Disrupting the boundaries of teaching and learning: How digital devices became a resource for transformative change in a time of crisis
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The Pegasus Digital Devices Project 2013
Louise Taylor and Tara Fagan
April 2014

Te Toi Tupu
CORE Education
Greater Christchurch Schools Network
Ministry of Education

Schools involved:
Aranui School
Avondale School
Freeville School
New Brighton Catholic School
North New Brighton School
Parkview School
South New Brighton School
St James School
Wainoni School
Burwood School
Central New Brighton School
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1. Background and contexts

1.1 Introduction

This report is the story of the Pegasus Digital Devices Project, which saw the integration of 600 digital devices into 11 primary schools from the eastern Pegasus Bay region of Christchurch – an area devastated by earthquakes. The initiative was a community response to this crisis and the plea from the community that students would not be disadvantaged because of what they had experienced (FI).

The Canterbury earthquakes devastated the lives of thousands, destroying buildings, businesses and infrastructure throughout Christchurch city. The areas worst affected were the eastern suburbs where liquefaction caused dramatic damage to entire suburbs resulting in many areas being uninhabitable (for more detail see Appendix 1). As a result the eastern suburb schools were in need of help on all levels and so a local education group known as The Greater Christchurch Schools Network (GCSN) stepped in to assist.

With funds from the Christchurch Earthquake Appeal Trust (CEAT), and the Ministry of Education (MOE), the GCSN was able to provide digital devices, covers, software, and professional learning (PL) to 11 schools in the Pegasus area at a ratio of one device for every four students. Schools had a choice of iPads or Notebooks and 10 out of the 11 schools elected to use iPads. In addition, the GCSN ensured all these schools had wireless networks functioning before the start of the 2013 school year.

Schools received their devices at the beginning of 2013 along with initial technical support to get the project underway. This was provided by Office Max, Apple – in partnership with GCSN, and eTime – an education consultancy company. As a follow up to this CORE Education (CORE) provided ongoing PL through the MOE funded Te Toi Tupu (TTT) Digi Advisors programme.

The project ran from February 2013 through to November of the same year. PL supported the integration of devices into classrooms with data collection for this report occurring concurrently with the roll out of the programme. The process employed for data collection and analysis is outlined in the next section.

1.2 Approach and aims

The main aim of this investigation was to examine the impact of introducing and using digital devices in schools that were part of the Christchurch earthquake recovery. The key questions guiding this were:

1. In what ways do digital devices change the way that children learn?
2. How does the use of digital devices in schools and classrooms impact on teacher’s own learning and practice of ako (teaching and learning)?
3. What helped teachers to integrate digital devices into their everyday classroom practice?
4. How has the use of digital devices in schools contributed to the post-earthquake recovery of children, teachers, families, whānau, aiga schools, community of East Christchurch?
5. How might the use of digital devices in classrooms contribute to inclusion, equity and social-justice?

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1 Pegasus Bay is on the east coast of the South Island of New Zealand, in the Canterbury region. It is a sandy bay stretching from Banks Peninsula in the south, to the Waipara river mouth in the north. Christchurch is the closest commercial centre to the bay.
2 The initial 7.1 magnitude quake struck at 4.40am on 4 September 2010. Another extremely shallow and violent 6.1 quake hit Christchurch at 12.51pm on 22 February 2011, killing 185 people. There were over 12,500 shakes between September 2010 and December 2011.
3 The CEAT donated $410,000 to the project ($310,000 was used for the purchase of digital devices and $100,000 was used for the purchase of apps).
4 The New Zealand MOE donated $300,000 to the project.
The project used a critical qualitative approach (Denzin & Lincoln, 2008) to be consistent with indigenous methodologies and the values underpinning these. Bringing a transformative lens to the work was foremost in the design, data collection, and analysis. In practical terms this meant focusing more on who would be heard rather than how data would be collected. Stories of practice were privileged over traditional knowledge and respect was given to the stressful conditions being experienced by those facing pending school closures and possible job losses (the result of recovery efforts). It was therefore imperative that data be collected concurrently with the PL, to avoid adding extra to work loads. Data was collected throughout the entire project from February to November 2013.

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<thead>
<tr>
<th>Who was heard?</th>
<th>How they were heard</th>
<th>When did this happen</th>
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<tr>
<td>Students</td>
<td>1. Reflections made to teachers and passed on to PL facilitator.</td>
<td>1. Throughout.</td>
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<td>Teachers</td>
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<td>2. Anecdotal records made by the PL facilitator.</td>
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<td>3. Filmed and transcribed 1-1 interviews with teachers.</td>
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<td>4. Mentor meeting notes.</td>
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<td>Principals/school</td>
<td>1. 1-1 discussions.</td>
<td>1. February – August 2013.</td>
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<td>PL facilitator</td>
<td>1. Personal notes and reflections.</td>
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One of the limitations of this report has been the lack of student and community voice, which was mainly due to contextual constraints (e.g. time factors, community issues and transience). As a result teachers were largely the voice behind the data. Those involved signed a memorandum of understanding which explained the investigative component to the project and the rights and responsibilities associated with this.

Findings were analysed using the principles outlined in Bolstad, Gilbert, McDowall, Bull, Boyd and Hipkins (2012); principles which they contend are important for 21st Century education. These are:

1. Personalising learning.
2. New views of equity, diversity and inclusivity.
3. A curriculum that uses knowledge to develop learning capacity.
4. Changing the script: Rethinking learners’ and teachers’ roles.
5. A culture of continuous learning for teachers and educational leaders.
6. New kinds of partnerships and relationships: Schools no longer siloed from the community.
These principles are outlined in more detail in Appendix 2. In this report they weave throughout the analysis and have been used as a way to think about the research questions. Findings have been discussed under the following headings:

- Roll out
- Teacher change
- Student change
- Communities of care.

The overall conclusions focus on how this project contributes to 21st Century learning and transformational change, and the difference this has made for the eastern suburbs community of Pegasus Bay, Christchurch.

2. Findings

2.1 The roll out

The roll out of 600 devices was ambitious as the goal was to integrate these into everyday classroom practice as quickly as possible. Once infrastructure was repaired and devices were delivered to schools, the project got underway. Funding included enough for devices, covers, apps and the PL support that continued throughout 2013.

Commitment to the project was generally high as those involved felt that the initiative could help students in the disaster recovery, which it did (TLQ1); a key goal of schools was to ensure ‘our kids would not be left behind’ (FI). Teachers who were less confident to begin with soon shifted their thinking as they observed positive outcomes in students (DS1) and this helped to build capacity and confidence overall.

It was important in the early stages to deploy the devices quickly (DS10/1), which turned out to be a challenge and took considerable time. This included:

- Setting up passwords.
- Downloading initial apps.
- Organising iTunes accounts.
- Working out storage.
- Sorting out how information would be shared and transferred to computers if needed.
- How to sync and print.

The ongoing management of devices was a big issue in the beginning, but once the Apple Configurator system was running effectively most schools found this suitable for long term and school wide use (FI). It was generally the responsibility of one teacher in each school to take care of the overall management of devices.

Schools with technical expertise and support on hand within the school, integrated devices into classrooms more quickly. Some who were reliant on external expertise reported waiting up to two weeks for help with problems, which hindered progress. It was also noted that schools found it easier get started with using devices when leadership within the school had allocated specific time and resources to getting things underway (TB).

Ongoing PL support was crucial to teacher learning as was allowing time for familiarisation with the devices themselves. After initial technical support, PL was provided for up to two teachers from each school, with these teachers then going back to their schools as mentor teachers.
Teachers and students were encouraged to learn through play and having time to do this helped users see the potential for learning, which resulted in devices being employed more readily. With each new discovery and trial, confidence and usage increased and so playing was crucial, especially in the beginning. Some schools encouraged teachers to take the devices home and learn from their own children, other schools preloaded devices with apps so that teachers could experiment with these. All of these seemingly small initiatives helped (DS4; DS3/2).

Teachers supported and learnt from each other – watching each other in classrooms and sharing in staff meetings. Learning also occurred with and alongside students and it was not long before both teachers and students found ways to use the devices across curriculum areas, both inside and outside of the classroom. Once the programme was underway PL focused on building pedagogical depth and ensuring apps were used for open-ended learning rather than just for skill and drill exercises (FI; PDDPL-42).

2.1.1 Summary

Bolstad et al. (2012, p. 55) suggest that if change in practice is to occur in relation to the integration of digital devices in schools, four strategies are required. These are:

1. Providing enabling tools and infrastructure.
2. Providing inspiring ideas and opportunities to connect ideas.
3. Enhancing capability.
4. Supporting innovation.

As this project unfolded, these strategies were employed to ensure that strong foundations of knowledge and practice were established as a starting point for the further integration of digital learning. Sound infrastructure was necessary at the beginning and throughout and ongoing technical and PL support was critical to the success of this roll out and for the building of capability within schools (TLQ1; TLQ2).

Time to play for both teachers and children created an environment of experimentation, which resulted in inspirational ideas emerging on many levels. The immediacy of digital devices meant that a thought could be captured, shaped, reshaped and applied with ease, which encouraged trial and error and pedagogical innovation. As teachers and students became more proficient, together, they were able to create something new in their classrooms and community.

2.1.2. Recommendations

- Ensure budget allocations for networks, devices, covers, apps, technical expertise, and PL support.
- A commitment by leadership to the changes required will ensure a quicker and smoother integration into classrooms.
- Consider who will be involved, how much time will be needed for set up, ongoing PL and management of the devices.
- Make sure you have good infrastructure in place including a wireless network.
- Use a management system such as Apple Configurator.
- Provide for ongoing IT support – preferably have this in-house and on hand.
- Have class sets (suggest 1:4) so that these can be used all the time across the curriculum.
- Provide a device for each teacher.
- Allow time to play, especially in the beginning.
- Provide ongoing PL – initially to support the roll out but then to ensure that devices are used in open-ended ways to support depth of learning.
2.2 Teacher learning and change

Teachers and learners need to become comfortable in new roles in order to support learners to have more agency and ownership of the direction and outcomes of their learning work (Bolstad et al., 2012, p. 21).

Throughout this project teachers were challenged to take on new roles. No longer the sole expert, teachers were required to learn from and with their students, which challenged the power dynamic, that is typical of most classrooms (Bishop, 2008; Bishop & Berryman, 2010; Freire, 1996). When teachers became reliant on their students for learning, the teacher-learner relationship shifted and genuine reciprocity occurred. Without such a shift, digital devices could have been just another teaching tool but instead they became a way to challenge and shift pedagogy (TQ2). As a result the landscape of teaching changed quickly for teachers as they began to see themselves and their students differently (F1: TQ1). One teacher commented:

‘It’s been a real eye opener’ (DS9/2).

When pedagogy shifted teachers began to notice their students in new ways. Teachers reporting see the following differently:

- Student engagement and attention (DS2; DS8; DS9/2).
- Behaviour (DS8/3).
- What students knew and could do (DS8).
- How students took responsibility (DS8/2).
- Levels of sharing and peer support (DS8; HR; KI).

One teacher shared how she saw a student with autism in a new light:

‘This girl does not like writing as she doesn't like holding a pencil or a pen. I used Glo-draw on the iPad and the girl started writing letters and her name on the iPad... she settled and became involved in writing using the iPad. I had not realised how much letter knowledge and formation this girl had. I will now use the iPad for this child for writing’ (TB).

As the lines between teacher and learner blurred, and teachers noticed their students differently, knowledge production became more of a joint venture (Bolstad et al., 2012). Teachers and students both came to the learning moment as knowers and together they contributed to the learning experience of each other. These changes in relationships and roles, when mediated by critical peer dialogue, became a step towards transformational education (Freire, 1996; Taylor, 2007; 2011; 2013a).

2.2.1 Recommendations for teachers

- Do not be afraid to learn with and alongside students.
- Be open and willing to change teaching pedagogy and practice.
- Notice differently.
- Engage in ongoing PL and critical dialogue.
- Keep transformational change as a goal.
2.3 Student learning and change

Bolstad et al. (2012) suggest that for classrooms to cater for 21st Century learners, education systems need to reposition learners at the centre instead of the margins. A range of approaches and resources should be employed to support learning that is flexible, responsive and personalised. The introduction of digital devices brought changes to the way students learnt and while it is too early to track improvement, data highlights how these changes were beginning to have positive outcomes.

For instance, learning no longer needed to be desk bound or restricted to a teacher’s knowledge, ability or interests so students could more easily direct their own learning (PDDTL-11). Furthermore, learning could happen anywhere, at any time with anyone and in various forms – and it did, including in the playground during lunch breaks (PDDTL-26/79).

Such ubiquitous learning allowed students to enter and exit their learning through multiple pathways and return to information and engage with it as many times as required (Burden, Hopkins, Male, Martin & Trala, 2012). Devices could be used across curriculum areas to reinforce and extend learning (PDDTL-107) and support the interests and strengths of learners (Q1), which helped with motivation (DS2/1).

One teacher observed changes in her student’s attitude and enthusiasm for reading. She tells how this boy had lost interest in reading but this changed when he could read and record his voice and play this back. When he started doing this he became ‘totally independent and his enthusiasm for reading increased’ (TQ1). While it was too early to trace his improvement, this attitudinal change was a significant first step for this boy (PDDTL-105).

Another teacher experienced similar shifts with reluctant writers, sharing how the recording of voices and adding of visuals and key words helped to generate ideas. This was significant because previously these student’s ideas had been restricted by their ability to portray them through the use of pen and paper (TLQ1a). Providing a layered approach added depth to students work and students expressed how this helped them to learn ‘difficult things in easy and fun ways’ (SV; SVBP).

The project also highlighted an increase in self and peer assessment. Using digital devices enabled students to see and hear what they had done straight away (DS2/3). This meant they could edit and improve their work immediately (DS8/2) and as a result the quality of work improved especially if this was being disseminated to a wider audience (DS8/3; HR; TQ2). Students showed that they wanted to improve (DS8/2; SV), and just how adept they were at monitoring their own progress (PDDTL-112a SV). Furthermore, they supported their peers to do the same (PTDDTL-06).

Working with digital devices helped learning to be more inclusive because, as one teacher noted, there were no ‘learning barriers for difference’ (DS8). Stories from the data show how devices had been used to support the learning of students with special learning needs. Students found new ways to express themselves and were no longer as reliant on an adult to speak and write for them (TQ1; TQ4). Devices gave students instant recognition of achievement and provided ways for all children to celebrate success (TQ1).

Using digital devises to provide multiple learning pathways saw significant re-engagement of disinterested students, which according to Finn and Kasza (2009) is a clear indicator that students want to learn. Repeatedly teachers reported an increase in enthusiasm and interest amongst previously disengaged students (PDDTL-11, 16, 51, 86). The devices provided new learning options, which enabled students to work within their preferences and through their lived experiences. An added benefit was a reduction in noise, and an increase in caring respectful behaviour (PDDTL-86, 106; DS8/2).

2.3.1 Recommendations for working with students

- Make sure there are enough devices for a class set (recommend 1:4).
- Use open-ended apps.
- Be willing to let students play to learn.
- Encourage students to complete their work using a variety of formats.
- Allow the devices to be used inside, outside and across the curriculum.
- Use the devices for self and peer assessment.
- The camera is a good starting place.
- Integrate devices as part of the everyday classroom.

2.4 Communities of care

‘[A] parallel effort together does not make a community...’ (Block, 2008, p.2).

Creating community requires a commitment to social issues and what Bolstad et al. (2012) call working for the ‘collective good’ (p. 49). Because this project was situated within a community still suffering the effects of a major earthquake, there was potential for this community to come together for the collective good, while creating something new. However, this was not without challenges as schools were facing possible closures, and teachers the possibility of job losses. Students and families were relocating and all of this created extra anxiety and a sense of temporality.

Against this backdrop the Pegasus Digital Devices Project provided opportunities for teachers and students to work across schools and to build a sense of community purpose. One way this happened was as teachers met for their PL. Despite the fact that teachers were already coping with the stresses of recovery (sometimes in a very personal way) teachers were committed to ensuring students were not ‘left behind’ (FI) and this helped to strengthen community relationships. This commitment was evident as teachers supported each another across schools and as they freely shared and celebrated student learning.

One instance where the community came together for the common good was the Digi Awards ceremony (for more details see Appendix 3). This event brought together 500 people from the community to hear students share their stories and learning through the use of digital media. Students could choose from a range of topics, however most chose to focus on the events surrounding the earthquake recovery such as neighbours leaving, schools closing and friends moving on. This event demonstrated just how prominent these events were to students and how being able to integrate lived experiences into learning helped to build a sense of connection (TJF).

School learning is often disconnected from real life events (Silin, 1995) and yet lived experiences provide context and meaning to learning. In this project connecting with lived experiences had a significant impact on engagement, motivation, the quality of work, and the satisfaction and pride demonstrated by students (PPDTL-51, 72; TQ3; MD; CGem). In addition, focusing on community issues fostered responsibility and care for one another (FI). This was most evident when students sent digital messages of aroha (love) and kia kaha (be strong) to the community of Seddon (New Zealand) following an earthquake there.

Education communities that connect with social needs, build a more democratic and equitable society (Bolstad et al., 2012; Facer 2011). When learning became connected to the real life experiences of students, they had a commitment that went beyond themselves. Students demonstrated care for their fellow students, their community and beyond. Working towards a common good became a reality in this community and the Pegasus Digital Devices Project contributed to this.

2.4.1 Recommendations for developing communities of care

- Find out what is important to students and encourage them to work on these issues.
- Work with students on some community projects.
- Plan a community event with the community.
- Share learning with the community (e.g. blogs, evenings).
- Invite the community to be part of the school.
3. Conclusions

The Canterbury earthquakes of 2010 and 2011 caused unprecedented damage to the city’s infrastructure, particularly in the central business district and in the eastern suburbs. Despite the challenges those involved worked tirelessly to ensure that students would not be left behind by the events of the previous three years. The introduction of digital devices into classrooms added further challenges because teachers had to change how they thought and taught. There was nothing usual about teaching in the eastern Pegasus district.

Because the community of Pegasus had experienced ‘great environmental change’ (Bolstad et al., 2012, p. 26), the traditional boundaries defining community, school, teaching and learning had already been disrupted. This shake up provided the opportunity for teachers to think and practice differently, but teachers had to embrace the changes brought on by these disruptions. Embracing new approaches, and refusing to go back to what had always been, supported change and this created a space for something new (Taylor, 2007). Going with the disruptions instead of resisting these, was therefore a key to the transformations that began to occur.

3.1 Disruptions to the usual

The introduction and use of digital devices in schools was a new way of learning for some, which created disruptions to many customary teaching practices. One such disruption was the focus that this project placed on play. Playing became a new way to learn together, a not so common occurrence in schools as children become older (Thomas and Seely Brown, 2011). Doing so encouraged experimentation, negotiation, problem solving and cooperation, which assisted with learning difficulties, and disengagement. When embraced, this playful approach created shifts in curriculum, timetabling, teaching and assessment.

Students used devices to cross over and through content specific domains, which disrupted the discrete teaching of subject matter. Integration can, and does, happen in other ways, but digital devices made this more frequent and widespread across curriculum areas. In addition, the bell no longer meant the end of learning and the beginning of play. Learning was fun and so students no longer noticed the separation between the two. This project was a reminder that learning through play and fun continues to be effective – no matter what the age.

One of the most significant disruptions that occurred through this project was that of the role of teacher/student in the learning relationship. This shift saw both student and teacher playing and learning together, which reduced the dependence of the student on their teacher. Students were repositioned from passive recipients of other’s knowledge (Freire, 1996), to active knowledge creators with and alongside their teachers. As a result some teachers noticed students and their competence differently.

Assessment also changed for some teachers and students. Because work could be easily modified, students were keen to change, improve and challenge themselves, and they were more willing to seek feedback from others. Assessment became a more interactive process where responsibility was shared and learning and growing alongside others went hand in hand. As a result the quality of work improved.

3.2 Transformations

There was a desire for transformational learning at the heart this project. Right from the outset those involved wanted to make sure that students from the eastern suburbs of Christchurch were not disadvantaged because of their circumstances and the project was framed around this. Findings have shown how the introduction and use of digital devices lifted the spirits within the whole community, and helped to achieve some of the transformative goals embedded in this work. Transformative beginnings were most evident in the areas of inclusiveness, engagement and care.
Inclusive education involves ensuring differences do not inhibit learning but instead add richness and depth to the learning experiences of all (Derman-Sparks & Olsen Edwards, 2010). In this project differences became a vehicle for finding other ways to achieve learning goals – and digital devices assisted this process. Students were no longer restricted from achieving because of learning difficulties or because they preferred to learn in non-traditional ways. Instead learning differently was supported, ensuring that more students could experience success as learners.

Throughout this project teachers repeatedly reported high levels of engagement with learners who had previously been disinterested. Whether or not this was because of the novelty of having devices in the classroom was not clear, but the excitement and enthusiasm continued noticeably throughout, which is important for ensuring school is a positive experience (Finn & Kasza, 2009). Students could re-enter learning with new enthusiasm, and use devices to explore contexts that were important and relevant to them, which kept up interest and ensured learning was meaningful.

Critical to any transformative work is an increase in social consciousness and collective responsibility (Block, 2008; Facer, 2011; Hayward, 2012). This project, along with the events that preceded it, brought people together for the common good, which showed just how caring a learning community can be. Connecting with others on a level where care is expressed in practical ways, helped to build a community that was jointly responsible for the well being of others (Block, 2008). This transformative goal, when nurtured, can lead to a more equitable society.

3.3 Future directions

The danger with any work that involves using digital devices is that learning becomes a shallow exercise (Bolstad et al. 2012) or as one teacher noted, just focused on producing pretty work (PDDPL-42). Learning needs to be more than this and so the ongoing challenge for the eastern suburb schools, in terms of digital learning, is to ensure that the devices continue to build depth in student learning. This is reliant on teachers who are willing to keep learning and growing with students, in new ways. This project showed that the more teachers embraced a new way of teaching, the more their pedagogy and practice shifted, and the more this impacted positively on student outcomes. To embed changes, a commitment to ongoing learning and changing is needed.

Bolstad (2011) believes that the educational communities who are most likely to support transformational learning are those prepared to:

‘explore new ideas and ways of working, share and challenge each other’s knowledge, work through open-ended problems, navigate relationships [and] learn about themselves’ (p. 15).

Engaging in critical dialogue with others is an essential part any transformative work (Freire, 1996, Taylor 2007; 2011; 2013a). The teachers who have been part of this project would therefore benefit from further engagement in a PL community where critical dialogue around learning and transformation carries on over time. This will help to ensure that what has been achieved in the areas of inclusion, engagement and care, continues to evolve and strengthen.

The Pegasus Digital Devices Project demonstrated how digital devices were used to support a future-oriented vision for education where teachers and students began to build their future in new ways. For other education communities who may want to introduce digital devices on a scale similar to this project, and who want to achieve similar outcomes, there needs to be a willingness to challenge and disrupt pedagogy, otherwise the devices will just become another means of doing the usual. Changing the ways students learn begins with changing the ways teachers teach, and having a collective vision for the common good.
References


Appendix 1: The Christchurch earthquakes of 2010 and 2011

This story is told by a Christchurch resident:

“Pegasus Bay is on the east coast of the South Island of New Zealand, in the Canterbury region. It is a beautiful sandy bay stretching from Banks Peninsula at its southern point to the Waipara river mouth in the north, with Christchurch (New Zealand’s second largest city) being the closest commercial centre to the Bay. The Canterbury earthquakes (of which there were over 12,500 shakes between September 2010 and December 2011) devastated the lives of thousands, destroying buildings, businesses and infrastructure throughout Christchurch city.

The initial 7.1 magnitude quake struck at 4:40 am on September 4 2010, setting off multitudes of aftershocks over the next 36 months (tremors continue as I am writing of this). There were no deaths in the September quake, however, another extremely shallow and violent 6.1 quake hit Christchurch at 12:51 pm on February 22 2011, killing 185 people who were mostly trapped in collapsed buildings in the central city.

On the day and through the night of 22 February, teachers, whose own homes and families were possibly endangered, stayed at school to ensure no student was left unaccounted for or alone waiting for contact with their loved ones. Parents and caregivers were forced to wade through waist deep sewage-contaminated liquefaction to reach the schools, some only managing to get to the schools in the middle of the night and then struggling to return to their shattered properties to gather together family and friends, retrieve what they could, or find emergency shelter.

This was the new normal for the students and school communities of Christchurch’s eastern suburbs. Sleep deprivation and exhaustion combined with contamination and domestic upheaval saw the schools as the one safe haven. With no power, water, sewers, navigable roads, telephones, accessible shops, or Internet access (largely due to broken underground cables) life was, and in 2013 still is, very difficult for the eastern suburb communities.

Life on the other side of town had been relatively unchanged creating a sense of a tale of two cities. In addition, the eastern suburbs worst affected areas were also the poorest and housed most of the Māori and Pasifika communities of Christchurch. Housing was lower cost here, schools lower in decile, and families struggled on low incomes. The earthquakes compounded existing inequities and distanced communities from each other – even though they were only kilometres apart.

After the large quake of February 2011 and a following one in June 2011, the eastern suburb schools were in need of help on all levels...”.

...
Appendix 2

Data was analysed using the framework established by Bolstad, Gilbert, McDowall, Bull, Boyd and Hipkins (2012). This framework, which is outlined in the document: Supporting future-oriented learning and teaching – a New Zealand Perspective, offers six emerging principles which are important to designing a future-focused education system. These are:

1. Personalising learning.
2. New views of equity, diversity and inclusivity.
3. A curriculum that uses knowledge to develop learning capacity.
4. Changing the script: Rethinking learners’ and teachers’ roles.
5. A culture of continuous learning for teachers and educational leaders.
6. New kinds of partnerships and relationships: Schools no longer siloed from the community.

These principles are summarised by Taylor (2013b) below:

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<th>Personalising learning</th>
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<td>Personalising learning is about more than teaching for the individual, although this is still important. The focus is on changing systems of education so that students are positioned at the centre instead of on the margins. Rather than having to conform to a rigid curriculum and standards, the system supports students to realise their potential, not just achieve higher academic success. Teaching encompasses a variety of approaches and utilises many resources, so that students’ learning experiences are contextual and relevant to them. Education is no longer a one-size-fits all.</td>
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<tr>
<th>New views of equity, diversity and inclusivity</th>
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<tr>
<td>Teaching for equity, diversity and inclusivity needs to shift from primarily focusing on engagement and achievement to finding new ways to educate for diversity. While engagement and success for all is still a goal, questions need to be asked about whose definitions of success are privileged. Education needs to be more organic, and responsive to a diverse range of ideas and peoples which is supported by opening up spaces across diverse communities and knowledges. When communities experience ‘great environmental change’ (p. 26), they can be more ready to embrace a new approach to equity, diversity and inclusivity.</td>
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<th>A curriculum that uses knowledge to develop learning capacity</th>
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<td>Current views of knowledge are underpinned by two key epistemologies: Knowledge as content, and knowledge as something that is used for a purpose. The challenge is how to work with such contrasting paradigms when these position the student and learning differently. In the first paradigm the main task of the learner is to absorb content knowledge, which will be stored and reproduced at a later date. The learner is then assessed to determine how well they have assimilated information. In the second paradigm learning is about creating and using knowledge in the present. A new view of knowledge requires an attitude change across all levels of a school so that teaching, learning and assessment all come under the spotlight.</td>
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<th>Changing the script: rethinking learners’ and teachers’ roles</th>
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<td>Future oriented education requires a repositioning of teacher/student roles. Traditionally students have been reliant on their teachers for knowledge, which positions teachers as more knowledgeable and therefore more powerful than the student. An alternative positioning locates teachers as learners with and alongside students. Each brings knowledge and together they create new understandings. Power is more evenly shared as decisions about learning are made together, and both contribute to the learning moment. At the centre of this new script is transformation. Knowledge is transformed, the learner is transformed through new ways of learning, and the world is transformed through the learner.</td>
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A culture of continuous learning for teachers and educational leaders
To maintain a 21st Century focus teachers need to be continually learning themselves and this means engaging in PL communities where an exchange of educationally challenging discourse occurs. Not only does this help to address the loneliness that many teachers experience but an exposure to new ideas and ways of teaching ensures that teachers are continuing to learn and improve their craft. PL communities need to be more than networks; they need to stimulate and provoke teacher learning and development. A commitment from schools is necessary.

New kinds of partnerships and relationships: Schools no longer siloed from the community
Education for the 21st Century will be connected with real world contexts. Students and communities will work together for the common good and the messiness of lived experiences will not be avoided. Teachers, while still critical to learning, will connect and collaborate with others to ensure that schools are no longer siloed from their communities. Schools need to be innovative about how they do this and many of the well-worn attempts at parent engagement need to be rethought. This will mean working across differences to develop shared big picture goals. Schools and communities will work together on real projects with a purpose that is relevant and engaging for students.
Appendix 3: The Digi Awards explained

Towards the latter part of the 2013 the schools from this project worked together with the Te Toi Tupu PL facilitator from CORE on a community initiative which brought the wider community together to celebrate something positive happening in their schools. The Digi Awards, as they were known, provided an opportunity for students to implement their new learning in a tangible and very specific way for the good of a community who had been affected badly by the earthquake. While this event technically fell outside the scope of the Pegasus Digital Devices Project, it turned out to be really important for the community.

The concept of the Digi Awards arose for two reasons. The first was to bring together the work that the students were completing on their devices. The second, and most important, was to celebrate the community. This was particularly important given all that had been happening for schools since the earthquake. It was about coming together and indeed the community did come together. The hall was packed with over 500 people (families, teachers and students) who were there to enjoy the children’s work. The schools mixed and celebrated each other’s successes along with that of their students.

The event was held towards the end of Term 3. Students in all 11 schools were invited to submit their best work, in one of five categories – Digital Photo, Photo Essay, Book Trailer, Short Movie, or Celebrating our Community. Eight schools took part and those who did received support and guidance via a website containing judging criteria, examples, and resources that might be useful as projects were being developed. Students worked on their entries over six to eight weeks. Some projects were completed as part of class work and some were completed during break times and after school. Teachers reported how excited students were to enter the competition and submit their entry.

Because the awards were about community, it made sense to have the celebration in the community. Finding a location to host this event however was difficult due to the earthquake damage, which had left schools without halls. In the end Chisnallwood Intermediate School offered the use of their school hall and even though they had not been part of the Pegasus Digital Devices Project, they were part of the eastern suburbs community. Open invitations to this free celebration evening were sent to all schools so they could invite their extended families, even though at the time there was some skepticism about how many would attend.

“We were told that this community is not one to attend school events so in all likelihood possibly only 100 or so would be there on the night. That in fact was wrong. Over 500 people attended. The hall was packed and the audience enjoyed the evening where school groups, such as Pasifika and JumpJam performances were interwoven with the award announcements. It really was a celebration of this community...” (TJF).

The turnout at this event challenged the perceptions held by some that this community would have a poor turnout. Instead the community showed just how committed they were to their students learning and to the community’s recovery. Following the event feedback was received showing appreciation for the work that had been done and this showed just how important this event was for building up hope in the community.

‘It was a great experience for our children and we are proud of their achievements. We have heard lots of favourable comments from our parents today as well’ (CG email).

‘We all thought that the evening had such a lovely atmosphere about it and I know that the kids were absolutely thrilled and buzzing about being able to attend the event’ (KM email).

One resident and teacher paid this tribute to those involved as she spoke at the Digi Awards:

‘As a resident and teacher in the eastern suburbs, it is important to acknowledge the loyalty and resilience of the community. The last three years have been long, traumatic and sad. Your work is a tribute to our community and all that we have lost but also what we have gained. Our understanding, our empathy [was extended] to those that have suffered and suffer the effects of natural disasters like Seddon. Kia kaha (be strong). We in the eastern suburbs are strong and proud. We have overcome and we are here, congratulations’ (TJF email).
The Digi Awards took place before a large audience of, family, whānau and aiga, local media, interested parties and sponsors, and the dedicated teachers and students from all participating schools – a first for the region, and a logistical effort for all involved in the event.

‘The evening was a proud and creative expression of shift – the focus here was determinedly on student success in the use of the devices to create art and to digitally tell their stories. Supporting music and dance, cultural performances, and the ultimate awarding of certificates and trophies, left everyone with a renewed sense of who they are, how they are, and where they belong, all expressed so powerfully through the digital media work of the year 1 – 8 students’ (MD).

While the awards were designed as a community event outside the scope of this project, it was impossible to overlook just how many of the entries created by the students reflected their lives and their awareness of the community issues that they were part of. Many photo essays and digital photos displayed images of earthquake damage and the implications of this for students and their schools.

One piece of work entitled: Farewell Neighbours, told the story of a house next door to a student being demolished, and the gap (both physical and metaphorical) that this left behind. Another asked: Where have all the children gone? This entry reflected on the changing community as families moved on and left the school. Some movies were situated within the context of school closures and spoke from the student’s perspective about their passion for their school and why they believed their school should remain open.

All entries reflected aspects of community life that these young people were dealing with on a daily basis, and working through as part of their learning and living in a city recovering from a disaster.