37(1), 16-22.
- Mayes, J. T. (2002). The technology of learning in a social world. In R. Harrison, F. Reeve, A. Hanson & J. Clarke (Eds.), *Supported Lifelong Learning Volume I: Perspectives on Learning*. London: Routledge.
- Morrison, G. R., & Anglin, G. J. (2006). An instructional design approach for effective shovelware: Modifying materials for distance education. *Quarterly Review of Distance Education*, 7(1), 63-74.
- Oliver, R. (2005). Ten more years of educational technologies in education: How far have we travelled. *Australian Educational Computing*, 20(1), 18-23.

- Pannan, L., & McGovern, J. (2003, 7-10 December). Mainstreaming online delivery: Staff experience and perceptions. Paper presented at the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education, Adelaide.
- Richardson, J. (2001, 3-5 July). Changes and challenges of academic lives through the introduction of virtual learning environments. Paper presented at the SCUTREA 31st Annual conference, University of East London.
- Ruth, L. (2006). Converting My Course Converted Me: How Reinventing an On-campus Course for an Online Environment Reinvigorated My Teaching. *Teaching Theology and Religion*, 9(4), 236-242.
- Shovein, J., Huston, C., Fox, S., & Damazo, B. (2005). Challenging Traditional Teaching and Learning Paradigms: Online Learning and Emancipatory Teaching. *Nursing Education Perspectives*, 26(6), 340-343.
- Tomei, L. A. (2006). The Impact of Online Teaching on Faculty Load: Computing the Ideal Class Size for Online Courses. *Journal of Technology and Teacher Education*, 14(3), 531-541.
- Twigg, C. A. (1995). The value of independent study. *Educom Review*, 30(4), 1-5.
- Weaver, D. (2006). The Challenges Facing Staff Development in Promoting Quality Online Teaching. *International Journal on ELearning*, 5(2), 275-286.

Julie Fleming, Faculty of Arts, Humanities & Education, Central Queensland University,
j.fleming@cqu.edu.au

Karen Becker, Faculty of Business, Queensland University of Technology, karen.becker@qut.edu.au

Please cite as: Fleming, J. & Becker, K. (2007). The roles we play in ICT-based learning design: Do academics have it all? In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*. <http://www.ascilite.org.au/conferences/singapore07/procs/fleming.pdf>

Copyright © 2007 Julie Fleming & Karen Becker.

The authors assign to ascilite and educational non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The author(s) also grant a non-exclusive licence to ascilite to publish this document on the ascilite web site and in other formats for *Proceedings ascilite Singapore 2007*. Any other use is prohibited without the express permission of the authors.