Maori Game Design

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Abstract

The SimPä project will convey and strengthen Māori culture, tikaka and knowledge using innovative and cutting edge technology. In short, the project aims to provide a means of telling Maori stories in 3D game format.

The project recognises that Māori culture is a vital part of what distinguishes New Zealand from the rest of the world. It is intended that the project will assist in the creation of 3D game based Māori digital content so that distinctly Māori voices and cultural content can be encouraged and promoted.

This development will have benefits in terms of both technology and culture and the fusion of these two: Iwi digital content. The project will achieve this through active engagement and participation.

Keywords: Maori, computer education, culture, indigenous, game based learning, participatory development

1 Introduction

This paper describes the background to a large scale initiative: Maori Game Design, or Mātauraka ā whenua, ā moana, ā tākata ki te rorohiko. The project aims to convey and strengthen Māori culture, tikaka and knowledge by initiating a process of participatory Māori digital media design using 3D game technology.

The project recognises that Māori culture is a vital part of what distinguishes New Zealand from the rest of the world. It is intended that the project will assist in the creation of 3D game-based Māori digital content so that distinctly Māori voices, stories and cultural content can be encouraged and promoted.

This development will have benefits in terms of both technology and culture and the fusion of these two: Iwi digital content. The project will achieve this through active engagement and participation. It will:

1. Develop a process of participatory game development for Maori cultural content

2. Development of SimPä toolkit to enable 1 (above)

3. Develop structures for use of resultant GamePä

4. Develop a new subject area and capability: that of training digital storytellers

A key component of the project will be a series of marae-based wānaka. Each wānaka will be kaupapa Māori and participants will be immersed in tikaka Maori. Participants will learn about the traditions, environment, people and history of that place from local Rūnaka elders who are experts in Māori oral history and local knowledge. Using the "SimPä Toolkit", participants will work alongside the Rūnaka members and supervisors to create a "GamePä" (a virtual environment representing a place). Based on the knowledge of Rūnaka members, participants will define the landscape, environment, and features of cultural significance, such as food gathering sites.

Note: SimPä is shorthand for the whole project, GamePä refers to the developed game for each individual rünaka.

In this paper we first describe the need for such a development before going on to describe the theoretical background and introducing some practical considerations.

2   Need

This project is informed by several key documents and processes.

There are three major justifications for this project.

1. The risk of Māori knowledge being lost due to the reduction of hapu knowledge repositories.

2. The well publicised negative statistics of educational outcomes for Māori.

3. Consequent to (2), lack of skilled practitioners of Māori digital content.

This dual need, of content and capability is recognised by Iwi as both a limitation and an opportunity: *"...communication technology is providing new avenues for our people to be enriched and contribute to our Kai Tahutanga regardless of time and location."* (p17 Ngai Tahu Vision for 2025).

The importance of Maori digital content is key to the Government's Digital Strategy:

"We can use the power of technology to connect people to the things that matter most to them, express our creative talents, celebrate the unique culture of Māori, and strengthen our links to our South Pacific neighbours. Technology holds the potential to include all people and communities more fully in our national life…The Digital Strategy recognises the importance of working with Māori to assist Māori, as individuals or collectives, to achieve their goals for the use of ICT, in light of these goals' importance for social, cultural, and economic expression and development. Māori culture is a vital part of what distinguishes New Zealand from the rest of the world. ICT can be used to help create the conditions for the realisation of the diverse forms of Māori potential. It is crucial for the future of Māori and of New Zealand as a whole that distinctively Māori voices are encouraged and promoted (p9)

It is important for New Zealanders from all walks of life to be able to create and use their own digital content in order to create value (social, cultural, and economic) for themselves, their communities, and our nation. (p12)

Māori are both creators and consumers of content and distinctively Māori content is particularly visible in the areas of: broadcasting; the arts and creative industries; as well as the education, health, and business sectors including tourism. Māori digital content is important not simply for its economic potential, but also as a vital means of expressing Māori culture in today's society and into the future, strengthening Māori society and identity, telling Māori stories to other Māori, and communicating with the wider world. Hence the importance of content being created and maintained in the Māori language. (p12)

Kai Tahu (Vision for 2025) also give the following principles:

• *"Whenau and Papatipu Runanga are the foundation that supports educational excellence for all Kai Tahu"* (p35)

• *"Kai Tahutanga is strong and there will be opportunities to create identifiable and credible ways to access culture in both traditional and modern forms"* (p17)

• *"Globalisation is increasing the number of external influences on Kai Tahu culture, but communication technology is also providing new avenues for our people to be enriched and contribute to our Kai Tahutanga regardless of time and location"* (p17)

• Whenau education priority *"Kai Tahu education programmes have restored the relationship of Kai Tahu with sites, resources and areas so that all understand and appreciate their significance and use, and know how to contribute to their management, and are able to converse in the Kai Tahu reo about this"* (p11)

• *"Develop integrated policy linking natural resource management with health, social and economic outcomes, which may include: cultural self esteem, education/matauranga, Whanau 'life' enhancement"* (p10)

The message is repeated in numerous other documents: in Te Kete o Aoraki, the agreement between Kai Tahu and 800 schools in the South Island the focus is on: getting students to stay in education, academic success, learning te reo, involvement by Māori and Kai Tahu communities. In the Nga Haeata Matauranga 2004 (Annual Report on Māori Education) the key areas of focus is supporting the high-quality provision of kaupapa mātauraka Māori across all sectors…improving the engagement of whānau, hapü, iwi and Māori communities in education…(and)…stressing importance of priority for need to develop resources and effective teaching strategies for Māori content across the curriculum and for all age groups.

The aim of the Memorandum of Understanding between the Kai Tahu Papatipu Runanga and Otago Polytechnic is whaihua – Māori students supported to achieve their educational aspirations" (p3). We are challenged to "…will work together to identify…ability to provide effective learning environments for Māori learners".

3   Model

This project brings together two components: the stories and the computing. By uniquely combining these aspects, a combination of benefits are made available that could not be accomplished by other means:

• Increase recognition, value and access to history and narratives of local rūnaka

• Give local rūnaka a unique narrative tool (one that appeals particularly to younger generations).

• Provide a virtual meeting place for whenau spread nationally and internationally in which they can interact in their own landscape.

Conveying Māori stories using game-based virtual environments offers a fertile field for research, strengthens Māori culture, tikaka and knowledge and upskills Māori communities in innovative, cutting edge

technology. The project will involve generations of Māori in gathering information and stories, encourage the preservation and creation of local Māori stories, increase the attractiveness of history to younger audiences and make Māori culture, mita (dialect) and tikaka accessible throughout the world.

A key component of the project will be a series of marae-based wānaka (Figure 1). Each wānaka will be kaupapa Māori and participants will be immersed in tikaka Maori. Participants will learn about the traditions, environment, people and history of that place from local Rūnaka elders who are experts in Māori oral history and local knowledge. Using the "SimPä Toolkit", participants will work alongside the Rūnaka members and supervisors to create a "GamePä" (a virtual environment representing a place). Based on the knowledge of Rūnaka members, participants will define the landscape, environment, and features of cultural significance, such as food gathering sites.
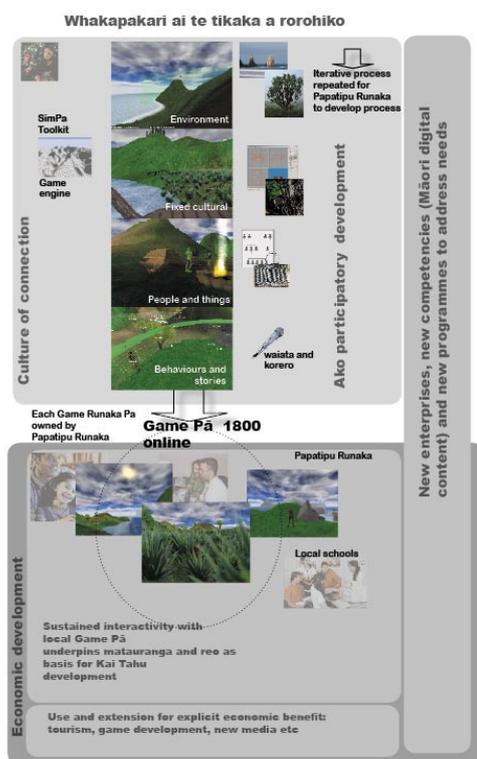

Figure 1: Wānaka process of participatory game design.

3.1 Theory

In this section we discuss the theoretical basis for the approach to the model. We believe that the combination of game and tikaka: iwi digital practice, will excite and engage, while providing a vehicle for conveying hapu knowledge.

This is an integrative initiative that pulls together research findings from a wide range of contexts. Accordingly, there is a primary question for each component of the project: will it work for improving engagement with indigenous knowledge? There are many subquestions: pedagogical, cultural, technical and practical to support this primary question. Answering these questions will lead form the SimPä process and the development of highly valued set of resources.

First the mechanical: will it work technically? In phase 1 of this development, the partners have developed a tested a prototype GamePä). This is an immersive 3D landscape for one site with limited interactivity. This has been applied in a single workshop and for much consultation. Although still to be formally evaluated, the technology has surpassed expectations. The hardware for the mobile studio has also been tested in this way, at one Marae, the prototype GamePä was played via a network of 4 wireless laptops.

Second is the worth of the approach: will the participatory game design meet the needs of engagement in both ICT and things Maori? The questions that arise stem not just from each area of specialty, but also from the combination. It is not known, for example, how well Māori stories will translate to a game based digital learning format, whether workshop approach of having both young and older people creating a model together will work and so on.

While there are few studies that directly match this project, there is a wealth of prior knowledge in related areas. Some of these include:

- Game based learning (Prensky 2001, Mann and Smith 2004, Raybourn and Bos 2005),
- Digital storytelling (Helen Barrett, http://electronicportfolios.com/)
- Reflective storytelling (Alterio and Drury 2003)
- Interactive storytelling
- Place based stories translate to game structures
- Object based story (Springer, Brazas and Kajder 2004)
- Indigenous knowledge representation in interactive form (eg Kretschmer 2001). Spirit of history – interactive storytelling using AR approach but avoids fallacy of choice by utilising location based stories.
- Participatory development of digital resources including community (1st Nation Kinai project http://www.galileo.org/plants/kainai/)
- Workshop based game development (Gillespie (1997)
- Landscape as basis for knowledge
- Game structure, narrative and fallacy of choice
- Ownership of knowledge
- Everyday social histories (ongoing OP work with Heritage trust)
- Games as basis for how to leveraging social interaction (Lazzaro 2005)
- Māori 3D, Cornwall Park centennial project including flyby view of Maungakeikie set in original landscape (Http://www.cornwallpark.co.nz) This is a one off production.

- Cultural immersion through technology (eg Japanese temple (Calef, Vilbrandt and Goodwin 2003), Squire *et al.* 2005 Use of Civilisation in teaching history of European expansion)
- Integration with other resources eg Te Matapihi (Combined Rūnaka and Otago Museum)

4   Objectives

SimPä will develop and test a method for creating and using virtual environments to enhance learning of Māori narratives in the Kai Tahu and wider Māori community.

SimPä will allow users to interact with histories and stories of local Kai Tahu places in a virtual environment. In 2006 the project aims to work with 4 Rūnaka, and in 2007/8 we will expand to work with the remaining 15 Kai Tahu Rūnaka before launching nationally.

Objective 1:   The development and testing of a participatory approach to game development.

It brings together people from within the Papatipu Rūnaka who will jointly learn about their own place and stories, and convert this knowledge to digital form.

Objective 2. Develop a software tool for creating specific Māori virtual environments: the "SimPä toolkit" ~ he kohinga o nga mea rauemi.

Objective 3. Develop and test tools for the use of games in teaching Māori concepts.

This encompasses specific research on the effectiveness of digital game based learning in a Māori context.

Objective 4. Develop techniques and practices for the use of GamePä

The resulting games will provide an interactive learning environment for use within each Papatipu Rūnaka. It is expected that this will enhance their mātauranga Māori, enable individuals to connect and have respect for their landscape and historical stories. Each game will be the intellectual property of each Papatipu Rūnaka and provide an indigenous tool for future development in education and Māori business. We believe that this integrated model - using a resource that is interactive, online and multiplayer - will provide measurable benefits for individuals, whanau, hapu and Iwi.

4a. Marae use of GamePä

4b. Marae/School use of GamePä in support of Te Kete Aoraki

4c. Use of network GamePä to provide virtual Marae

4d. Use of GamePä in support of iwi based tourism development

4e. Use of GamePä in environmental management.

Objective 5: Develop a new specialist area in education: Māori digital content

We are developing a programme aimed at capacity building within indigenous people. By combining cultural knowledge with skills required for developing digital game based learning resources, we hope to initiate a pathway to encourage careers in this area. This will provide career opportunities in education, information technology and business.

Objective 6. Develop a process of adoption of this initiative beyond the collaborating partners

This collaboration is not just between a single group of stakeholders, but involves complex structures of knowledge ownership. An important part of this initiative is the development of processes maintaining the integrity of specialist knowledge and tikanga.

5   Benefits

The SimPä project can be seen to have benefits in several directions, as expressed by the "confidence, content and connection" of the digital strategy.

5.1   Confidence

This project will result in significant community benefit. There will be value to the target communities in terms of knowledge they gain, in particular the increased confidence in the use of ICT to tell their stories.

Unique approach:

- on marae, providing experience of ICT in a familiar environment during wānaka sessions
- ICT provided according to tikaka Māori
- skilled ICT people available
- value knowledge of older generation and skill of younger generations. Encourage combination and mutual contribution. Side-by-side participation.
- potential benefits for participants encourages them to use ICT
- content and resource material is from the community, in this project ICT is a vehicle
- procedures in place to ensure protection of knowledge ownership (can be a significant barrier to use of ICT, particularly for Māori)

The project will demonstrate a way for ICT to be used to record and convey Māori knowledge

5.2   Content

This project provides a means to capture local content in a way that is engaging and exciting.

Content created gains the benefits of digital medium: distribution, reproduction, storage, etc.

Narratives (histories, stories) in a new and engaging form.

Tangibly, SimPä offers the fusion between the old and the new (ki te ao tawhito me te ao hou) forms of knowledge, a new tool for education and an increase in Māori digital specialists. Intangibly, the value for money is potentially greater with the community interacting with their own history, the interaction of generations and further knowledge base of local stories and narratives.

This development will have benefits in terms of both technology and culture and the fusion of these two: Iwi digital content. It is important to remember that the GamePä are the product of the Rūnaka. At the project's completion, Otago Polytechnic will formerly pass to Rūnaka, their Gamepä, thus the partnership will have recreated old sites into new virtual realities. The project will achieve this through active engagement and participation. The Rūnaka recognise that the time and money involved is an investment in their own stories.

The project hinges on the participatory nature of the developments. Rūnaka members support game creation process as experts sharing knowledge - telling stories & history, specific cultural practices. Each Rūnaka is giving time to the project from planning through to implementation. The wider marae communities are offering support in terms of organising and supporting the marae wanaka sessions etc. The cost of the sessions is being offset by help with wanaka (food and preparation, board, koha).

5.3 Connection

Conveying Māori stories using game-based virtual environments offers a fertile field for research, strengthens Māori culture, tikaka and knowledge and upskills Māori communities in innovative, cutting edge technology. The project will involve generations of Māori in gathering information and stories, encourage the preservation and creation of local Māori stories, increase the attractiveness of history to younger audiences and make Māori culture, mita (dialect) and tikaka accessible throughout the world.

- Experiencing completed GamePä virtual environment together - multiplayer, global access via internet (text or voice chat)

- Local histories, stories, currently limited to small remote areas

- Collaboration of participants during creation

- Increase ICT capability of community by installing computers & internet infrastructure in Marae

- Establishes ongoing relationship between tertiary education provider (Otago Polytechnic) and Rūnaka partners

- Use of GamePä by Rūnaka with Schools

- Increase recognition, value and access to history and narratives of local rūnaka.

- Give local rūnaka a unique narrative tool (one that appeals particularly to younger generations).

- Increase collaboration between rūnaka and educational institutions.

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6 Structures

Otago Polytechnic operates under a Memorandum of Understanding between the Kai Tahu Papatipu Runanga and Otago Polytechnic: "The aim of this agreement is whaihua. Māori students supported to achieve their educational aspirations" and states the two bodies "…will work together to identify…ability to provide effective learning environments for Māori learners."

Local rūnaka are excited about the potential for this project and are very supportive. Members of the project team have worked extensively with the community. This includes local rūnaka, Ngai Tahu Development Corporation, Otago Museum, Te Papa, Otago University Geography and Zoology.

This project also provides a platform for innovative collaboration between polytechnics and Wānanga. The development of this proposal has initiated a new collaboration between Otago Polytechnic and Te Whare Wānanga o Awanuiārangi. The institution is also a member of the Citrus Network of Research and Information Technology and is connected to four other institutions via the Tertiary Accord of New Zealand (TANZ).

7 Issues

7.1 Intellectual property

A crucial issue in this development is the recognition of the importance of recognition of different forms of knowledge. In simple form, the computer programme is owned by the polytechnic, the games it contains are owned and controlled by the local rūnaka. Where this breaks down is in the evolutionary development of the SimPä toolkit.

A key component of the project is the "SimPä Toolkit", a software tool for creating virtual environments specific to Māori culture and tikaka. The toolkit is a continually expanding collection of models, artwork, images, sound files, and programming scripts that can be assembled together to define the appearance of a virtual environment and how a user can experience and interact with it. The toolkit simplifies and accelerates the process of creating a GamePä (a virtual environment representing a specific place). Each Rūnaka involved will produce GamePä (a virtual environment representing a specific place).

Developing a framework for representing indigenous knowledge through a games-based environment. This is useful not only for Māori but has international appeal – for example in Canada, US and Australia. Potentially there is significant commercial value in this model we believe that this is a positive outcome of the project in that it can be piloted and perfected locally for the benefit of the community then commercialised as a partnership with the initial stakeholders.

7.2 Management and governance

This is a project of interactions and overlapping responsibilities. Komiti Kawanataka has the responsibility for the project on behalf of the Otago

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Polytechnic Council and Ka Rūnaka o Arai Te Uru (Combined Rūnaka) and will delegate evaluation to a sub committee and to an external advisor (Wairua Consulting). The project will also report to several other boards..

Reporting falls into four areas

1. Governance is carried out by Komiti Kawanataka

2. Evaluation of Tikaka is carried out by members of Komiti Kawanataka

3. Evaluation of ICT components will be carried out by a body to be appointed.

4. Financial management is carried out by Otago Polytechnic.

7.3 Sustainability

We believe that after two years the project will be self funding.

Much of the effort required in the first year is about establishing processes and developing infrastructure (primarily software). In the second year, the emphasis is on building capability in people and in demonstrating use of the process. In the second year, effort is also being placed in promoting the concept, building business opportunities and disseminating material to build momentum for the third phase. In the second anticipated that representatives from the wider Kai Tahu Rūnaka and other iwi will be invited to take part in wānaka development of GamePä

In the third phase, the project will continue through more Runuka wishing to use the approach to develop their own GamePä. For this they will be using alternative sources of funding. The capability building aspects will continue as the approach is one of combining production and training in Kaupapa Maori. We have already had several discussions with iwi organisations wishing to develop GamePä for specific purposes but need to build the community capability before undertaking such ventures

7.4 Integrated programmes

This project describes a staged approach to developing the SimPä system. In the second year, as we take the system to the wider Ngai Tahu rūnaka it is anticipated that representatives from other iwi will be invited to take part in wānaka development of GamePä.

Part of this project is the development of an education pathway whereby students are taught the technical and cultural skills to facilitate the production of digital content. The Iwi Digital Practice programme employs a collaborative methodology and learning approach, which combines the expertise in information technology from an academic learning environment with the expertise in Maori cultural knowledge from a Marae-based wanaka learning environment. The programme will combine the two streams of expertise, information technology and Maori cultural knowledge, by integrating them into a series of participatory Marae-based wanaka whereby

Rūnaka knowledge, landscapes and stories will be converted into a digital structure of storytelling and digital game. The Marae based wanaka will provide a kaupapa Maori education environment for the integration and delivery of these two streams of expertise.
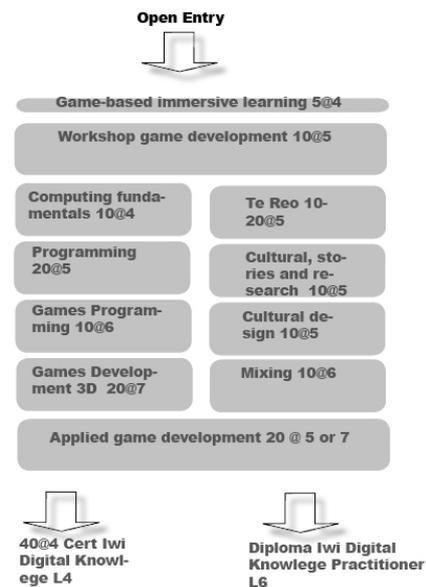

Figure 2: Integrated programme

8 Conclusion

This paper has described the development of a framework for representing indigenous knowledge through a games-based environment. There are number of powerful outcomes from SimPä. Firstly it is bringing together the young and elders of the marae to share and learn about their history. Secondly, it gives computer training to young rununga members, thirdly it gives local marae's an interactive tool to teach people about "their place". Finally, it allows members of that rununga from anywhere in the world to learn about their history and network with their elders and cousins on the internet.

Each GamePä is expected to become a valuable educational resource, particularly considering the demand for relevant digital content as schools actively increase their ICT capability.

The SimPä Toolkit, used to create Māori digital content, will also become a resource of value for other education providers.

It is intended the results of research associated with this project will be made widely available.

The SimPä project also provides an example of a unique approach of using ICT for the benefit of indigenous culture. This is relevant not only nationally but also to the international community.

The SimPä project will make learning environments and Māori narratives relevant to the 21st century.
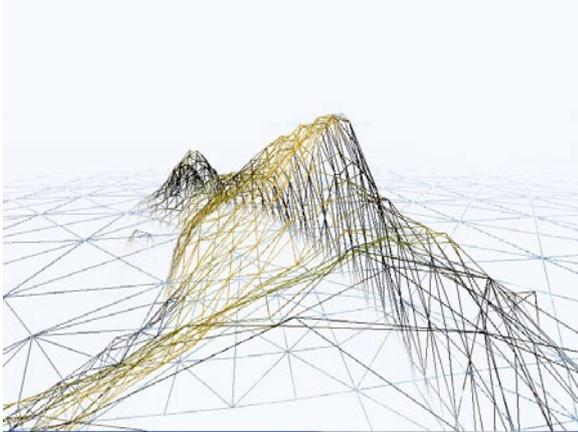
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Figure 3: Huriwa Pa (Karitane Peninsula) developed in first series of wanaka sessions.

8.1 Acknowledgements

This paper describes a collaborative project. The contributions of a great many individuals and groups is hugely appreciated.

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    - Kati Huirapa ki Puketeraki
    - Te Runanga o Moeraki
    - Te Runanga o Otakou
    - Hokonui Runaka

This project is developed as a result of the Memorandum of Understanding between Otago Polytechnic and these Rūnaka. This MOU is instantiated in the position of Kaitohutohu and the Komiti Kawanataka.

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- Evelyn Davis
- Te Matauranga Putaiao Trust
- Dougie Ditford
- Thomi Richards
- Members of the Komiti Kawanataka

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