

Digitally Tika, Digital Natives

Digital Needs and Education of the Pehiaweri Marae Community

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ABSTRACT

The Pehiaweri Marae community is nestled amongst the semi-rural, semi-urban areas of East Whangarei. The community envelops a growing population of 14,505 people, including 4,041 who identify as Māori. Pehiaweri Marae sits in the heart of the community, hosting between 5-10 events and activities every week. This project seeks to understand the digital skills needs of the Pehiaweri Marae community and aims to deliver digital skill programs to meet these needs. A Kaupapa Māori Action Research methodology guides the research utilising online surveys, focus groups, interviews and pilot programs to provide the community with flexible options to engage with the research. Preliminary outcomes of this research have shown promising results. In just nine months since commencing we established the first and, currently, the only Marae-based code club in the world. The project's overarching vision is to inspire and connect curious minds, and foster digital skills in the community to increase digital literacy. It is anticipated that this will provide a model for other indigenous digital community development programmes.

Keywords: Kaupapa Māori, Marae community education, Digital skills, Digital Literacy, Code Club, Programming, Software Development.

1. INTRODUCTION

Ko Parihaka te maunga
Ko Hātea te awa
Ko Ngatokimatuwhaorua te waka
Ko Pehiaweri te marae
Ko Ngāti Hau te hapū
Ko Ngapuhi te iwi

Parihaka is the mountain
Hātea is the river
Ngatokimatuwhaorua is the canoe
Pehiaweri te marae
Ngāti Hau te hapū
Ko Ngapuhi te iwi

This is the pepeha of Pehiaweri Marae. It proclaims its connection to the land, the waters and the people of the local area. The pepeha demonstrates the maraes far reach through the Whangarei district beginning at the city's ancient mountain, Parihaka right up to the waka, Ngatokimatuwhaorua, that rests at the treaty grounds in Waitangi. The Pehiaweri Marae community is inclusive of those who share this pepeha as much as those who live in the local Pehiaweri Marae vicinity.

This project is funded by the Ministry of Business, Innovation and Employment, Vision Matauranga Capability Fund N1401, with cofunding from Pehiaweri Marae and NorthTec. and is concerned with the development and delivery of educational programs in digital skills, with the Pehiaweri Marae community. As a Marae-based initiative, it aims to enhance the relationship between the community and their local Marae and to help the community to gain a better understanding of

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the significance a place such as a Marae has and the positive impact of its values for Whanau. Through the knowledge of digital technology, the community can be engaged in new ways that allow a person's relationship with Tikanga Maori to grow. With knowledge of Tikanga, new ways to enhance the lives of Whanau and the Community become possible.

This paper describes phase one of the project which has two further phases to be completed. Phase one has focused on skills and activities with rangitahi¹, the second and third phases will work with pākeke as well

This project seeks to answer the research question: *Does a digitally resilient Marae grow a digitally resilient community* through the use of a research approach that engages community and enhances skills while gathering information. within a Kaupapa Maori research methodology.

In addition to the primary purpose of our project: to use knowledge gained to increase digital literacy and capacity, through skill enhancement, we have also applied a Kaupapa Māori Action Research methodology to a digital context, testing the methodology's effectiveness in school and Marae-based digital skills programs.

We were sensitive to the expectations and culture of the community in the development of questions and the overall approach to the research. This was essential when working within a Marae based context. ICT skill level within the community is varied and it was important that community members felt safe in the process and were confident to participate openly and honestly. We anticipate results should reflect how digital needs are correlated to these community limitations.

¹ Rangatahi (Youth) and Pākeke (Adults)

2. DIGITAL SKILLS TO RAISE DIGITAL LITERACY

A person's digital literacy can be determined by how well they interact with digital information. Digital skills have become essential in the Digital Age and are required so that people can interact with digital tools and information. Today, people of all ages require a certain level of digital literacy in order to function effectively at school, their place of work and at home when interacting with whānau. (Ministry of Education, 2010). Digital Literacy is defined as:

"Digital literacy is the skills required to achieve digital competence, the confident and critical use of ICT for work, leisure, learning and communication". Further "It is underpinned by basic skills in ICT and the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet." (DG Information Society and Media Group, 2008, p. 4; Hilding-Hamann, 2009), reported in *Bunker, 2010:14*)

The first step in this research has been to explore the community's varied digital literacy levels, and specifically how skilled the Pehiaweri Marae community is when interacting with online and offline computer technologies, safely and confidently. This enabled us to discover where the key areas of needs are, with the next step being to deliver the digital skills programmes required in the community.

2.1 A Digital Skills Needs Analysis

The first part of this project explored the digital literacy levels of the Pehiaweri Marae community and explore the digital skills required to increase it. We have limited the scope of the digital skills range to focus on the following categories:

- **Getting connected:** *Networking Skills* - exploring the use of digital devices, software and networks.
- **Digital Tikanga:** *Te Ao Māori Online* - cultural identity, ethics and integrity in the digital world.
- **The Digital Entrepreneur:** *Coding and App Development* - developing an ability to code software applications.

These categories encompass skill sets for digital literacy and capacity appropriate to the Pehiaweri Marae community. Questions were developed to collect information about the community in relation to the identified digital skills categories:

- What digital skills are needed, in the above three categories, to increase digital literacy in the community?
- How can the community maintain the *integrity* of Tikanga Māori and still partake in opportunities of the digital world?

The digital skills needs analysis took place over a four-month period where research educators engaged with the community at various activities and events. To ensure the marae-based and Māori focused research achieved its aims within a culturally appropriate framework, it was important that the research methodology acknowledged and encompassed a Māori world view. Two research methodologies were selected and combined to best to meet the needs of the people of the Pehiaweri Marae community, within the digital skills context.

2.2 Kaupapa Māori Research

As Māori, we have our own way of conducting research, specifically birthed for research by Māori, with Māori, for

Māori. Kaupapa Māori is the "Māori way" of conducting research. Graham Smith (2004) describes Kaupapa Māori as:

- Related to 'being Māori',
- Connected to Māori philosophy and principles,
- Taking for granted the validity and legitimacy of Māori,
- Taking for granted the importance of Māori language and culture, and
- Concerned with the 'struggle for autonomy over our own cultural well-being'.

This research acknowledges and is honoured to take guidance from Tikanga Māori, through which these elements are raised up purely through the practice. Tikanga Māori, can be viewed as embodying ethical guidelines. Kaupapa Māori theorists have stipulated seven Māori values as ethical guidelines to be utilised in Kaupapa Māori research (Cram, 2012; Smith, 2006):

Aroha ki te tangata

A respect for people that within research is about allowing people to define the research context (e.g., where and when to meet). It is also about maintaining this respect when dealing with research data (e.g., quantitative research), and extends to the physical sciences when research involves, for example, the examination of human tissue samples.

He kanohi kitea

Being a face that is seen and known to those who are participating in research. For example, researchers should be engaged with and familiar to communities so that trust and communication is developed.

Titiro, whakarongo...kōrero

Look, listen and then, later, speak. Researchers need to take time to understand people's day-to-day realities, priorities and aspirations. In this way the questions asked by a researcher will be relevant.

Manaaki ki te tangata

Looking after people. This is about sharing, hosting and being generous with time, expertise, relationships, etc.

Kia tupato

Be cautious. Researchers need to be politically astute, culturally safe, and reflexive practitioners. Staying safe may mean collaborating with elders and others who can guide research processes, as well as the researchers themselves within communities.

Kaua e takahia te mana o te tangata

Do not trample on the mana (dignity) of people. People are often the experts on their own lives, including their challenges, needs and aspirations. Look for ways to collaborate on research reports, as well as research agendas.

Kia mahaki

Be humble. Researchers should find ways of sharing their knowledge while remaining humble. The sharing of expertise between researchers and participants leads to shared understanding that will make research more trustworthy." (Smith, 2006:199)

We seek to portray the community's digital skills needs in a culturally safe paradigm. Explicit within this cultural paradigm is the aspiration and acknowledgment of Māori ways of knowing, doing and understanding of the world to be considered valid in their own right (Mane, J, 2009). Tikanga Māori is an ancient form of Māori which along with Mātauranga Māori embodies a knowing, doing and understanding of the world, through the appreciation and leadership of Tikanga we ensure the cultural safety of the research, those researched and the researchers.

High School (KHS) after high interest was indicated by HOD technology teacher, Phil Calver. (It is to be noted here that other local schools in the Pehiaweri Marae community were also approached to participate in our pilot program initiatives, however did not take us up on our offer). KHS purchased 20 Raspberry Pi micro-computers, recycled monitors, mouse and keyboards for the pilot program. The pilot program focused on the getting connected and coding and app development category of our research, targeting students from year groups 9 and 10.

In order for this school-based pilot to be complementary to the school's curriculum learning outcomes of the students, we needed to find out what students were already learning about coding. Mr. Calver states that he teaches "Scratch achievement standards to year 9's and 10's however" he adds, "it is only for one semester". He concludes by stating "we don't have a lot invested in programming". The students at KHS already have an introductory understanding of Scratch (a visual programming tool), however there is still a need to exercise this knowledge and build on it.

At the end of the 8-week pilot, 18 participants were again surveyed to understand any shift in needs and knowledge. A marked improvement in understanding of basic programming terminology was observed in the survey results. Overall attendance was high and students expressed interest in continuing the pilot program the next year. Based on this evidence, a permanent weekly code club was planned for 2016 which was quickly filled with students.

3.3 Marae-based Code Club

The Pehiaweri Marae community participated in an international coding event called 'The Hour of Code', that saw 15 tamariki and rangatahi Māori gather in Maruata², two minutes from Pehiaweri Marae. All 15 tamariki completed one of the three hour of code exercises, at <https://code.org/learn>, all receiving an Hour of Code completion certificate. Following the hour of code, we held a short feedback session (focus group) with participants and their parents. This is what they said:

- All participants loved learning to code
- All 15 participants are likely to attend other, more regular coding events
- Parents said they would love their children to have more access to this kind of knowledge
- Parents said they would prefer events to be held in this location, or nearby (as they all live in the area)

Based on the success of the 'The Hour of Code', it was decided to establish permanent Code Clubs at Pehiaweri Marae. The Pehiaweri Marae Code Clubs (Teina/ Tuakana) was established in Term 1 of 2016. It has 20 enrolled students with from 5-15 attending each week. The establishment of this Marae-based Code Club has been one of the greatest achievements of this research project to date.

The most common theme observed in our survey results supports the digital native/digital immigrant kōrero where rangatahi display a mastery level of digital skill and our kuia and kaumātua display a literacy level of digital skill. In saying that, our survey did reveal that pākeke are a mixed bag of digital skills displaying elements of both mastery and literacy, placing them in the fluency digital literacy category.

Themes from the Pehiaweri Code Club pilots, supports the Code Club Aotearoa statement that younger tamariki (under 9 years) require more assistance when learning to code,

especially in reading through coding projects. (Code Club, 2012) Moreover, the preliminary findings, of our Pehiaweri Teina Code Club (ages 5-9), show that students complete tasks more efficiently and with less distraction when using touch screen devices in learning to code due to lower levels of keyboard and mouse skills. We have limited touchscreen devices (using the club facilitators personal devices) and we overcame this challenge by teaching students, of the Teina Code Club, keyboard and mouse skills.

3.4 Marae-based Code Clubs can Assist in Shaping our Digital Future

The Pehiaweri Teina and Tuakana Code Clubs were piloted in the first school term of 2016. With 20 students enrolled in the clubs, we had a consistent attendance of between 7-16 students each week. 100% of our students identified themselves as Māori and also 50% of our students can kōrero Māori. This is significant as the number one comment received from parents was the importance for their tamariki to be in an environment where speaking Te Reo Māori is accepted and encouraged.

The Action Research cycle ensured that the content of each club session was targeted specifically for the students in increasing their coding literacy. This gave us a baseline from which we can measure their growth. One of our fluent Te Reo Māori speakers, female, aged 12, underwent a coding exercise to understand variables. She repeated this exercise over two Code Clubs. By the second run through of this exercise, this student grasped the concept of the variable and displayed this by translating all of the code, including the variable names, into Te Reo Māori. Once the student was able to understand the key topic of the task set before her, she was able to put her own, Māori flavour into the exercise. If our rangatahi can achieve this understanding in the Coding and App Development industry, they could potentially develop their own Māori digital products. We believe that this skill is crucial to the development of Te Reo in a digital age.

3.5 Marae Have Digital Needs Too

This marae-based project has been successful in further connecting Pehiaweri Marae to the Whangarei community and connecting the marae to online spaces. Foundational to this was the choice to be based at Pehiaweri Marae as Research Educators, where we had first-hand insight into the digital needs of the marae itself. The key digital need identified through kōrero and focus groups with the Pehiaweri Marae Board, is a website with online booking system, marae-focussed administration tools and office computer upgrades.

The placement of the Research Educators at the marae has enabled us to gain first-hand insight into these needs and to provide assistance and training. The Pehiaweri Marae new website is now up and running: www.pehiawerimarae.com. Whānau have had the opportunity to learn new web design skills and management in the making of the site. The website is designed for, by and with the marae and includes; an online booking system, timetable of events and content for the digital skills and other educational programs. It is envisioned that the whānau who receive the digital skill training will continue to collaboratively monitor the website and hand down their knowledge to the next caretakers over time.

It is important to mention here that in another focus group with local Ngāti Hau and Ngāpuhi Board members, we found that local marae in the Whangarei area also needed websites. Ideally, the websites would be whānau designed and managed. This project aims to set-up programs where local

² The ancestral lands of Pehiaweri Marae

marae can come together and learn the digital skills required for their whānau.

Pehiaweri Marae, the hub of the community, the legacy of its whānau, is too in need of digital skills. In meeting the digital needs of the marae, we increase the digital skills and literacy levels of the community through training. When the marae digital needs are being met our research shows the digital literacy of the associated community increases.

4. OUR PROJECT CONCLUSION

Utilising a Kaupapa Māori Action Research methodology has enabled research educators to gain deep insight into the digital skills needs expressed by the community and to develop education programmes accordingly. This Vision Mātauranga Capability Funded research project has fostered the digital skills of the Pehiaweri Marae by thoroughly investigating their digital needs. The use of a systematic needs analysis process within a Kaupapa Māori Action Research process enabled the research educators to facilitate relevant learning opportunities through the establishment of three Code Clubs at a local school and at the marae itself.

With a focus on a *Coding and App Development* amongst rangatahi in a *Digital Tikanga* environment, the next phase of this project will be on delivering the digital skills needs of the older age groups. *Networking Skills* is a category of digital literacy skills we are currently assessing for this group. The Kauri Computer Club (at Pehiaweri Marae) will deliver basic computer skills (email, online docs) as well as web design and cloud storage education to the pākeke, kuia and kaumātua of the community. Through engaging with our elders in this Marae-based learning environment, we are hoping to uncover their thoughts around building on the foundation of *Digital Tikanga* to the question: How can the community maintain the *integrity* of Tikanga Māori and still benefit from the opportunities of the digital world? We envision that bridging the digital skills divide between our rangatahi and kuia/kaumātua, will enable our kuia and kaumātua to guide us in answering this question while sharing and preserving their rich knowledge of Tikanga and Te Ao Māori in the process.

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