Te Mata School Havelock North

Sabbatical Term 3 2012

This sabbatical is to investigate the current and potential use of emerging new technologies

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I also acknowledge my senior staff and other school staff, who stepped up to carry out the extra duties in my absence.

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My last acknowledgement is to the schools I visited. There were 20 schools in total in both NZ and USA. To the Teachers, Deputy Principals, Principals and IT lead teachers who gave me a large amount of their time in a generous and open manner, to share what their schools were doing with pride and enthusiasm. Thank you

PURPOSE:

The purpose of this sabbatical is to investigate the current and potential use of emerging new technologies (I-pod touch, I-pad, e-readers, cell phones, e- books and palm tops) to support greater student control, engagement and achievement across the curriculum and the development of stronger, more responsive home school learning partnership.

BACKGROUND AND RATIONALE:

I believe that Te Mata School is at a juncture

We have invested substantial time and resources in to ICT development both in terms of professional development and infrastructure. This sabbatical is designed to investigate and evaluate our schools next 5 years of development

Our students come from generally ICT rich homes whose parents/ whanau use ICT is their personal and professional lives. Students often have their own ICT and some parents are open / interested in these being used across the home / school divide. They are savvy and interested in further supporting their own children to use ICT and I would like to explore how we could harness this interest to further learning outcomes. This is creating some interesting tensions for me as a school leader-

- How can ICT be used in authentic and smarter ways to support learning
- How to piggy back on the high home ICT use
- How to integrate those students who could bring their home ICT to school
- How to best manage the schools current and future ICT hardware/infrastructure so that equity and security are central to any solution
- How the new UFB could be utilised in innovative ways to support more regular, rich and potential 'real time' learning interactions between students and students, students and teachers and students and their parents.

Impacts on Students, Teachers, and Families

This study did not directly assess the extent to which teaching and learning changed as a result of mobile solutions. Moreover, respondents interviewed for this study were predominantly regular users of devices. However, observations, interviews with teachers, parents, Principals, and students from 20 schools do suggest that, overall, the solutions have actively and positively influenced teaching and learning. As one teacher said about her teaching after teaching a "graphing unit" , having a picture in the textbook is quite limited, but by using graphing calculators, using the Internet, and other (computer) resources you can make it dynamic, showing how changing this one number affects the graph. You can make it more of an exploratory activity where students develop their own thought processes and hopefully retain it better by going through it in that manner.

The great majority of teachers, parents, and Principals, too, often saw the benefits of the mobile solutions in a broader perspective. "I think we are creating a student who is going to be able to function in the way the world is coming today," said one teacher.

A parent said, "I have seen a boost in self-confidence. By that, I mean confidence in the ability to problem-solve, complete tasks, to retrieve data that he knows he needs." One principal said, "These children have no idea how many learning skills they are developing One student interviewed stated "I love the i-pad at last there is more of me in my work"

Impacts on Students As students discover how to learn with their devices, they are able to extend their learning beyond the school day and often choose to continue participating in online discussions and collaborative activities for academic purposes. This advantage encourages them to become more self-directed, motivated, and reflective about their learning. There is also substantial evidence which shows major decreases in student off task behaviour and discipline issues. Many of these issues are created by lessons which are poorly pitched to challenge the range of skill levels in a typical classroom

Access to computers and information. One reason that Te Mata School should consider starting a BYOD initiative is to bridge the "digital divide" that

separates students in families that cannot afford computers or the Internet from those that can. The digital divide exists whether we allow students to bring the devices they own to school or not. It is illogical to prohibit those students who have devices from using them in a desire to achieve a sense of equity rather than to provide devices for those who need them

And for the effects of BYOD? ..Quite simply..Students who do not have their own personal technology devices can have greater access to school-owned technology tools when students who bring their own devices to school are no longer competing for that access."

Many families often have multiple computers available in the home. With the BYOD iPad initiative, that situation becomes possible for more families in Te Mata School. I believe that the BYOD solution is the inevitable not the impossible

A principal made the same point, noting, "Every child is on a level playing field. Every child has the same potential for achieving. The computers are used at home and at school; there are no more haves and have-nots." For the principal of a school serving many students from mixed income families, this access raised all students' self-esteem, which the principal considered important because "with self-esteem you can get them to walk mountains."

Student motivation and independence. The prevailing view among the principals and teachers at all of the schools visited was that the use of devices motivated the students and fostered greater independence. According to one principal, students who were reluctant to do homework became more willing to do it once it was on the computer. Children who did not have excellent handwriting skills could produce neat work, and in general, students had the ability to produce more professional-looking products. Increased motivation was also leading to better behaviour and increased attendance, according to many of those interviewed. "Technology is a way of turning the responsibility over to the students," one principal said. "It's amazing what they can learn in 60 minutes (the time that the school is using for each period). The teacher is truly what an educator should be, a facilitator." Students agreed that they were doing more learning on their own with the iPads.

Student organization. Many of the students, parents, and teachers interviewed agreed that the use of iPads helped students to be more organized. These teachers and students indicated that the overall structure and design of the iPads provided a consistent way for students to keep track of their activities, assignments, and notes.

In the schools visited, teachers, in particular, noted that the use of virtual shared folders reduced the likelihood that students were unable to work because of lost books or tasks. Furthermore, students could create folders for each subject and arrange their work systematically. As one student said, and others agreed, "What I like is that you can't lose your homework. Also, a notebook can get out of order sometimes. But on the computer you can make a folder for other topics." Other students simply found it easier to study by using the iPads. Students also described learning note-taking skills via the iPads when some of their teachers provided "skeleton" notes and required students to fill in the blanks as the lesson progressed.

Some teachers found the need to use the laptops/ipads thoughtfully with special-needs students. For example, one teacher reported that parents of special education students often wanted their children to have a hard copy of every document, regardless of whether or not it was available online.

Access to various modes of learning. In numerous interviews, teachers mentioned that devices provided sound, pictures, and movies, as well as text and animations. One teacher said, "It's another tool that they have.... It's a visual model, but it's also auditory and it can be kinaesthetic." Teachers were able to include video clips , provide interactive manipulatives online to illustrate mathematics concepts, access three-dimensional displays that are not feasible on traditional overheads or whiteboards.

In our school, the access to various modes of learning was identified as particularly advantageous for special education students. The teacher aides noted that they used laptops every day with special education students. "Immediate feedback—they love that." they said. Already, they've reported, "I don't know what we would do without it."

Impacts on Teachers

Better instructional tools. Many of the teachers interviewed felt that although Ipads would not replace specific hands-on activities or their vital roles as teachers, Ipads made a number of better instructional tools available. Some teachers related that the use of the iPads allowed for more engaging activities and topics for the students. In particular, teachers believed that the ability to visualize and manipulate data on the devices kept the students more interested in the school work and consequently led to better student retention of the material. The teachers were learning to use these tools in their instruction. One teacher said, "It's making us think about what makes things interesting for kids, and instead of just memorizing a bunch of facts, we're learning there are better ways to teach them and they really retain the concept."

Some parents agreed that the multisensory aspect of the devices helped the students comprehend the material. Teachers also noted that students could connect their iPads to projectors in the classrooms, enabling them to show their work more easily to others in the class. One issue some teachers cited the limitations of devices, noting that theses devices lose their usefulness when students do not bring them to class regularly.

In addition to providing access to engaging material, several teachers in schools noted that the devices provided more flexibility in the classroom, since teachers could switch between activities more easily. One teacher noted, "The flexibility that having them in the classroom is phenomenal. I'm teaching a lesson and a spread sheet is something that would be a good idea to do to enhance this lesson, we can pull that out, do a spread sheet, 5 minutes, put it away." One teacher also reported being able to capitalize on the spontaneity involved in teaching because the class could put a lesson on hold and look into something that was immediately relevant .She used the example of students looking up words during a reading session to extend and reinforce vocabulary growth.

Up-to-date content. The majority of the teachers interviewed believed that the availability of up-to-date information was one of the great benefits of access to the Internet. Many teachers reported no longer having to rely on outdated books for answers. In particular, teachers valued the fact that current information was available almost at the touch of a button. A middle school teacher mentioned up-to-date information about current events. In the

past, questions raised by students often went unanswered. "Now," one teacher reported, "I can just say 'Look it up,' and students will immediately do so. The immediacy, the accuracy—it's just fantastic. I don't know if I could live without it now."

Professional productivity. The majority of teachers interviewed in the schools reported that the use of devices enhanced their professional productivity in a variety of ways. Teachers said that computers allowed them to more efficiently design and create materials, prepare lesson plans, diagnose student weaknesses, and communicate with colleagues, parents, and students. Another benefit cited by Principals and teachers was the increased level of sharing and collaboration that the Professional development fostered among teachers within the school and in across schools. In one school, teachers in the junior department stated that the iPad initiative had made them a stronger professional community because they were pushed to have frequent conversations with their colleagues. A teacher said, "We are all in this together"

Laptops and Teachers' Professional Community

Research has established that a strong teacher professional community contributes to the effective integration of technology into instruction (Dexter, Seashore, & Anderson, 2002; Kozma, 2003; Means, Penuel, & Padilla, 2001). Groups of teachers who share information with colleagues, collaborate on instructional activities, and maintain a reflective professional dialogue will use complex technologies and integrate them into teaching more effectively than groups of teachers who are not part of a strong professional community.

As part of the initiative, we want to foster and strengthen the professional community of teachers (e.g., by providing many opportunities for professional development). This needs to be inclusive. Relationships and trust are very important to the success of this initiative, so we'll work hard on the mind-set part." According to a variety of school staff I visited, the first year of a device initiative, will be the most challenging in a number of ways. E.g. Parents raising possible concerns about inappropriate student use of the computers, and there could be bandwidth and network connectivity problems.

In the schools visited, teachers reported that the devices increased positive interactions with students. At the same time, teaching a class of students, each of whom had a devices, presented teachers with new challenges. Notably, teachers needed to develop new lessons that used the devices. They also needed to learn to use the computers, the Internet, and software effectively, and to advise students about device use. In the event that students did not bring a working device to class, teachers typically designed paper alternatives for students even when they had planned device-based lessons. All of these issues have implications for the time teachers spend preparing to use the devices. For a minority of teachers interviewed by researchers, these increased demands were onerous. According to one teacher, "With the need to have both paper and the iPad assignments available, it's twice as much preparation for the teacher."

Also, in the schools and classrooms visited for this study, the devices seemed to be complicating classroom management. For example, one school had Internet filtering software, but it was still possible for students to browse Internet sites that were not germane to the lesson, so teachers had to be aware of what students were doing with the laptops during class. A teacher noted, "Being the iPad 'police' is hard

In light of these new demands on teachers, it is significant that nearly all teachers interviewed for the study believed that the benefits discussed above outweighed the difficulties associated with time and classroom management, lesson planning, and learning to use the devices.

Impacts on Families

Communication with schools. Teachers and Principals across the schools reported that communication with families had improved largely because of the capability to use e-mail and blogs. A teacher stated that sending e-mails proved valuable for increasing contact with her students' parents. Similarly, one middle school teacher said she was pleased that the Internet allowed her to have conferences with parents whose schedules made it difficult for them to come to school during regular hours. According to one school, the iPad initiative was responsible for linking more parents than ever to the school through the use of Blogs. She reported that up to 85% of their parents used it regularly,

supporting and sustaining a constant stream of communication between teachers and parents about student academic progress. Not everyone was pleased with this development: As one student wryly lamented, her parents became more "in touch", reminding her of due dates for projects and becoming better able to track her progress.

Parental access to computers. A related benefit was the elimination of the digital divide for entire households, opening up the resources of the Internet in many students' homes

School families could potentially get home access to the Internet at a school negotiated, discounted cost. Parents could receive training that allowed them to use the computer and the Internet, perhaps for the first time, which also opened the door for their further involvement in the school. Several of the parents interviewed also reported that when their children had their own device to work on, it freed up other computers at home to be used by others in the family, making

it easier for families with multiple children to complete homework assignments in a more "peaceful" way. Another parent shared that she preferred to use her child's device rather than her own computer because the i-Pad was faster and had a better Internet connection.

How to get support for and commitment for the initiative.

Support for the BYOD initiative needs to be strong from all of the stakeholders. We need to provide the teachers, and students with a high degree of administrative support, as well as training and professional development, technical support, and licensed software, in order to maximize the benefits of the devices and the wireless Internet connections in the schools.

The school should also provide training to parents.

Support for the initiative will need to be facilitated by the involvement and leadership of many people in a wide range of positions. From the outset, we know that leadership would need to be shared. "You have to engage as many people as possible, and everybody has to have a little piece of the action; everybody brings something to the table," said one IT curriculum leader. Another said, "We see ourselves as support and problem-solvers." Working in the schools, principals, technology trainers, technology coordinators, teachers, students, librarians, and others all had to help make the initiative a success. In addition, parents will be invited to attend information evenings and training also played a key role.

This enthusiastic support was apparent in conversations with Principals. One principal said, "I am so much for this initiative, especially for at-risk students. For a low decile school, this (their laptop initiative) has been one of the best things." Another principal said, "I believe they're going to see our productivity level rise, (and) it's already very high at this school. We already have high levels of Literacy and Numeracy at our school …Imagine if we could bolt of a whole lot of IT skills as well …we would have world beaters!

School-based technology trainers. Having an active technology team in each school was an important part of the initiative. They are teachers who have strong backgrounds in using educational technology.

One school technology team said their role with regard to teachers was to teach lessons for them, with them, and to them. Each week they offered a

training session on a particular topic, such as "how to develop a class Web page." In another school, the team emphasized that they provided individualized help to teachers during planning periods and after school. "I've been very busy," one IT leader said. "I post announcements on my Blog page each month to allow teachers to see what sessions I'm offering." She started with new teachers by setting up their e-mail, address books, and the like, and introductions to new software and hardware.

Sometimes entire Syndicates signed up for sessions with the technology team. "I've worked with the middle school several times to show them technology lessons aligned with LTPs that they can do with the kids," said one team member.

The importance of a differentiated approach to PD needs to be noted as the skill base of teachers varies widely .

Most of the teachers we interviewed agreed that the PD was essential to making the initiative work well. Their attitudes, knowledge, and skills affected large numbers of people. The best teachers were calm, were good problem solvers, understood how to use technology to teach a wide range of subjects, and worked well with other people in the school. Te Mata School is fortunate in having an excellent technology team.

Additional professional development for teachers. As I have mentioned, a great deal of out-of-school, high-quality professional development also needs to be available to teachers. There was widespread agreement among the school principals and others that professional development in the use of technology was critical to the success of the BYOD iPad initiative. One principal said about a BYOD initiative, "If it's just dropped on teachers, it's a problem." Another Principal said, "Teacher training was the most important factor in preparation for the BYOD initiative." According to a technology coordinator who I interviewed:

> There's a huge teacher training puzzle. Getting teachers to take chances is a challenge. We started bringing teachers on board a year ago. This year, they still had half a year to practice before students received the computers. Teacher training is key. We probably have 15% who are absolute devotees, 50% who are consistent learners, and 15% who are diligent. The remaining 20% are resistant—just doing what is needed to get by.

During holidays and during the school year, Te Mata School could consider offering IT classes on a variety of subjects.

In addition to workshops and Seminars, and even apart from the help provided by the technology trainers, most of the teachers in the case study sites engaged in a great deal of informal professional development. At one school, for example, about 10 minutes were allotted at monthly team meetings for more expert teachers to instruct colleagues about a particular technology integration topic.

The on-going use of technology for administrative purposes throughout the school also promoted learning about technology

> Having teachers as resources is a key.... We have a ton of this spirit at this school—teachers reaching out for help to other teachers. A lot of it is framing it to teachers to show them the benefits of using technology. Professional development has to be on-going. We encourage teachers to "steal" from each other.

Hardware, Software, and Technical Support

Having the Principal, Deputy Principals and other existing staff who are designated as the technology intervention team will manage the hardware and network and work with teachers and students. In addition, the school will need technology support technicians who are able to fix hardware and network problems.

Key Barriers to Using iPads

As we have mentioned, not all teachers and students in the schools we visited had fully integrated the devices into their instruction. My observations revealed several factors that influenced laptop/pad use; these factors are discussed below.

Apple computers are generally rated highly for reliability (Metz, 2004), but daily use of the laptops by students presents challenges to any manufacturer's equipment.

Battery life. The battery life of the iPads—which is rated as excellent compared with that of other laptop batteries—should not be an issue. When charged properly, the batteries lasted approximately 8 to 12 hours, which is longer than the school day. Some staff reported that if heavy use was made of

the Internet, battery life was less . Although students were asked to bring their laptops to school fully charged the schools needed to provide ways to recharge the batteries during the day

Students coming to class without devices. A barrier identified by a number of teachers in the schools visited for this study was that not all students brought their devices to school. Significant numbers of students were needing to have devices supplemented by the school. This made the success of the programme difficult.

One school stated that they needed 90 % of their students to BYOD or the school would not support this year group!

If this project were to go ahead at Te Mata we would expect a growing number of devices throughout the year groups and recognise the need for continuing parental support

Management and discipline issues around the computers.

Having distractions was not a new problem for teachers to contend with, but managing instant messaging, e-mail, inappropriate Web sites, and computer games was new. As a result, teachers had to learn appropriate management strategies, such as checking computers to see whether students had visited inappropriate Web sites, looking for students who quickly closed their computers when adults passed by because they were engaged in inappropriate activities, or requiring all students to put the computer screens down to listen to the teacher. Another teacher said that she arranged the desks in the classroom so that she could monitor computer screens from different places in the classroom.

Time. As in other schools throughout the country, many still struggled to find time for staff development and for teachers to practice what had been learned—even with the increased emphasis on integrating technology into instruction. Furthermore, for teachers who were less technologically savvy, integrating the iPads into their lesson plans required more preparation time.

In addition, some teachers in schools that I visited had not made much use of the computers. An IT leader said, "What do you do with the resistant teacher?
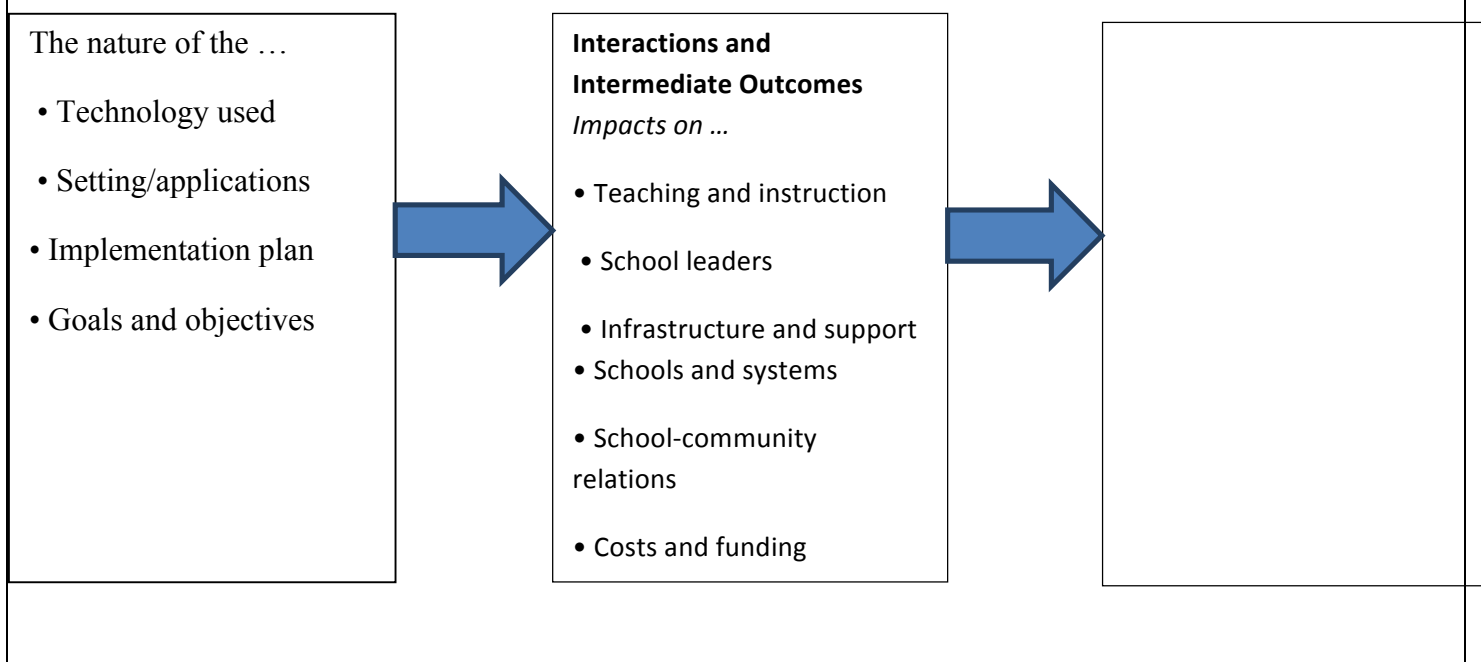
Somehow you have to reach them, be a cheerleader, put a positive spin on their activity, and let them know that they have support."

Summary

Despite these challenges with computer hardware, wireless networking, and the need for teachers to learn new skills, the prevailing view among people I interviewed was that the benefits of one-to-one computing outweighed any difficulties. According to a variety of respondents across the school sites, the use of laptops/BYOD devices helped students, teachers, and parents alike to reach greater levels of communication and productivity. The majority of teachers found the devices to be especially helpful in affording them greater flexibility and versatility for professional and instructional purposes. These teachers used multimedia software and Internet Web sites that not only were beneficial in creating lesson plans but also helped to increase student engagement and motivation. The students interviewed also reported that the devices helped them manage and organize their work inside and outside of class. The main benefit to parents was increased communication with teachers, which resulted in "in-touch" parents who were actively involved in their students' progress.

It is clear that in spite of the positive impacts reported by respondents, there were some barriers that make the implementation of the devices more difficult. These barriers, however, did not appear to be dampening enthusiasm for implementing one-to-one initiatives in the schools I visited.

A suggested Framework for Research and Evaluation of BYOD Computing

The nature of the …

• Technology used

• Setting/applications

• Implementation plan

• Goals and objectives

Interactions and Intermediate Outcomes
Impacts on …

• Teaching and instruction

• School leaders

• Infrastructure and support

• Schools and systems

• School-community relations

• Costs and funding

ACTIONS RESULTING FROM THIS INQUIRY.

For our school therefore, as a result of this time to look and reflect on good practice, what conclusions have I come to:-

1) It is vital that class teachers make effective use of the technology. It must be readily available and "working" well.

2) ICT must not been seen as an "add on" but must be fully integrated into classroom programmes in a meaningful way.

3) Regular opportunities need to be given for pupils and staff (in small groups , across the school, and with other schools) to share good ideas, programmes, sites, and best practice that supports learning.

4) Self to work with groups of students to build their skill base as well as my own especially in the use of i- movie, Garageband and i- Book author

5) Conduct a survey of parents to gauge their support for this initiative

6) To run a community night/s to share the vision and consult with our community

6) To actively trial the digital strategy which will promote our strategic direction

Connect, Collaborate, Communicate, Create, Critical thinking

Following extensive research and discussion I believe the most successful model for Te Mata School would look like:

Digitally enabled -Senior school

Digitally enhanced-Middle School

Digitally supported-Junior School

- <u>**Year 5 & 6**</u> **A Digitally enabled learning environment, through the use of 1-1 devices on a *BYOD* basis.(BYOD would not be compulsory but would be desirable)**
    - **Focus upon connected learners connecting with their peers, parents, and both the local and global community**

- <u>**Years 3 & 4**</u> **A Digitally enhanced learning environment. *OBYOD* (<u>optional</u> bring your device) to complement school provided IT**
    - **Focus collaborating and connecting with peers and parents.**

- <u>**Years 1 & 2**</u>**.   A Digitally supported learning environment. School provides all hardware.**
    - **A mix of digital and traditional learning tools .Devices to support and enhance existing programmes**

"Our Schools can no longer be the last place to catch up to the present. While our communities debate if students deserve the right to learn with the very tools they rely on for success each day, our students are being left unprepared for their futures. It's time that students, their parents, and educators who know better, rise up and take a stand to ensure our students are armed with the tools they'll need to succeed in the modern workplace."