



Riding the seismic waves: re-blending teacher education in response to changing demands

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Blended learning plays an important role in many tertiary institutions but little has been written about the implementation of blended learning in times of adversity, natural disaster or crisis. This paper describes how, in the wake of the 22 February Canterbury earthquake, five teacher educators responded to crisis-driven changing demands and changing directions. Our narratives describe how blended learning provided students in initial teacher education programmes with some certainty and continuity during a time of civil emergency. The professional learning generated from our experiences provides valuable insights for designing and preparing for blended learning in times of crisis, as well as developing resilient blended learning programmes for the future.

Keywords: blended learning, disaster planning, teacher education

The Canterbury earthquakes

At 4.35 am on Saturday 4 September 2010, a 7.1 magnitude earthquake struck the Canterbury region of New

Zealand. The University of Canterbury, situated 40 km from the epicentre, was closed for two weeks. At 12.51 pm on Tuesday 22 February 2011, another large earthquake struck the city.

We could hear it coming. The shaking was moderate at first but quickly became violent. After about 20 seconds it relented and departed as a rolling wave motion. I was on my way back to my office from the café. I latched on to a nearby tree during the most violent phase. Looking up I watched a five-storey building repeatedly separate and then rejoin its neighboring annex – opening and closing a fissure three or more stories high. Windows began to fall just as the shaking stopped. I moved towards the assembly area. As I did so a student asked me if class would be on that afternoon. I said I thought not but I was only 90% sure I was right. The future was uncertain. (DB)

This shallow 6.3 magnitude earthquake caused widespread destruction in the central business district and tragically resulted in 181 fatalities. A state of civil emergency remained in place for several weeks. This is not the time to describe the city-wide impact of this event or the personal trauma in the immediate aftermath. Suffice to say that all staff and students evacuated the university that afternoon safely to deal with the pressing realities of locating loved ones; broken homes without power, water or sewage; streets swamped by liquefaction; comforting and assisting friends, family and communities; and life as we have never imagined.

The University quickly mobilised its emergency management team and closed the campus. By the next day it was evident that teaching and research activities would be suspended for some time as campus damage was assessed. Within two days the Vice Chancellor noted in his daily message to the university community that many students were accessing Learn (our Moodle-based LMS) and that e-resources were available through the Library, and by day four a commitment was made that the University would continue to offer a full-year academic programme in spite of the uncertainty surrounding some campus buildings. The campus remained closed for approximately three weeks and most staff lost immediate access to their teaching and research resources including laptops which were left behind in the evacuation process. The impact of this sudden evacuation was significant because the earthquake occurred during the first week of the academic year.

One of the key factors in the College of Education being able to respond to this disaster was the existing infrastructure, pedagogy and capability to support blended learning. The College of Education, one of five Colleges within the University, has an established reputation for distance education and was amongst the pioneers of online learning in New Zealand with its first fully online teacher education course offered in 2001. In the ensuing years the College developed considerable capability and expertise in online and blended learning, including strong bi-cultural understandings and strategies (Hunt, 2007). By the beginning of 2011 every course had some web-support, with many lecturers making extensive use of the LMS to meet the needs of initial teacher education and postgraduate students. Furthermore, an initiative to revitalise flexible learning options (FLO) in 2010 had ensured that each course had one coordinator and one online course site to cater for multiple occurrences including campus, distance, and regional blended offerings (Davis, et al. 2011; Davis, Mackey, McGrath, Morrow, Walker & Dabner, 2010). Faced with the sudden closure of the campus and the unavailability of physical spaces and resources, College of Education staff were generally well placed to respond to the emergency situation we found ourselves in at the beginning of the academic year.

This paper describes how a group of teacher educators re-oriented themselves, re-thought their pedagogies, and responded to crisis-driven changing demands and changing directions for one undergraduate programme in the weeks following the February earthquake. Our narratives describe how we endeavoured to engage dispersed and distressed students, and how we strove for equity of experience for students who were no longer able to access regular, on-campus courses as they had intended, as well as for those students who were expecting to engage in distance study. Blended learning became the 'lifeboat' to support our earthquake pedagogies, and our experience and expertise in online learning provided the 'compass' to navigate through this storm. It has been a bumpy ride but our professional learning provides valuable insights for designing and preparing for blended learning in times of crisis, as well as developing resilient blended learning programmes for the future.

Literature: Online and blended learning

Internationally universities have increasingly been adopting online and blended learning strategies to complement and, in many cases, replace, traditional face-to-face delivery. Rationales for adopting such strategies include, amongst others, perceived economic efficiencies including the ability to operate in a global context, supporting diversity through equity of access for students unable to attend regular classes, enhancing

students' campus experiences especially in large classes; and pedagogical effectiveness including increased interaction (Dziuban, Moskal, & Hartman, 2005; Sharpe, Benfield, Roberts & Francis, 2006). In relation to pedagogical rationales, blended learning has been described as a complex concept with the potential to provide insight into the multiple ways that learning theory, technology, pedagogy and context might be combined to enable optimal learning (Cross, 2006). Most definitions of blended learning assume a combination of online and face-to-face learning experiences (Osguthorpe & Graham, 2003; Stacey & Gerbic, 2009). For example, Garrison and Vaughan (2008, p. 5) describe blended learning as "the thoughtful fusion of face-to-face and online learning experiences" and suggest that "face-to-face oral communication and online written communication are optimally integrated such that the strengths of each are blended into a unique learning experience congruent with the context and intended educational purpose." As Garrison and Vaughan (2008) contend, blended learning is usually the result of a considered and deliberate attempt to design learning experiences congruent with a specific context and educational purpose. Successful blended learning programmes often aspire to achieve goals such as pedagogical richness, access to knowledge, social interaction, personal agency, cost effectiveness, and ease of revision (Osguthorpe & Graham, 2003, p. 231). Furthermore, blended approaches are more likely to support effective learning when students are well-prepared with the necessary skills and understandings to engage in the range of activities and interactions offered (Hamilton & Tee, 2010). Stacey and Gerbic (2009) agree that effective blended learning requires a transformative process which is more complex than layering in technology to an existing context, and that successful blended learning offers increased flexibility for students.

The use of blended learning in initial teacher education is not new and blended approaches are commonplace as in other areas of higher education. For example, Geer (2009) reports on the use of online discussions in a first year teacher education course; and Simpson and Anderson (2009), describe the redesign of an entire initial teacher education programme using blended approaches. The role of blended learning within the University of Canterbury's initial teacher education programme has also been well documented elsewhere (see for example, Davis, Mackey, McGrath, Morrow, Walker & Dabner, 2010).

The literature on blended learning assumes, in general terms at least, that technology facilitates the blending of one or more of delivery modes, different web-based technologies, synchronous and asynchronous interactions, locales, roles, and different pedagogical approaches (Sharpe, Benfield, Roberts & Francis, 2006). When institutions or programme leaders consider these complex options for designing effective learning experiences they are usually working within the parameters of known conditions and contexts. Little has been written about the actual implementation of blended learning in times of crisis or disaster, although it is acknowledged that blended learning provides access to education in situations where physical attendance is dangerous, difficult or impossible. For example, Bonk and Kim (2006) note that blended learning came to the fore during the SARS pandemic when physical contact was unsafe, and that blended learning enables educational opportunities in contexts where political turmoil and unrest make it unsafe to congregate. This paper addresses the realities of implementing and adapting blended learning 'on the fly' in times of unexpected adversity and crisis. This is not 'business as usual' or 'teaching as planned' but highlights the potential of responsive blended pedagogies to provide access to continued learning opportunities and enable student engagement in an extreme context.

Methodology

This research was triggered by a series of unexpected and disruptive natural events and consequently the research framework has evolved in tandem with the learning experiences of staff and students. The aim of our study was to analyse our collective experiences so that we might improve our practice and be better prepared for future contingencies. Our framework is based on a retrospective and reflective design model in which the authors came together as a community of teacher educators to purposefully reflect on our experiences as we responded to changing institutional and student needs. This research presents excerpts and findings from a series of autobiographical accounts written by the authors reflecting individually and collectively on how we adapted course content and teaching in response to the changing context in which we were working. Quotes are identified by the author's initials. We offer descriptive and detailed accounts which give an account of 'what it is like' to be up close in this context as defined by the authors and subsequent events (Cohen, Manion & Morrison, 2007). Cochran-Smith and Lytle (2009) advocate the importance of university academics developing an inquiry-centered approach to operate as professionals in the world of educational practice in order to understand the effects their teaching may have on their students and their own teaching beliefs and practices. The conclusions are made within a qualitative framework in which they are analysed through the lens of the participants and the context in which we were working (Cohen, Manion & Morrison, 2007).

This research draws on our experiences teaching across a range of teacher education programmes and

curriculum courses. We all employ some blended teaching strategies and within the group there is considerable experience in developing and designing blended learning courses. We all lost access to our offices and physical resources on the day of the earthquake and initially we all worked from our homes before being re-located to temporary accommodation on campus. The research group formed voluntarily in response to an invitation to reflect on and analyse our post-quake experiences and with the purpose of crystallizing our own learning in order to support others. Several weeks after the February earthquake each of the authors wrote a series of reflective narratives based on our individual experiences. A thematic analysis identified categories and themes from the autobiographical data as reflective statements were compared and contrasted, and linkages and connections were made (LeCompte & Preisse as cited in Mutch, 2005). Data was also gained from the online forums and used to support and inform the conclusions made. We met regularly to compare and contrast our experiences and to identify the themes, synergies and key learnings from our collective experiences. The group developed a diagrammatic representation of those experiences to conceptualise the phases and activities which characterised their response to meet student needs via blended learning strategies (See Figure 1).

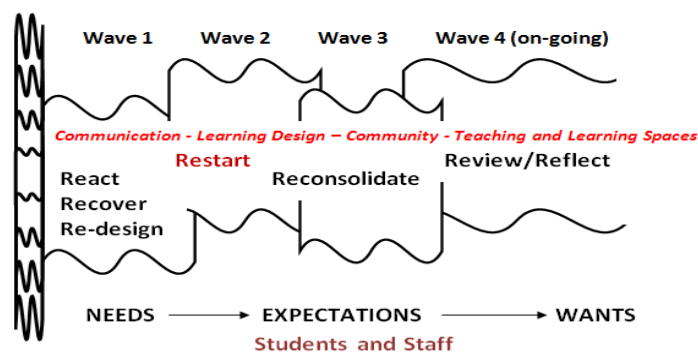


Figure 1: Waves of response

Waves of response

The analysis of our experiences identified three phases of activity. The first phase, spanning three weeks between 22 February and 14 March, was characterised by initial reaction to the emergency situation followed by an intense period of recovery and re-design of learning spaces and approaches prior to the recommencement of teaching. The second phase, characterised by a re-start of teaching activities spanned approximately four weeks from 14 March to 8 April. The third phase, following the Easter mid-semester break, focused on reconsolidating and was somewhat more open-ended in its duration as different timelines applied to different courses and cohorts. The final phase is ongoing as academic staff review and reflect on their semester one experiences and apply their learning to semester two. This paper will focus predominantly on our experiences and findings from phases one and two as we highlight lessons that may benefit other institutions in disaster planning and recovery.

Wave 1: React/recover/re-design

Communication

As we compared our reflections of the first few days after the quake it was evident that our main focus in the initial phase was making contact and maintaining communication with each other and with students. We were extremely fortunate that the university's IT infrastructure was not damaged and that we were able to use familiar channels such as the website and the LMS. For some of us these communications involved contacting and reassuring whole cohorts of campus-based Christchurch students, while for others it meant locating and checking on individual students or staff members. We were also concerned about a large number of first-year distance students who were attending an introductory residential school in Christchurch, all of whom had been instructed on 22 February to return home. Multi-level communication was a strong focus at institution, programme and course levels for staff and students. Comprehensive updates were published at least daily on the official UC website; a dedicated UC Facebook site provided a hub of interaction (Dabner, 2011); and programme coordinators began posting news items (with associated automatic emails) to students via the LMS.

The experiences of September 2010 had taught the university the importance of referring all staff and students to

the official UC website for key communications. This strategy ensured an organised flow of clear messages but not everyone had access because the city's telecommunications infrastructure had been affected and large areas were without power, phone and/or internet access for some days. Information was relayed via virtual and real social networks but there was no sure way of knowing how many students were missing vital communications. The overall feedback in ensuing weeks confirmed that, rather than lack of communication, some students were at times overwhelmed with the number of messages they were receiving via email and the LMS.

Learning design to accommodate staff and student needs

It quickly became evident that our planned teaching and learning programmes would need to change. No campus buildings collapsed but the severity of the quake meant rigorous engineering assessments were required before safe occupancy could be assured. This process took time with some buildings out of commission for weeks and others still undergoing remediation six months later. We were immediately required to re-think our teaching strategies and evaluate our ability to offer courses beginning from 14 March. Meeting student needs was a high priority and the following reflection, from the coordinator of a postgraduate Honours programme encapsulates the challenges we all faced:

The course was due to start the day after the earthquake. The day before I had set everything out on the floor ready for this first class which was my usual way of doing things. However not only did our building sustain a lot of structural damage, the water-pipes burst and everything on the floor was moldy when I was able to retrieve it three weeks later. I had already posted an introduction letter and a course overview up on Learn before the commencement of the course, and knew that most students had already downloaded the material. However after a week, and with limited capabilities working from home, I added two messages, asking how they all were and reassuring them that the most important thing was to support friends and family at this time. I assumed all could retrieve these messages and all had homes...I was very wrong! Some had left, one had lost her home and several had no power. My assumptions of 'normality of practice' were challenged and I really had to consider individual students' needs to create meaningful learning experiences and a professional learning community, and how I could use various technologies to accommodate this. I discovered that this would continually change as the needs of the students and the context changed. (FG)

All of our considerations about re-starting teaching were coloured by the realisation that the individual needs of staff and students were varied and extreme. We were working in an abnormal context and it is difficult to convey the extreme conditions in which we found ourselves. We were shocked and unsettled, and yet at the same time trying to be positive, pro-active, professional and forward looking. Just staying in touch with each other via email and phone was time-consuming as we worked from home. In the midst of what became known as the 'new normal' (which in reality was anything but normal) our re-start preparation began by reflecting on the state of course readiness for delivery and the viability of campus versus blended or online strategies.

It became clear within a very short time that there was only one delivery option (at least initially) and that was via Learn. Imagine the environment, large parts of Christchurch didn't have power, the news was preoccupied with sanitation issues, people were in shock, there were funerals. Aftershocks were frequent. On the news there was a clip of a University of Canterbury lecture that stopped mid sentence, followed by shouting and screaming students. I tried to imagine myself taking a large group lecture and being a warden in the event of another quake. Then I had a phone call from a senior staff member asking if I could deliver face to face. She said literacy was a priority (forgive me but I was thinking sanitation was a priority at that point). In hindsight the call helped crystallize my confidence in Learn as the most effective delivery mechanism. I realised also that, unless directly involved in designing and implementing teaching material for Learn, [it was difficult for] staff members [to] be truly aware of its capacity. (PB)

All of us reflected on similar considerations about how we could best adapt our existing flexible learning options to cater not only for distance and regional students but also for the larger cohort of campus based students. While the transition might seem like a simple one, the reality was different. The timing of the earthquake meant that none of our first-year students (distance or campus) had even begun their orientation and introduction to the LMS, e-portfolios, email and other ICT resources. Following Garrison and Vaughan's (2008) principles, our flexible learning strategies were carefully planned and students were provided with additional resources to facilitate off-campus learning. However, our planning had not included contingencies such as not

being able to provide students with a face-to-face introduction to the online environment, nor had we considered the impact of not being able to access any of our non-digital teaching resources. Furthermore, none of our campus students had access to the additional resources, for example CDs and DVDs, which were sent to distance students. While we could make this material available online there were well-founded concerns about the ability of students to access these given the compromised telecommunications infrastructure across the city and the difficult situations that many students were living in. There were also concerns about maintaining the quality of the learning experience, what students' needs and expectations were in these extreme circumstances, and how decisions about teaching and delayed timeframes might disadvantage or disenfranchise students living outside of the disaster area. However, in spite of these factors lecturers were realistic that the best course of action was to adapt the existing online material to cater for the needs of all students.

The re-design activities differed across the members of our group reflecting the variety of courses and teaching styles. The re-design of courses occurred in a very condensed timeframe of approximately one week to plan, create, prepare and launch a very flexible online programme. One example is described below:

I began a review of the maths modules within Learn to determine the extent to which additional resources and learning activities would be required to enable the course to be taught without face to face lectures. The initial focus was on the redesign of the lectures and tutorials for the first five weeks of the course. Our first step towards restarting was to ensure all students had access to all of the distance learning materials – the study guide CD and the video recordings of children modelling the numeracy strategy stages and children undergoing numeracy assessment interviews on DVD. The second step was to redesign the modules to include the capture of lectures which were then made available online. These lectures were the platform on which subsequent learning experiences and tutorials were based. Our initial response was to reduce the amount of information transmission in each session and replace it with practice and/or application activities. In some instances lectures became self-directed learning experiences within Learn - supporting students to locate, engage with and evaluate web-based resources. (DB)

As we worked through the re-design phase we were also conscious that we needed to hear from students to gauge their readiness and capacity for re-engaging. Alongside internet access, students also needed the emotional capacity and personal circumstances to enable them to commit to their studies. Looking back we recognise that some students welcomed the routine while others needed space and flexibility to engage at a much slower pace (or not at all). Again, different strategies worked in different courses. PB recalled "being worried about connecting with the students and knowing I had to show a strong on-line presence and focus." Her first step was to post a reassuring 'News' item, and her second step was a 'Choice' activity which invited students to self select into a group. This proved to be significant as it was designed to make each student step into a space that said 'I'm here, I'm ready.'

The re-design phase was short, sharp and focused. Staff worked from their homes and mainly relied on electronic resources as the campus was still closed. We were also extremely grateful for the support we received from our regional campus staff, other universities and organizations during this time. We were able to request and receive copies of essential curriculum materials at short notice from the Ministry of Education and colleagues working in other centres. Our university library was generously provided with unprecedented access to electronic materials to support staff and students in their teaching and research activities.

During this time we were all very conscious of the need to stay connected with our students and to reassure them that their courses would go ahead. Strategies included posting news items in the LMS, email, and those of us involved in one first-year course used a flip-video to record ourselves planning aspects of the course along with a light-hearted musical introduction. Students responded extremely positively to the 'real people' talking to them from this impromptu video filmed around a kitchen table. Together we noted the need for positive leadership and strong course-wide communication. Students needed to know, more than ever, that we were 'there' and "we needed to be there in multiple ways....The Learn site became the course place so the facilitator's voice needed to be present, steady and constant...yet without turning into a nag". (PB)

Wave 2: Re-start

The re-start of teaching began officially on 14 March, almost three weeks after the scheduled beginning of semester. Some of our courses were launched in fully online mode while others included some on-campus sessions as safe teaching spaces including tents and single-level buildings became available. These spaces were scarce and consequently online learning became the cornerstone of 'restart' teaching. Teaching via virtual

classrooms offered content delivery and a place for students to discuss points and ask questions. Learning was supported with new multi modal resources including pod casts and video demonstrations. Face-to-face teaching was often workshop-based and built on content explored within the virtual sessions. These complementary workshops were optional allowing those on-campus students remaining in Christchurch to attend while recognising that many had opted into 'flexible' mode to accommodate their personal situations. The re-start phase focused on meeting students' expectations while working within the physical constraints imposed by lack of facilities, and the wider context of post-quake stress.

The need for supportive community

We were conscious of the fragility of our students and their general unpreparedness to engage in independent online learning. We recognised too that some students were feeling overwhelmed especially when they reported difficulties with some courses where materials were uploaded with very little scaffolding. We concurred that students need to be well prepared for blended learning and that the teacher's role is critical in supporting students in this mode (Hamilton & Tee, 2010). Our reflections also identified a common understanding of the importance of scaffolding new learning approaches, and building a sense of community.

I deliberately tried to utilise the Learn site as a teaching site which would require active participation from the students and which forced them to engage not only with me but with each other. For example, I set up a link to Google Docs, in which all students had to add in a synopsis of their readings. Once all had added their entry they completed a synthesis in pairs which was posted for all to view, compare and contrast. Discussion forums were set up, especially for the first assignment, for all questions and discussion. This helped us to build a learning community within the virtual world. It re-emphasised the social construction of knowledge, and how we all needed to take a responsibility within this process. (FG)

As lecturing staff, experienced in establishing diverse delivery contexts, we instinctively sought face-to-face introductory opportunities with students. Typically lecturers communicate directly with students, especially those entering their first year of study, to scaffold and structure course based experiences. While defying the odds to find suitable spaces, these windows of direct communication with students, who had been expecting on-campus delivery, represented a significant step in establishing learning communities. For example, DB organized a student meeting in a local school hall to help re-establish his relationship with students and to reassure them that we had their best interests at heart. He noted that as campus spaces became available two lectures were held and "while they were advertised as 'optional but highly recommended' on both occasions over 80% of students attended. The students were tired but attentive. Their questions focused on ensuring that they had understood key concepts but it was evident that they had no capacity to explore beyond this" (DB). Similar strategies were noted by others too, for example:

I made personal contact by phone with each student, which proved to be vital. Some were very anxious because a decision had been made to deliver most of their courses online which many had made a deliberate choice to avoid. I was able to negotiate for my class to meet face to face as soon as possible. The first class involved a lot of sharing of one's stories and recounting personal experiences...something which was necessary. With most teaching spaces out of action we were in new surroundings and had to discuss what to do in case of an aftershock...which did indeed eventuate! Every class began with a general sharing of where we were at, so we could collaboratively problem solve. Although the Learn site became a communication tool which enabled us to quickly and efficiently communicate with each other I could not under estimate the need for personal e-mails, so they felt their personal and professional needs were being met, valued and respected! (FG)

As a group we also identified a number of practical strategies we had employed to support students through this re-start period. These included streamlining and simplifying online course sites; revising course maps and outlines; highlighting course changes; providing additional resources (particularly for technical aspects like creating e-portfolios); adjusting assessment tasks and assessment dates; posting and emailing regular updates; and personally following up students who had not accessed the online course sites. This was a very intense period of activity for all of us as "teaching then began to span seven days, with messages and questions appearing daily that needed a timely response" (ND). We recognised the importance of being visible and responsive in the online spaces and made it a priority to respond to students' questions in the online forums. These strategies paid off and we were able to observe some sense of community amongst students, for example:

Students started to develop relationships with other students within their visual art forum discussions (12 groups of 17 students) facilitated by my colleague and I. Using digital cameras some of the practical work they completed was shared and celebrated within the community. Students began to take ownership of their question forum, offering answers at times before staff and also providing encouragement and support to each other at times. (ND)

We also noticed that students would respond to each other's questions in the forums. This was especially evident in the ICT module of one first-year course where it was common for students to provide ideas and solutions to other students' questions before lecturers had a chance to respond.

Waves 3 and 4: Re-consolidate, review and reflect

Phases three and four are interconnected, overlapping and involve slightly different timeframes and activities depending on the courses we are leading. These phases are commonly centered on teaching and managing the blend between online and on-campus learning and iterative processes of reviewing and reflecting. The period following the Easter term break has been a time of consolidating teaching but it has also been characterized by uncertainty and the need to continually reflect on what we were doing and how to respond to unfolding circumstances. For example, Christchurch experienced two more significant earthquakes (magnitudes 5.6 and 6.3) on the afternoon of 13 June which resulted in another evacuation and the campus being closed for a week at the beginning of the mid-year exam period. This section will touch on one or two key insights from these phases while acknowledging that we are still learning from these ongoing experiences.

The third phase began after the shortened one-week Easter term break as more teaching spaces became available and some courses scheduled more face-to-face classes. This in itself was problematic as timetables changed weekly and staff and students needed to cope with the uncertainties of different facilities and different timeslots. It is not surprising that attendance at classes was erratic bearing in mind that many students, particularly those living in the eastern suburbs, were coping with the ongoing impact of the earthquakes. Roads were badly damaged, public transport was operating on limited schedules and routes, and heavy traffic flows were condensed into suburbs where businesses had re-located and retailers were open. Furthermore, many students and their families had left town at least temporarily to escape the ongoing unsettling aftershocks. Our response was to adopt a relaxed approach to attendance and to encourage students to manage their own blend of learning experiences by opting into campus or online classes depending on their circumstances and irrespective of their official course enrolment status. This flexible approach was feasible because the online course sites had been designed around the needs of our distance students and then broadened to provide resources and complementary elements for campus-based students. We also used the campus classes to record videos and podcasts to enrich the online classes. The challenge for some students was the need for them to work more independently in difficult circumstances and some were unable to manage their time successfully. Students needed to be proactive in checking Learn sites and emails regularly to receive latest timetable and course information. It was absolutely critical to provide clear weekly overviews for each course to guide students through their options.

The delayed start to the semester, adjustments to course content and different teaching strategies also impacted on timelines and methods of assessment. We found ourselves re-evaluating assessment approaches and priorities and revising assignments and tests to simultaneously accommodate the varied circumstances of our campus, regional and distance students. As a group we noted that, more than ever, the first assessment activity in a course represented a 'critical incident' for some students when they really had to make a commitment to working through the difficulties and challenges or not. PB described her experiences and the need to provide optimum flexibility to meet students' needs.

Our first piece of assessment [in week 5] was a turning point for some students...it encouraged students to 'face' study commitments. Although I established a forum and requirements were available on the site I had many emails from students seeking support. I rang these people because I had a range of options for completing the task over a three week timeframe.... flexibility with dates helped...I think this point was pivotal in their decision making [to persevere with their studies] (PB).

Assessment activities were complicated further with the aftershocks of 13 June. The possibility of further earthquakes prompted a university-wide move to replace exams and tests with take-home or online tests or assignments to avoid having large numbers of students sitting in lecture theatres. Again, as a group we were reasonably well-placed to accommodate these arrangements as we already used a variety of assessment

strategies for our distance students and these were able to be adapted for our campus cohort.

Phases three and four are ongoing for us. At times we feel confident that we can see the horizon while at other times it seems as if we are still battling some rather challenging waves. We have learnt a great deal since September 2010 about the ways that blended learning can meet the changing needs of students in times of crisis and natural disaster. Our survival story serves as a timely reminder for other institutions to consider their preparedness for unexpected and unknown interruptions to business as normal, whether that involves pandemics, civil unrest, or natural disasters. Our concluding section aims to prompt educators to take stock of their own readiness to respond in times of crisis so that they might consider how blended learning can be thoughtfully designed to provide optimal learning in changing contexts.

Recommendations for an academic emergency survival kit

We found ourselves in an unexpected and unprecedented situation on 22 February 2011. We were considerably better prepared than many other programmes within the university because we had recently revised and revitalized our flexible learning strategies for pre-service primary teacher education courses. Every course had one well-structured online site designed to support distance, regional campus and local campus students; there was one course coordinator responsible for all occurrences of a course; and we were well supported at the institutional level with professional development, digital media specialists, and distribution and administration support. In spite of those strengths we have identified critical areas for contingency planning and realise that we can be better prepared for future unexpected disruptions whether they arise from earthquakes, other natural disasters or pandemics. We offer the following points to help other institutions plan how they might sustain equitable experiences for students in times of disaster or crisis:

Communications: What channels including social networks are you ready to use for communications with staff and students? Do staff and students know about and feel confident accessing these channels? Are these channels likely to remain viable in disaster or emergency conditions? Do you have access to simple technologies you could use to create instant communications and resources for students (for example flip-videos, pod-casting)?

Staff: How well prepared are staff to implement blended or online strategies independently within a short timeframe? What professional development and support do you need to initiate now to ensure staff have the technological capability and the pedagogical understanding to work predominantly in an online or blended mode should the need arise? Do staff know how to access files, applications and other resources remotely?

Students: How well-prepared for independent learning would your students be if your institution had to shift all teaching and learning into a distance, flexible or online mode at short notice? What additional supports or resources might students need in order to continue their learning activities independently? Could students complete alternative location-independent assessment activities if necessary?

Resources: In the event of a sudden and extended evacuation from your premises how will you access the materials you require to continue teaching? How many of these resources are electronic? How might you utilize cloud computing to ensure continued access should your institution's infrastructure and servers be damaged? Do you have adequate off-site back-up and disaster recovery plans for electronic material? What physical resources do you need to digitize or arrange alternative access to (for example, off-site copies, and mutual arrangements with another institution) for you and your students?

This has been a year of challenges for staff at the University of Canterbury. The authors of this paper and many of their colleagues in the College of Education can also report that 2011 has been characterized by unsurpassed collegiality, professional learning, and admiration for the courage and resilience of staff and students alike. The way we plan for the future will be different as expressed by ND:

Positive outcomes that have emerged from my experience include the melding of the distance-campus dichotomy to adopt more of a blended delivery leading to greater congruency, currency, and community for students. Lessons learned are impacting new course developments in my area, for example the planned provision of CD/DVDs to all students regardless of delivery mode, and the increased utilisation of an online environment to teach, enhance and support. For some staff, I believe there may have been a realisation of the usefulness and ease of online communication and community development in the absence of face-to-face contact. Others have experienced adopting new approaches, utilising multi-media more and an increased understanding of the powerful

affordances of the web environment. The 'letting go' required to deal with the challenges presented by the earthquake appears to have been a challenge for many staff and students; yet perhaps also a revelation of the positive affordances of technology and an e-environment in times of crisis.

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