

Connecting Maori to their past through Virtual World Computing: Re-visiting pre-European contact using immersive realities in New Zealand

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ABSTRACT

This poster outlines a recently completed Google Cardboard research activity where virtual reality was used as a technology to provide insight into a kaupapa Maori world view. An artefact was built depicting a computer-simulated Maori landscape able to transmit and interact with cultural objects using a virtual representation of an avatar inside the artefact. The direction of the research was to explore virtual reality as an emerging technology in an attempt to open further channels of interaction with the Maori culture, language and traditions. Technology is changing the way we communicate and, the way people define their digital selves is evolving. This is creating a paradigm shift of societies self, a one click view everywhere landscape that is ubiquitously connected. The emergence of new technology also provides opportunities for Maori to re-tell their cultural stories in relation to their digital self, such as their traditions, beliefs and values of interest portrayed inside a technically savvy world. This presentation reports on the research findings of the virtual reality artefact that was constructed for the purpose of evaluating a kaupapa Maori “way of doing” using a technology that may be useful to Maori as another way to vitalise the culture.

Keywords: Virtual reality, virtual world computing, Google Cardboard, Design Science Research, Maori culture, Maori technology, Maori traditions.

1. INTRODUCTION

This research looked to investigate the usefulness of virtual reality (VR) as a technology able to transmit Maori story-telling and traditions. VR is an artificial computer generated three-dimensional environment that can provide a real-person with a sense of natural inclusion inside the artificial environment, a perception of being physically present within a non-physical world, creating a sense of environmental realism. This research involved constructing an artefact that portrayed interaction with Maori objects to deliver a VR experience that was both educational and traditional. The VR experience was designed to provide insight into the life of Maori prior to contact with European settlers allowing for the study of VR as a kaupapa Maori world view.

2. LITERATURE REVIEW

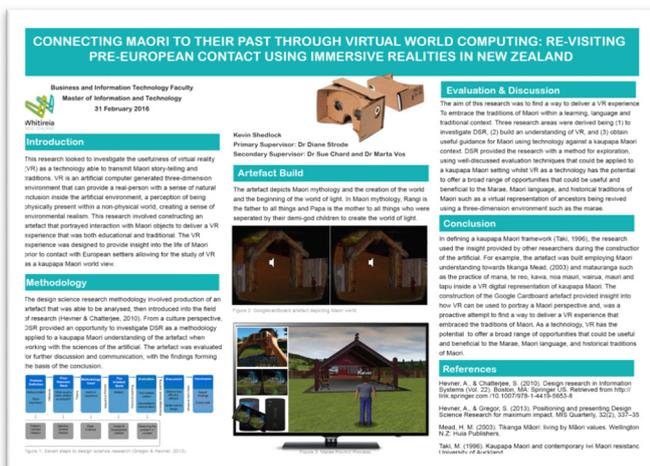
The literature review observed prior Design Science Research (DSR), VR and indigenous Maori as individual research domains of knowledge, to better understand the processes and practices of each in preparation for the artefact construction.

DSR applied as a research methodology provided a well-discussed pathway such as Simon, (1996, p54) who outlined key features of DSR that involved the use of prescriptive logic, a search for alternatives and the evaluation of design as being important to DSR. The literature discovered a range of systemic processes, models and approaches employed by DSR research for the purpose of understanding and validating DSR as a research effort such as Hevner and Chatterjee, (2010), Hevner and Gregor, (2013) and, Livari, (2013). Furthermore, evaluation was identified as crucial to demonstrating the utility, quality and efficacy of the research effort which was best delivered using a range of evaluation techniques and approaches when preparing a valid and robust research effort (Hevner, March, & Park 2004; March & Smith, 1995; Johannesson & Perjons, 2014; Pries-Heje, Baskerville, & Venable, 2008; Klecun & Cornford, 2005).

In discussing VR, the literature showed VR as a technology that was regarded as an innovative way to experience technology. Changing trends in media technology have begun to give rise to innovative ways to represent the first-person or direct experience through the development of multi-sensory media environments in which the viewer could interact with the information presented as they would when encountering a real-world original scene (Fisher, 1999). Research into VR 3D interactive computer graphics showed it was being increasingly regarded as an effective medium for education Jackson, Taylor, and Winn, (1999), social interaction Blascovich et al., (2002), entertainment Badiqué et al., (2002) and training Seidel, Chatelier, and NATO Defense Research Group, (1997).

3. METHODOLOGY

The design science research methodology involved production of an artefact that was able to be analysed, then introduced into the field of research (Hevner & Chatterjee, 2010). From a culture perspective, DSR provided an opportunity to investigate DSR as a methodology applied to a kaupapa Maori understanding of the artefact when working with the sciences of the artificial. The artefact was evaluated for further



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discussion and communication with the findings then forming the basis of the conclusion.

4. EVALUATION AND DISCUSSION

The aim of this research was to find a way to deliver a VR experience and embrace the traditions of Maori within a learning, language and traditional context. The research question was “how can Maori be connected to their past through virtual world computing using DSR?”. To effectively answer the research question, this research looked at adopting DSR as a platform to build an artefact able to demonstrate the ability and usefulness of VR to Maori. Therefore three research areas were derived being (1) to investigate DSR (2) build a stronger understanding of VR and (3) obtain useful guidance for Maori using technology and a kaupapa Maori context.

Applying DSR as a methodology for this research provided insights in to the suitability of DSR as a methodology for Maori. As an example, the construction of the artefact in relation to retaining and building knowledge for Maori and non-Maori. DSR provided the research with a methodology that was able to be used for further exploration using well-discussed evaluation techniques that could be applied to a kaupapa Maori setting.

VR as a technology has the potential to offer a broad range of opportunities that could be useful and beneficial to the Marae, Maori language, and historical traditions of Maori such as a virtual representation of ancestors being revived using a virtual interaction in a three-dimension environment or, providing a sense of communication realism where participants were actively involved in the experience. Allowing for a sense of spatial connection by providing the user with a sense of actually being present and interacting with the environment could be represented in the form of receiving feedback or responding to directives in real-time or observing human like movement's for example, a hand wave used with an arm and hand, a gaze with eyes or a smile with the use of a mouth and, the involvement of familiar sounds, images cues and common understandings in a digital world.

5. CONCLUSION

The artefact constructed during this research was able to partially embrace the cultural attributes of its Maori designer (the researcher), providing a useful channel to re-tell Maori cultural stories and convey traditions as a VR experience. In defining a kaupapa Maori framework (Taki, 1996), the research used the insight provided by other researchers during the construction of the artificial. For example, the artefact was built employing Maori understanding towards tikanga Mead, (2003) and matauranga such as the practice of mana, te reo, kawa, noa, mauri, wairua, mauri and tapu inside a VR digital representation of kaupapa Maori.

The construction of the Google Cardboard artefact provided insight into how VR can be used to portray a Maori perspective and, was a proactive attempt to find a way to deliver a VR experience that embraced the traditions of Maori. As a technology, VR has the potential to offer a broad range of opportunities that could be useful and beneficial to the Marae, Maori language, and historical traditions of Maori. This could be portrayed as traditions being revived, recording and relaying cultural heritage as repositories of knowledge or validating Maori VR as a channel to improve access to the Maori language. This may also provide opportunities for Maori to engage VR as analyst, designers, developers and future researchers. There was prior literature work available to discuss

Maori cultural concepts and ideologies, however there was limited work available to discuss the cultural view of Maori using VR or DSR as a technology which this research has partially addressed. However, the involvement of a kaupapa Maori context in VR and DSR was defined to a small area of the Maori cultural domain being te reo, whakapapa, tikanga, mana, kawa, tapu, whakanoa, wairua and, mauri leaving wide spaces for further investigation in the future.

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