

2015

## Degrees of Change: Understanding Academics Experiences with a Shift to Flexible Technology-Enhanced Learning in Initial Teacher Education

Benjamin A. Kehrwald  
*University of South Australia*

Faye McCallum  
*Southern Cross University*

Follow this and additional works at: <https://ro.ecu.edu.au/ajte>



Part of the [Curriculum and Instruction Commons](#), and the [Higher Education and Teaching Commons](#)

---

### Recommended Citation

Kehrwald, B. A., & McCallum, F. (2015). Degrees of Change: Understanding Academics Experiences with a Shift to Flexible Technology-Enhanced Learning in Initial Teacher Education. *Australian Journal of Teacher Education*, 40(7). <https://doi.org/10.14221/ajte.2015v40n7.4>

This Journal Article is posted at Research Online.  
<https://ro.ecu.edu.au/ajte/vol40/iss7/4>

## **Degrees of Change: Understanding Academics Experiences with a Shift to Flexible Technology-Enhanced Learning in Initial Teacher Education**

Benjamin A. Kehrwald  
University of South Australia  
Faye McCallum  
Southern Cross University

*Abstract: The implementation of technology enhanced learning in higher education is often associated with changes to academic work. This article reports on a study of staff experiences with curriculum development and teaching in multiple modes of blended and online learning in a Bachelor of Education degree. The findings indicate that the changes experienced by these teacher educators were significant but not wholesale. More specifically, the findings highlight three particular areas of change that impacted on their role as teacher educators: changed pedagogical practices, particularly in staff-student communication, interaction and relationship building with students; increasing workloads associated with flexible delivery; and changed needs for staff capacity building related to issues of quality in technology enhanced learning.*

Technology-Enhanced Learning (TEL) refers to situations in which technology is used to enhance the learners' experiences. This includes online learning, blended learning and other situations in which technology is used to enrich or extend place-based (on campus) teaching and learning. Although TEL is not associated with a particular pedagogical approach, it is often associated with the use of (a) active approaches to learning which involve both creation and use of rich multimedia digital resources, (b) purposefully designed learning tasks which employ technology to promote cognitive engagement with program content, (c) collaborative learning situations in which communication is mediated by technology, (d) the personalisation of learning experiences afforded by the use of flexible learning technologies, (e) improving learners' access to authentic learning and practice contexts with networked technologies, and (f) connecting learners with knowledgeable teachers, coaches, mentors and peers who can support learning.

For many academics, the implementation of technology-enhanced learning (TEL) in university degree programs is associated with *change*, particularly changes to academic work. The suggested change is based on two prevalent assumptions in higher education (HE): first, that the dominant teaching model in HE is direct instruction -- didactic, teacher driven and limited with respect to consideration of the particular needs of individual learners; and, second, that by its very nature, TEL represents an improvement over historically established university teaching, based on an emerging track record of learner-centric pedagogies and practices which focus on learners, their experiences and the way technology creates opportunities to cater to a variety of learner needs (see Hannafin & Land, 1997). Thus, a contrast has been created which pits the 'old' (or status quo) and all of the problems that may be associated with current higher education systems against the 'new', in which technology is meant to not only disrupt the status quo, but provide a number of solutions to cure the ills of a 'broken' higher education system which may be slow to change. While this contrast is both an oversimplification and a generalisation, it reflects aspects of current teacher education in

Australia, which is the context from which this formative evaluation is drawn. For reasons both historical and pragmatic, teacher education has tended to favour in-person, face-to-face teaching and learning as the preferred mode of delivery in initial teacher education. This makes the implementation of flexible TEL in the context of initial teacher education particularly interesting as a case for the study of the change associated with the implementation of TEL.

This article examines the notion of change associated with the implementation of TEL in one teacher education program in Australia. In this article, the relationship between the implementation of TEL and particular changes in organisation, technology or practice is not seen as a *fait accompli*. Rather, the focus is the potential for change and the evaluation of change as beneficial (or otherwise) to the intended outcomes of a development process. Broadly, this article addresses the following proposition: *If a shift to TEL represents the opportunity to change, what changes are necessary and beneficial to the success of the technology enhanced version of the course or program?*

The approach to this general question is case study in an undergraduate program in Australia. The article focuses on a large-scale curriculum development project which sought to produce multiple flexible, technology-enhanced versions of each individual unit within the degree program. Drawing from academics' experiences within this project, the article reports on the results of a formative evaluation of the first year of the project. This article aims to improve understanding of the nature and degree of change associated with the adoption of TEL in context and the implications of these changes for the structuring and support of similar development projects.

## Background

Online learning has become so commonplace over the last fifteen years that it is now part of mainstream HE (Larreamendy-Jones & Leinhardt, 2006). In the USA, from 2002 to 2012, for example, the percentage of HE providers offering whole programs online increased from 34.5% to 62.4% and the number of university students enrolled in at least one online course increased from 1.6M to 6.7M (Allen & Seaman, 2013). While other HE contexts have not experienced such dramatic growth in online learning as the USA, the demand for flexible distance education has put online learning at the fore in improving access to HE in geographically large, developed nations with dispersed populations, such as Canada and Australia. Also in developing nations with growing populations where demand for HE outstrips the supply of places in traditional campus-based universities (Hanover Research, 2001). Among the implications of this continued growth in online learning is a) the increasing acceptance of online teaching as part of 'normal' academic work, and, following that, b) the need for academic staff to actively engage with online learning (or other forms of TEL) in ways which allow them to support students to achieve the highest quality learning outcomes.

Changes expected to accompany the adoption of TEL are often described with reference to 'disruptive technology' (Christensen, 1997), which challenges status quo technologies and the practices that define their use (Danneels, 2004). Blogs (Williams & Jacobs, 2004), mobile devices (Sharples, 2002), podcasting (Godwin-Jones, 2005), wikis (Ravid, Kalman, & Rafaeli, 2008) and the Internet itself (Garrison & Kanuka, 2004) are but a few of the potentially disruptive technologies associated with TEL. In particular, distance education has been identified as a disruptive technology for "conventional institutions of higher education" (Garrison, Anderson, & Archer, 2003, p. 123). Garrison and colleagues

assert that distance education, including some forms of TEL such as online learning (Garrison et al., 2003) and blended learning (Garrison & Kanuka, 2004), provides universities an opportunity to embrace and learn from disruptive technologies as part of their ongoing evolution and mitigate the risk of ‘sliding into mediocrity and ...irrelevancy as far as the teaching function of the university is concerned’ (Archer, Garrison, & Anderson, 1999, p. 28).

As foreshadowed in the introduction, the assumption of change associated with TEL is problematic. TEL is often portrayed an important vehicle for positive change. However, understandings of the changes implied by disruptive technology are clouded by assumptions about current practices, the affordances of the new technologies, and the emergent nature of changed practices which define the use of technology and media. These assumptions identify beneficial changes and manage them within the overall development process. Therefore, more and better information is needed about the nature of change in academic practice associated with a move to TEL.

The key question guiding the formative evaluation of the curriculum development project is: How do academics experience ‘change’ in their pedagogical practices with the adoption of flexible TEL?

The following sub-questions were explored to delve into the academics experiences of change:

- a. Do academics in this context experience a change in their practices when adopting flexible TEL?
- b. What degree of change is implied in the shift from extant teaching practices to flexible, technology-enhanced courses?
- c. How have teaching academics experienced ‘change’ within a systematic approach to design, development and implementation of flexible, TEL within the program in question?
- d. What degree of change in pedagogical practices has occurred as a result of the shift to TEL?

By understanding academics’ experiences of change in this context, we are able to identify and better understand the issues which ultimately affect the outcomes of the changes process which accompany the shift to flexible TEL.

## Context

In 2012, the School of Education embarked on an extensive development process in its Bachelor of Education program to offer it as a flexible, technology enhanced program. The curriculum development process was undertaken to address several perceived needs within the School. First, the curriculum development was a timely response to a program review. The development process provided an opportunity to amend the program in accordance with the review.

Second, there was a mandate from University leaders to offer the program flexibly in regional South Australia. It was determined that in order to produce a high quality flexible offering off campus, courses would need to be redeveloped for flexible distance delivery. This shift also reflected the University’s mandate to provide access to HE across the state, including those in rural and remote areas and those isolated by circumstance.

Third, the move to a more flexible technology-enhanced program was a response to market forces and was seen to provide a competitive advantage to the School of Education, which had been losing market share to out-of-state competitors with more flexible programs.

Fourth, following the commitment to offer a flexible, technology enhanced distance education version of the program, the potential for ‘disruption’ described above (Archer et al., 1999; Garrison et al., 2003) and the ‘transformative potential’ of TEL (Garrison & Kanuka, 2004) were seen by school leadership as potentially beneficial mechanisms to further an existing change agenda within the school. The curriculum development process was seen as an ideal opportunity to a) update academic practices within the program as part of staff capacity building for TEL, b) establish new ways of working drawn from best practice in distance and online education to support the success of the newly developed program, and c) establish systematic approaches to design, development and teaching.

The move to blended and online courses within the program was undertaken as a formal curriculum development project. A small team consisting of one academic developer, an online educational designer, and a project officer were appointed to work with the Associate Head of School (Academic) to systematically plan and operationalise the design, development and delivery of the degree in a flexible TEL format. A development blueprint was established that detailed milestones, resourcing, and deliverables. The program was divided into sets of courses associated with the yearly progression of students through the program. The implementation of the flexible, technology enhanced version of each course proceeded on a year-by-year basis with planning and development for the first year in 2012, then implementation of the first year and writing of the second year in 2013, continuing with this pattern of implementing one year whilst writing the next year through full implementation in 2016. This article reports on the implementation of the first year of the program in 2013 and staff experiences of change in the early stages of the project.

## Methodology

A formative evaluation of the curriculum development process centred on three types of information: first, baseline data regarding staff demographics and their experience with university teaching, online teaching and comfort with technology; second, information related to staff members’ attitudes and experiences with online learning and technology prior to the project; and, third information which illuminated staff members’ experiences in the early project implementation. Because of the variety of information sought, including either confirmatory (or evidentiary) and more open-ended, exploratory information, mixed methods, including questionnaires and interviews were used to collect and analyse information.

Data was collected in two phases. First, a questionnaire instrument was used to collect baseline demographic data and respondents’ general experiences of ‘change’ within the development project. All data was collected online to maintain respondent anonymity and for ease of data handling. These data were mostly quantitative in response to multiple choice questionnaire items. Second, qualitative data was collected via semi-structured interviews with volunteer respondents to explore their experiences within the development project. All interviews were audio recorded, transcribed and returned to respondents for validation.

The data was also analysed in two phases. The first phase, conducted after the questionnaire, involved a basic statistical analysis. This phase produced baseline information about the respondents and their experiences of change. The second phase, conducted after the interviews, involved a thematic analysis of the transcribed interviews to identify key themes in the respondents’ experiences (Aronson, 1994).

All participants in the study were volunteers who were recruited from the pool of both tenured and contract academic staff involved in the first year of the redeveloped program. Nine teaching staff completed the survey and seven agreed to an individual semi-structured

interview. Ethics approval for the collection of data was gained through the University's Human Research Ethics Committee.

## Results

The baseline data revealed that the respondents were generally experienced tertiary teachers. Only one of them had as little as 2 years' experience teaching at university while five respondents had 6-10 years' experience and 3 respondents had over 10 years' experience. Additionally, all had experience teaching online, albeit less than their overall tertiary teaching experience. Two individuals had less than 2 years' experience teaching online, three of them had 2-5 years' experience, 3 had 6-10 years' experience and 1 had more than 10 years' experience.

In addition to their online teaching experience, respondents were asked to nominate their comfort and capability with online teaching. Generally, the results indicated that most were still learning about online teaching practices. Two labelled themselves 'novices', one indicated that he/she had 'a lot to learn' and six indicated they were 'comfortable, but still learning'.

Thus, the respondent cohort included academics with a variety of levels of experience with teaching in HE, with online teaching, and a range of comfort and capability with technology.

### Academics Experience of Change in Their Practices

Using *change to teaching practices* as an indicator, all respondents indicated that the transition to TEL required changes in their teaching practices.

One respondent framed the experiences as:

*"Online learning challenges some of the pedagogical traditions of a 'teachers college' model of initial teacher education. Online learning positions the student as the responsible learner, this is not to say the face to face doesn't facilitate this, it is however a demand in the online approach."* (Questionnaire respondent 1)

Notably, this comment foreshadows other findings about the nature of changes experienced by academics with respect to the roles played by both teacher and students in flexible TEL and the resulting change in teacher-student relationships and the communications and interactions which define those relationships.

### Degrees of Change in the Shift to Flexible, Technology-Enhanced Learning

Despite general agreement of an experience of 'change', respondents experienced differences in both the type of change and degrees of change associated with the move to the flexible, TEL version of the program. Some indicated very little change, citing similar experiences with technology in other contexts. Others indicated moderate amounts of changed practice, sometimes as a result of simply getting in and working in the TEL version of the program.

*.. it was an eye-opener, and I wanted the experience of doing that and I feel .... more comfortable about doing it next year. (Bernard, Interview Transcript)*

Some respondents reported extensive changes in their teaching practices.

*I think it was a lot of new learning. Particularly because we were very much a new course in many ways, within a new program, it was a time of great transition for us. ... we were quite intimidated by having to step outside of what had been our comfort zone for a long period of time. (Lone, Interview Transcript)*

At least one respondent was very conscious of change in her approach to the adoption of TEL. She was careful about exercising agency in the process to help ensure the manageability of the change.

*... I'm really willing to try new things, but I want to do that in a fairly measured way. I'm not going to leap in and do everything with all bells and whistles. You know, I want to try one thing, see how that goes, one new thing. And then if that goes well, then we'll try another new thing, and so forth. (Chris, Interview Transcript)*

Taken together, the diversity of responses regarding the type and degree of change underscore the relative, contextual and sometimes idiosyncratic experiences of change. This provides a rationale for a deeper exploration of specific experiences of change in this particular case study.

#### **Teaching Academics' Experience of 'Change' Within a Systematic Approach to Design, Development and Implementation of Flexible, TEL**

An exploration of respondent experiences identified three notable areas of change in academic practice: a) changed teaching practices associated with enacting the intended pedagogical approaches, including both the explicit, up-front planning and design process and the nature of communication and interaction with learners; b) increases in workload associated with 'new' or changed ways of working in multiple modes; and c) changes in the needs for staff capacities related to professional learning in response to the 'new' ways of working.

##### ***Changed Teaching Practices***

Respondent comments about changed teaching practices highlighted that at an abstract level, (e.g., a teaching philosophy or orientation toward teaching), their approaches to teaching had not changed. However, what had changed was the more practical, concrete enactment of specific pedagogical commitments as part of teaching activity.

*...I think that there's always been the engagement with it being a learning process rather than a teaching process, and the fact that we now have access to technologies means that that will be further enhanced.... I think that my teaching practice has always been to push a sort of a collaborative, cooperative approach. ... I hope to be able to better manage that in the online environment so that the pedagogies that I have in the face-to-face classes I can more readily adapt in to the online environment. (Bernard, Interview Transcript)*

This quotation highlights two notable themes in the data. First, the changes experienced by academics were not wholesale. There were aspects of their teaching, particularly in terms of philosophies, theories and principles which remained unchanged.

Instead, and identified here as a second theme, the experience of change was more closely related to the operational aspects of teaching, that is, situated teaching practices. Often, this was associated with questions of how to enact particular pedagogical approaches or principles in a technology-enhanced environment such as an online learning environment, virtual classroom or ePortfolio.

Amongst the changes in teaching practice identified in the data, two main forms of changed teaching practice emerged: (a) advanced planning and preparation of course materials which represented explicated instructional strategies and (b) communication between teaching staff and students.

For most respondents, planning and preparation was a significantly changed teaching practice. In keeping with the project plan and contemporary educational design practice (Dick, Carey, & Carey, 2001), a significant amount of time was spent planning, designing and developing explicit course materials. For most respondents, this 'up front' design and development work was a change from more 'just-in-time' preparation and included the need for increased amounts of 'up-front' preparation and the explication of learning processes, individual learning tasks and specific procedural information that might otherwise be emergent and taken-for-granted in their previous face-to-face teaching.

*I think in many ways, it's forced us to be very clear. ... we've always been very organised in the course, but we need to be "in advance" organised. I think it's taught us to try new and different things. (Lone, Interview Transcript)*

There was a lot to do because when we're in classrooms there's a lot of opportunity to just take a second and explain something to the students, and a lot of the time its opportunistic learning as well, so students will ask a question and that triggers something.... Whereas with the online version, it was about having to translate many of our thoughts into something that we could then communicate to students. ... So it was about ... trying to predict some of the questions that students might have or just to strip away our knowledge, .... really trying to consider really carefully how we would explain something to students who couldn't maybe ask a question immediately... (Lone, Interview Transcript)

Respondents experienced these changes in the way they planned their teaching, including the explication of otherwise tacit teaching strategies and tactics and the associated roles for both teaching staff and students.

*I think the online made - it just becomes more explicit. Because everything's much more defined in terms of designing specific learning experiences. .... I didn't expect it, so I probably didn't anticipate it enough. (Jacob, Interview Transcript)*

Another key area of change described by respondents was their communication and interaction with students. Multiple respondents referenced the difference between unmediated, face-to-face communication and technology-mediated (online) communication as central to the changes in their practices. This was seen as a significant change in teaching practice.

*... [online] you make those anecdotal notes, whereas you haven't got that opportunity to discuss the paper with the student. So I'm far more explicit and cognisant to make sure what I'm saying is accurate but also not too damaging to them, so I'm cautious of what language you actually write back. [In a face-to-face situation] you can elaborate, you can smile, you can give all these other cues, which you can't give ... online. (Jacob, Interview Transcript)*

For some respondents, changed communication with students involved status quo practices in face-to-face teaching with the additional demands of online communication. For others, the implied change in communication practices was more comprehensive, including a



shift to mix-mode communication (face-to-face, computer mediated communication and, in some cases, telephone communication) with all students, regardless of their mode of enrolment.

*...some of [students] are still just names on a piece of paper... I had a couple of them who were doing ... on-campus classes in another course that I taught. So having that opportunity and being able to visualise them as I was responding - I found that easier (Bernard, Interview Transcript)*

Respondents noted changes in the social dynamics of teacher-student communication and the development of teacher-student relationships. Comments by both Jacob and Bernard are representative of respondents' value on teacher-student relationships and the differences in the way those relationships developed with online students.

*...but teaching is an area where it is related - it's all about relationships. It's all about discussion. It's all about looking at people in the eye and having a chat and body language. And you don't get that online. (Jacob, Interview Transcript)*

*And I believe that, for teachers, that personal contact is very much a part of what teaching is about, is building those relationships. So the challenge of building relationships online and being able to demonstrate passion online is one of the things that I find problematic. (Bernard, Interview Transcript)*

Further to comments about teacher-student relationships, respondents also identified issues with student isolation, student needs for feedback, a potential lack of affective support for students working at a distance with whom there is no face-to-face contact.

*So I think it's the relationships with the on-campus students are vastly different to the online students who have had phone contact and email contact, but they haven't necessarily put a face to the name .... So we don't have that rapport. And that's really important. ... Whereas this is more of a distant, like, pen-pal type conversation in that they don't know me as a person as much as my on-campus students do. (Lone, Interview Transcript)*

Despite the changes they had experienced, some respondents, including Jacob, below, saw benefits in computer mediated communication and potentially increased amounts of interaction between themselves and individual students which led to meaningful teacher-student relationships.

*... I never met one of my [online] students, but I feel as though I know a good portion of them like I do know my face-to-face students. (Jacob, Interview Transcript)*

Overall, respondents experience of change varied in intensity, but were often centred around one or both of the areas of changed preparation for teaching and change communication and social dynamics between the teacher and students. While most respondents expressed uncertainty, discomfort and even anxiety about these changes, they were also clear in their commitments to quality and producing competent, capable graduate teachers.

### ***Changed Workload***

Generally, involvement in technology-enhanced versions of the program was seen to increase individual academic staff member's workloads. The extra work was attributed to a variety of activities which represented 'changes' in academic practice. These included the emphasis on an explicit design and development process as 'up front' teaching in addition to the more familiar in-process teaching.

*... at the moment - there's more work teaching online. But that's also part of my transition in getting it worked out better. Because even though I've written a course, I think you still, you need to still teach online - it's not you write the course and post things and that's it. You still need to respond to emails and actually, your job is still to teach, even though it's online. (Jacob, Interview Transcript)*

Other respondents highlighted increased workload associated with a shift from individual to team teaching; the effort required to teach in multiple modes, the administration required for large classes and the effort associated with increasing staff capacities for flexible delivery. One respondent highlighted his experience coming to grips with a new technology tool:

*... the ePortfolio ... I started doing a little bit of work in that, but I just couldn't - because of the demands of the course - I couldn't apply it, and I couldn't get my head around it, and I couldn't play with it enough to apply it yet. ... it's ...about me and my workload in relation to this online course. ... I just haven't had time to engage with it. (Jacob, Interview Transcript)*

In summary, nearly all respondents commented on the increases in their workload as a significant change associated with flexible TEL. For many respondents, more than one changed working condition was seen to contribute to the perception that the shift to flexible TEL implied more complexity and with it, more work. However, despite the increased workload, all respondents were steadfast in their commitment to provision of quality education.

### *Changes in Staff Capacities*

Another key theme in respondent experiences was in their capacity to meet the demands of 'new' and changed ways of working. For many, this was related to the use of technology. All respondents described their personal struggles to understand and use available technologies to best effect in their teaching. For some, this was related to the integration of technology into daily teaching routines and the 'newness' of teaching on a computer, at a desk. In addition to general IT competency and the integration of computers and other tools into daily teaching routines, teaching academics were also challenged to understand the particular affordances of the university's suite of online tools. For some, this involved reference to established pedagogical principles and a 'translation' of practices for a technology enhanced environment. While these challenges were addressed in a variety of ways including defaulting to status quo practices and trial and error development, respondents found much of their learning was supported by interaction with dedicated TEL development staff.

*I think that's where part of it was me knowing what I was able to do, and knowing those boundaries and sometimes it would be - if I knew what the goal was - I'd go to the [support] team and say "Look, this is what I want to achieve, can we do it. And if so, how?" So I had to... accept what my limitations were .... And I was fine with writing the content, and coming up with some of the ideas, and then I'd have to say "Look, how can we make this happen?" And they would be fantastic in saying "We can do X, Y and Z", or "... it's just not going to happen". (Lone, Interview Transcript)*

*...I've always ... tried to be quite creative in coming up with ways that students can feel engaged... And you think "how can we do that better"? ... But I think, in some ways the [online] site is quite restrictive because you can only do certain things. But then there's also the things that are outside [the system] that we can bring in and*

*that's where [support staff] are really important in terms of how to link things. (Chris, Interview Transcript)*

For other respondents, the challenge of capacity building was related to social and cultural dimensions of learning to work in course teams as opposed to smaller courses with a single course coordinator responsible for all teaching and administration.

*... it's challenged people to work collaboratively. I don't necessarily know if it's actually improved, but it's actually challenged them, and it's put this notion that we are one team on the agenda. Because I don't think that it was before. ... I think we are working more collaboratively now than before. (Jacob, Interview Transcript)*

Taken together, these comments foreshadow a range of needs for capacity building through a variety of staff development mechanisms. Potentially, the shift to flexible TEL includes not only changed teaching practices, but a wider change in the social and cultural practices which define how groups of individuals work within the program as a whole or within the wider School of Education. These results suggest that staff development should be diverse and encompass a range of mechanisms to support staff learning as part of ongoing social and cultural practice and provided just-in-time by knowledgeable support staff.

## Discussion and Implications

In considering the various themes and emergent findings of the formative evaluation, it is clear that most, if not all, staff have experienced change as part of the shift to flexible TEL. In particular, these changes were most evident in a) the design and development phases which structured the preparation for teaching and learning activity during the course, b) the social and relational aspects of teaching including online communication and teacher-student relationships, c) the workloads associated with flexible technology enhanced teaching and d) the need for staff development to support the ongoing learning required to engage with flexible TEL.

For academics who are experienced with flexible delivery and technology-enhanced teaching in various contexts, these findings may be unsurprising. Nevertheless, they are important in the context of this case and in similar contexts where the teaching staff are relatively inexperienced with the variety of contemporary academic practices surrounding TEL. As technology enhanced learning becomes increasingly widely accepted as a 'mainstream' academic activity, it is important to be aware of the lessons learnt in flexible online and blended learning in order to give new technology-enhanced programs the best chance of success whilst also continuing to advance good, better and best practice in TEL.

For example, in this case study one of the key changes was the focus on explicit planning and design followed by up-front development of course materials. This is a legacy of systematic instructional design approaches from the 1980s and 90s (for example, Dick et al., 2001; Gagne, Briggs, & Wager, 1992), often applied in distance education, but also influential in online and networked forms of TEL (Ganesan, Edmonds, & Spector, 2002; Sims, 2006). In the recent meta-study comparing the quality of online, face-to-face and blended learning in the USA, a key variable in the quality of such programs was the extent to which courses had been purposefully and explicitly designed for a particular mode of delivery (Means, Toyama, Murphy, Bakia, & Jones, 2010). However, the principles of systematic design and development which have been widely employed in distance education are far less evident in 'traditional' on-campus university teaching. Thus, it may be expected that a systematic curriculum development project informed by contemporary practice in flexible, technology-enhanced teaching is likely to imply changes in planning, design and development.

Technology-mediated communication and interaction, and the changed roles and practices of teachers in online and blended TEL continues to be studied extensively. As early as 1996, when online learning was in its infancy, Gunawardena and Zittle (1996) identified difficulties with communication and interaction in technology-mediated distance education, and cited interaction, collaboration and online social presence as key features of successful teaching in those situations. Online communication has been compared and contrasted with face-to-face communication in a variety of contexts, highlighting both challenges and opportunities (compare, for example Kehrwald, 2010; and Mersham, 2009). Interaction has been identified as an important, perhaps even essential, component of contemporary pedagogical approaches (Mayes, 2006). Notably, there are two types of changes foreshadowed: The first is a shift from passive to active learning, which implies different roles for teachers and learners than in traditional teaching in HE. The other is enacting dynamic, learner driven approaches (and the implied teacher-student communication) in technology-mediated environments.

Likewise, the workload associated with TEL is also foreshadowed in the literature of open education and flexible delivery, particularly in the context of learner support (for example, Hannafin, Land, & Oliver, 1999; Stewart, 1993; Tait, 2000). However, the real costs of online teaching and the associated workloads are the subject of ongoing debate. Depending on the approaches employed and the particular infrastructure available to support individual courses, whole programs or across institutional units such as departments and colleges, these costs may vary greatly (Ash & Bascish, 2002; Tynan, Ryan, Hinton, & Lamont Mills, 2012).

The issue of staff capacity building may be seen as a natural outcome of any change process which requires the development of new knowledge and skills. The range of skills required for successful technology-enhanced teaching continues to expand as technology increasingly and consistently evolves and education providers seek to serve new and different markets for their products. While emerging IT literacies are part of the required skillset for teaching in technology-enhanced situations, the required skills are not exclusively technical (McNaught, 2002). They are also pedagogical and linked to the particular practices by which abstract pedagogical approaches, for example, active, participatory, student centred learning, are enacted (Steeple, Jones, & Goodyear, 2002).

Additionally, the findings support the establishment of a precedent for teacher education. Despite a growing number of precedents of TEL as a supplement of on-campus teaching in initial teacher education, there exists a resistance to changed modes of delivery due to the very nature of teachers work – it is predominantly face to face. Thus, many HE institutions in Australia have decided not to adopt online teacher education because of the enactment of flexible TEL in teacher education removes the opportunity to model face-to-face teaching practices that were inherent in on campus teacher education. However, the way we learn and interact is changing. As school systems grapple with what this means in the classroom with children and young people, so too must academics in HE. The ways that individuals in contemporary society source and consume information and communicate has changed. Meanwhile, the school curriculum is also changing in response to the application of digital literacy and media through a number of innovative programs (such as Education Network Australia [EdNA] and the Digital Education Revolution [DER]). Teacher Education has a responsibility to model and prepare early career teachers with the skills and capacities that are needed for 21<sup>st</sup> century learners. As well the provision of teacher education in Australia is expanding and HE must successfully embrace changes associated with a move to flexible TEL.

## Conclusion

This paper has highlighted that for teaching academics in this case study the implementation of flexible TEL brought inevitable change to academic practice which was potentially significant, but not wholesale.

In presenting the experiences of these teacher educators, this article contributes to our understanding of flexible TEL and academic practice in multiple ways. First, the findings partially confirm exiting notions of the nature of changes which accompany the adoption of flexible TEL. Although a small sample of teacher educators were employed in this study, their experiences within a new and different preparation process, changed communication and relationships with students, increased workload and the need for staff development are consistent with similar themes in the discourses of online learning, flexible delivery and e-learning. Second, the respondent experiences reported here highlight that for teacher educators, the change in academic work associated with the shift to flexible technology enhanced learning is significant. The amount of change required to their pedagogical practice and academic work produced, at times, high levels of anxiety but also a deep commitment to teacher quality. Academic teaching staff were prepared to work harder, longer and in new ways to ensure that a positive student experience was maintained despite the elimination of face to face contact with the teacher. This point addresses a deep-seeded belief underpinning good teacher education programs worldwide, that is, that face-to-face learning and teaching is superior to distance or online learning. Third, the findings suggest that at least in terms of the philosophical approaches to teaching and the abstract pedagogical approaches, there was little, if any change implied in the shift to flexible TEL for these teacher educators. Rather, the findings draw attention to changed practices in the way those high-level pedagogical commitments were enacted in the teaching of courses in initial teacher education.

## References:

- Allen, I. E., & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. Wellesley, MA: Babson College.
- Archer, W., Garrison, D. R., & Anderson, T. (1999). Adopting disruptive technologies in traditional universities: Continuing education as an incubator for innovation. *Canadian Journal of University Continuing Education*, 25(1), 13-44.
- Aronson, J. (1994). A pragmatic view of thematic analysis. *The Qualitative Report*, 2(1).
- Ash, C., & Bascish, P. (2002). The costs of networked learning. In C. Steeples & C. Jones (Eds.), *Networked Learning: Perspectives and Issues* (pp. 27-48). London: Springer. [http://dx.doi.org/10.1007/978-1-4471-0181-9\\_3](http://dx.doi.org/10.1007/978-1-4471-0181-9_3)
- Christensen, C. M. (1997). The innovator's dilemma: When new technologies cause great firms to fail. Boston: Harvard Business School Press.
- Danneels, E. (2004). Disruptive technology reconsidered: A critique and research agenda. *Journal of Product Innovation Management*, 21(4), 246-258. <http://dx.doi.org/10.1111/j.0737-6782.2004.00076.x>
- Dick, W., Carey, L., & Carey, J. O. (2001). *The systematic design of instruction* (fifth ed.). New York: Addison Wesley Longman.
- Gagne, R. M., Briggs, L. J., & Wager, W. W. (1992). *Principles of instructional design* (fourth ed.). Belmont California USA: Wadsworth.

- Ganesan, R., Edmonds, G. S., & Spector, J. M. (2002). The changing nature of instructional design for networked learning. In C. Steeples & C. Jones (Eds.), *Networked learning: Perspectives and issues* (pp. 93-110). London: Springer.  
[http://dx.doi.org/10.1007/978-1-4471-0181-9\\_6](http://dx.doi.org/10.1007/978-1-4471-0181-9_6)
- Garrison, D. R., Anderson, T., & Archer, W. (2003). A theory of critical inquiry in online distance education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 113-127). Mahwah, NJ: Lawrence Earlbaum Associates.
- Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7(2), 95-105.  
<http://dx.doi.org/10.1016/j.iheduc.2004.02.001>
- Godwin-Jones, R. (2005). Skype and Podcasting: Disruptive technologies for language learning. *Language Learning & Technology*, 9(3), 9-12.
- Gunawardena, C. N., & Zittle, R. (1996). An examination of teaching and learning processes in distance education and implications for designing instruction. In M. F. Beaudoin (Ed.), *Distance Education Symposium 3: Instruction* (Vol. 12, pp. 51-63). State College, PA: American Center for the Study of Distance Education.
- Hannafin, M. J., & Land, S. M. (1997). The foundations and assumptions of technology-enhanced student-centred learning environments. *Instructional Science*, 23, 167-202.  
<http://dx.doi.org/10.1023/A:1002997414652>
- Hannafin, M. J., Land, S. M., & Oliver, K. (1999). Open learning environments: Foundations, methods and models. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: A new paradigm of instructional theory* (Vol. 2, pp. 115-140). Mahwah, NJ: Lawrence Earlbaum.
- Hanover Research. (2001). Trends in Global Distance Learning (pp. 30). Washington, D.C.: Hanover Research.
- Kehrwald, B. A. (2010). Social presence and online communication: A response to Mersham. *Journal of Open, Flexible and Distance Learning*, 14(1), 29-46.
- Larreamendy-Jones, J., & Leinhardt, G. (2006). Going the distance with online education. *Review of Educational Research*, 76(4), 567-605.  
<http://dx.doi.org/10.3102/00346543076004567>
- Mayes, J. T. (2006). Theoretical perspectives on interactivity in e-learning. In C. Juwah (Ed.), *Interactions in online education* (pp. 9-26). Abingdon, UK: Routledge.
- McNaught, C. (2002). Views on staff development for networked learning. In C. Steeples & C. Jones (Eds.), *Networked Learning: Perspectives and Issues* (pp. 111-124). London: Springer. [http://dx.doi.org/10.1007/978-1-4471-0181-9\\_7](http://dx.doi.org/10.1007/978-1-4471-0181-9_7)
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies (pp. 93). Washington DC: U.S. Department of Education, Office of Planning, Evaluation, and Policy Development,.
- Mersham, G. (2009). Reflections on e-learning from a communication perspective. *The Journal of Distance Learning*, 13(1), 51-70.
- Ravid, G., Kalman, Y., & Rafaeli, S. (2008). Wikibooks in higher education: Empowerment through online distributed collaboration. *Computers in Human Behaviour*, 24(5), 1913-1928. <http://dx.doi.org/10.1016/j.chb.2008.02.010>
- Sharples, M. (2002). Disruptive devices: mobile technology for conversational learning. *International Journal of Continuing Engineering Education and Life Long Learning*, 12(5-6), 504-520. <http://dx.doi.org/10.1504/IJCEELL.2002.002148>
- Sims, R. (2006). Beyond instructional design: Making learning design a reality *Journal of Learning Design*, 1(2), 1-7.

- Steeple, C., Jones, C., & Goodyear, P. (2002). Beyond e-learning: A future for networked learning. In C. Steeples & C. Jones (Eds.), *Networked learning: Perspectives and issues* (pp. 323-342). London: Springer. [http://dx.doi.org/10.1007/978-1-4471-0181-9\\_19](http://dx.doi.org/10.1007/978-1-4471-0181-9_19)
- Stewart, D. (1993). Student support systems in distance education. *Open Learning*, 8(3), 3-12. <http://dx.doi.org/10.1080/0268051930080302>
- Tait, A. (2000). Planning student support for open and distance learning. *Open Learning*, 15(3), 287-299. <http://dx.doi.org/10.1080/713688410>
- Tynan, B., Ryan, Y., Hinton, L., & Lamont Mills, A. (2012). Out of hours: Final report of the project e-Teaching leadership: planning and implementing a benefits-oriented costs model for technology enhanced learning. Canberra, Australia: Australian Learning & Teaching Council.
- Williams, J. B., & Jacobs, J. (2004). Exploring the use of blogs as learning spaces in the higher education sector. *Australasian Journal of Educational Technology*, 20(2), 232-247.