What are the significant factors that have influenced the adoption of Moodle by staff in a Māori tertiary institution?

2013 Master’s Thesis

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Abstract

The purpose of this research is to get a clear understanding of the significant factors that are influencing the adoption of a Learning Management System (LMS) by staff within a Māori tertiary institution. The LMS (Moodle) has been in use since its introduction in 2005. Prior to 2005 the institution used no form of LMS or e-Learning technology. Moodle has been the first and only form of e-Learning technology used since 2005. The motivation for this research arose from the researcher’s observation that very few teaching staff were supporting their delivery strategies with the use of Moodle.

In this study the researcher seeks important answers to some critical questions. The one principal question that presented itself to the researcher was “what are the significant factors that have influenced the adoption of Moodle by staff within a Māori tertiary institution”. By studying the adoption of Moodle within a Māori tertiary institution the researcher looks at aspects of Māori culture and explores whether current technology is “transforming education” within the organization or not.

A mixed qualitative and quantitative research methodology was used. An on-line survey with SurveyMonkey and a series of interviews were employed. Observations were made and recorded to enhance the research. To gather a deeper understanding some interviews were followed by more analytical face-to-face discussions. The aim was to answer the following sub-questions:

• To what extent does Māori culture affect the adoption of Moodle?
• What effect does the reluctance to move away from traditional methods of learning have on the adoption of Moodle and to what extent?
• What are the levels of computer literacy and what impact are they having on the adoption of Moodle?
• To what extent is the training provided impacting on the adoption of Moodle?
• What are the special requirements of Māori as users of Moodle?
• To what extent is the accessibility of Moodle impacting on its adoption?

The research concludes there were specific factors influencing the adoption of Moodle in a Māori tertiary institution. These factors are as follows:

Computer and Internet literacy
• Possession of significant levels of computer literacy helps in the adoption of
Moodle.

- High level of Internet usage.

**Accessibility and frequency of computers**

- Accessibility of computers and frequency of availability is important.

**Focus groups**

- Significant focus on youth groups that are exposed to e-Learning technology early in their learning journey.

**Aspects of Māori culture**

- Aspects of Māori culture impact on the adoption of Moodle, i.e., whānau support, daily karakia (prayer) within each campus and wānanga pedagogy.

- Special requirements for Māori users (90%) indicated any collaborative or resource-oriented features were providing a positive impact.

- The Guiding Principles of the institution that recognize the need to be agile and keep up with the latest technologies, teaching and learning strategies and promote e-Learning technologies and tools.

**Staff training**

- Staff members who receive training in Moodle are more likely to use the technology.

**Advantages and disadvantages**

- Advantages of using Moodle outweigh the disadvantages.

**Infrastructure**

- Robust infrastructure.

**Support and motivation**

- Nearly 71% acknowledged that much of the support and motivation to use Moodle was coming from work associates, mainly other teaching staff.

*The study also concludes that even though Moodle has been used since 2005 there is still some way to go in providing solutions to the following issues.*

- Extensive training required
- Encouragement and support from management is required to use Moodle
- A majority of staff prefer traditional over non-traditional teaching methods.
• Initial set-up and maintenance of resources for the successful use of e-Learning technology takes significant time input
Keywords

Moodle, e-Learning, Māori, Tainui, Wānanga, adoption, kaimahi, tauira, ākonga, rohe
Acknowledgements

I would like to take this opportunity to thank all the people who have assisted me during the process of my research. I would first like to acknowledge two previous staff members who were instrumental in the beginning stages of the research, Doctor Donald Joyce and Doctor Kay Fielden.

In particular I would like to acknowledge Doctor Xiaosong Li, my principal supervisor, and Doctor Kathiravelu Ganeshan, my associate supervisor, who have supported me over the past few years. Doctor Xiaosong Li and Doctor Kathiravelu Ganeshan were able to assist me in identifying the critical research questions that have opened the door for me to find answers to the various research questions.

I would also like to acknowledge Te Wānanga o Aotearoa and the many staff members who have taken the time to complete the on-line survey and participate in the interview sessions, providing me with the critical data required moving the research forward.

Furthermore, I could not have done any of this without the support of my family, in particular my wife, whom I would like to acknowledge for standing by me for several years and for her ongoing continuous patience and support.
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1 Introduction

1.1 Overview

Learning institutions throughout the world are increasingly embracing on-line education with the use of modern technology in order to meet the demands of how education is delivered in an Internet-oriented society. This has caused many learning institutions to strategically plan for these changes in which on-line education has become a main focus. It has required the inevitable exploration of e-Learning technologies to bridge the gap that has been evident since the inception of the Internet. Kim and Bonk (2006) believe that “technology has played and continues to play an important role in the development and expansion of on-line education”. As time continues and technology advances at a rapid pace, on-line tools are improving the teaching and learning for students and staff around the world.

The paradigm shift in education has gone from being the traditional teacher-centric approach to a very strong student-centric focus, thus providing more options for the learner with the use of modern technology. Lai (2011) states that there is “A gradual shift of understanding about how learning should be facilitated in higher education, towards an emphasis on student-centred learning, rather than teacher-centred teaching”. Bowyer (2012) points out that “Moodle is one of many learning management systems widely used in the education sector and has become one of the more popular ones due to its slick interface design and rich functionality”. Moodle is an open source software that is designed to embrace both traditional and non-traditional methods of learning to enhance and engage a variety of learners. It operates as an interactive website with a multitude of activities, exercises and advanced features to promote a student-centric and collaborative learning experience.

It is the researcher’s intention to get a better understanding of the significant factors that are influencing the adoption of a Learning Management System (LMS) by staff within a Māori tertiary institution. In 2005 the institution made a decision to introduce the LMS, Moodle, whereas prior to that there was no form of e-Learning technology. Eight years on, Moodle is still the only e-Learning technology used and the researcher recognized that only a few teaching staff were actually using it and/or using it to its fullest potential.

This study uses data collected in five campuses of one region of a nation-wide Māori tertiary institution. Since 2005 it has been a relatively slow process for the staff of this institution to adopt Moodle and maximise its potential in education’s constantly changing paradigm shift.
Contributing to a new pedagogy of classroom delivery within an indigenous environment made up of a majority of Māori staff has not been an easy task. There are several reasons why this process has taken some time, first being that the current delivery techniques within some programmes are thought to be adequate and do not require change, meaning, why change something that is already working? Therefore, this study has looked at the significant factors that have influenced the adoption of Moodle by staff within a Māori tertiary institution.

To help understand the factors influencing the adoption of Moodle in a Māori tertiary institution, we need to also understand the origin of this Māori institution and its ‘Guiding Principles’ which have been kept alive for over a quarter of a century. The values which bind both kaimahi (staff) and ākonga (students) together are aroha (love), whakapono (belief), ngā ture (integrity) and kotahitanga (unity). They are the essence of the guiding principles along with the Mission, Kaupapa and Vision. These values are meaningless if we fail to apply them in the everyday operation of the various teaching roles. This is Māori culture personified embracing the values which are the very foundation in the context of education. There must be a clear understanding of these values for all kaimahi (staff) to assist in the “transformation through education” for all ākonga (students).

This thesis is presented in the following format: first (chapter 1) is the Introduction, (chapter 2) Literature Review, (chapter 3) Research Methodology, (chapter 4) Data Collection, (chapter 5) Data Analysis and Discussion and (chapter 6) Conclusions, Limitations, and Recommendations.

1.2 Guiding Principles that impact on the use of Moodle

The institution is very conscious of planning for the future and realizes its potential to remain a legitimate, sustainable, robust company within a very competitive market. The ultimate goal is to achieve “whānau transformation through education” by looking to its “guiding principles” as the foundation of learning. A main emphasis is put on the institution’s “guiding principles” as they open the door to new technologies in a changing world. As a result, e-Learning is currently the focus where Moodle is slowly changing the delivery mode from traditional face-to-face methods to providing on-line options for students. According to Lai (2011), “Increasing access to higher education has resulted in a diversification of student populations that come with a wide range of learning styles and learning needs which are rather different from the traditional, elitist student populations”. Before proceeding, the
researcher would like to identify what the “guiding principles” are and the impact they are having on Moodle.

### 1.2.1.1 Te Kaupapa (Our Philosophy)

<table>
<thead>
<tr>
<th>Māori Philosophy Statement</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ki te whakawhihi i ngā mea angitū, ā, i ngā akoranga katoa tino teitei mō ngā Māori me ngā iwi o Aotearoa me te ao.</td>
<td>To provide holistic education opportunities of the highest quality for Māori, peoples of Aotearoa and the world.</td>
</tr>
<tr>
<td>Ki te waihanga i tētahi āhuatanga hei akoranga tikanga Māori</td>
<td>To provide a unique Māori cultural learning environment. To provide practical learning experiences.</td>
</tr>
<tr>
<td>Ki te whakawhihi i te mea akoranga whai kiko.</td>
<td></td>
</tr>
<tr>
<td>Ki te tautoko, ki te whakahau, ki te ārahi i ngā tauira katoa, l a rātou e aru ana i ngā whanaketanga i ngā akoranga me ngā māhi e pā ana ki a rātou.</td>
<td>To provide support, encouragement and guidance to all learners in their pursuit of personal development, learning and employment.</td>
</tr>
<tr>
<td>Ki te whakahau i ngā tauira katoa ki te ako kia whiwhi ai rātou l te puāwaitanga tino teitei o te māiatanga.</td>
<td>To encourage all learners to learn and achieve to their fullest potential.</td>
</tr>
<tr>
<td>Ki te whakahau i ēna kaimahi, kia pai ai te haere o ngā tikanga o te māhi i whakaatu mai, kia whiwhi ai rātou i te puāwaitanga tino teitei o te māiatanga.</td>
<td>To be a good employer and encourage staff to develop personally and professionally to their fullest potential.</td>
</tr>
</tbody>
</table>

Table 1: Te Kaupapa - Our Philosophy

### 1.2.1.2 Whakakitenga (Our Vision)

<table>
<thead>
<tr>
<th>Māori Vision Statement</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ki te whakawhihi i ngā mea angitū, ā, i ngā akoranga katoa tino teitei mō ngā Māori me ngā iwi o Aotearoa me te ao.</td>
<td>“Te Wānanga o Aotearoa will provide holistic education opportunities of the highest quality for Māori, peoples of Aotearoa New Zealand and the world”.</td>
</tr>
</tbody>
</table>

Table 2: Whakakitenga - Our Vision
From a Māori perspective, education will be shared not only verbally but physically, emotionally, mentally and socially, meeting the demands in a changing learning environment with the utilization of emerging technologies. With new technology comes e-Learning, and with e-Learning comes a whole new interactive, collaborative, student-centric learning experience. Wang (2010) pointed out that, “the quality of interaction is of equal importance in both the face-to-face and on-line environment”.

1.2.1.3 Te Uaratanga (Our Mission)

<table>
<thead>
<tr>
<th>Ko te whakarite mātauranga e hāngai ana ki ngā wawata o tēnei whakatupuranga, ki te whakaū hoki i ngā moemoeā o ngā whakatupuranga o te ao tūroa, ki te whakatikatika kia mārama ai ki te hā o te ao tawhito.</th>
<th>To provide education that best fits the aspirations of this generation, enhances the dreams of future generations and prepares for understanding the essence of past generations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ki te whakatō ki roto i te hinengaro tangata te mōhiotanga o ngā taonga tuku iho, tō tātou reo, tō tātou Māoritanga e pai ai tā rātou torotoro i ngā iwi o te ao i runga i te māia me te manawanui.</td>
<td>To equip people with knowledge of our heritage, our language, our culture so they can handle the world at large with confidence and self-determination.</td>
</tr>
<tr>
<td>Ki te whakamana i te pūmanawa moe ki te ako hei taumata e hīkoi whakamua i roto i te ao hou.</td>
<td>To empower one’s potential for learning as a base for progress in the modern world.</td>
</tr>
<tr>
<td>Ki te whakatakoto tākoha e whai hua ai.</td>
<td>To make contributions of consequence.</td>
</tr>
<tr>
<td>Kia manawapā ano.</td>
<td>To care.</td>
</tr>
<tr>
<td>Kia mutu tonu, he kāinga pai tēnei ao.</td>
<td>To make our world a better place.</td>
</tr>
</tbody>
</table>

Table 3: Te Uaratanga - Our Mission

Te Uaratanga (Our Mission) is the motivation for the institution of becoming one of the leading education providers in the country. This also means meeting the technological demands of today, and providing the necessary experiences for this generation and generations to come. Kim and Bonk (2006) pointed out that, “as institutions of higher education continue to embrace and debate on-line learning, it is important to envision where the field is headed”. Moodle is a small part of a student’s learning journey that provides the flexibility, convenience, collaboration and communication tools to assist and reinforce one’s learning.
1.2.1.4 Ngā Uara – (Our Values)

The values (Ngā Uara) are embedded in and woven through the actions we take to achieve successful outcomes for all students, as, by achieving success for our students, we achieve success as an institution. These values are significant to Māori and non-Māori. They are:

<table>
<thead>
<tr>
<th>Te Aroha</th>
<th>Having regard for one another and those for whom we are responsible and to whom we are accountable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Te Whakapono</td>
<td>The basis of our beliefs and the confidence that what we are doing is right.</td>
</tr>
<tr>
<td>Ngā Ture</td>
<td>The knowledge that our actions are morally and ethically right and that we are acting in an honourable manner.</td>
</tr>
<tr>
<td>Kotahitanga</td>
<td>Unity amongst iwi and other ethnicities; standing as one.</td>
</tr>
</tbody>
</table>

Table 4: Nga Uara - Our Values

As with the Values mentioned above in (Table 4), the institution has an official document called “IT Computer Systems Acceptable Use” (Table 5) which aligns these Māori values with the appropriate use of technology. It provides an important platform in assisting the institution and its stakeholders to achieve its goals and objectives. This Kaupapa Here outlines what is deemed appropriate use of technology within this Māori learning institution.
<table>
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<tr>
<th>IT Computer Systems Acceptable Use</th>
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<tr>
<td><strong>Te Wânanga o Aotearoa Values Reflected in Good Service</strong></td>
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<tr>
<td><strong>Te Aroha</strong></td>
</tr>
<tr>
<td>Having a regard for one another and those for whom we are responsible and to whom we are accountable.</td>
</tr>
<tr>
<td>Te Wânanga o Aotearoa develops, operates and provides IT systems and devices to help kaimahi with their mahi to achieve the organizational goals and objectives. Te Wânanga o Aotearoa acknowledges its accountability to tauira, ngā whanaukatoa, iwi, community and government through its commitment to:</td>
</tr>
<tr>
<td>- Provide appropriate solutions using relevant technology; and</td>
</tr>
<tr>
<td>- Ensuring appropriate access to systems, technology and information.</td>
</tr>
<tr>
<td><strong>Te Whakapono</strong></td>
</tr>
<tr>
<td>The basis of our beliefs and the confidence that what we are doing is right.</td>
</tr>
<tr>
<td>Te Wânanga o Aotearoa takes its responsibility to protect the organization’s information stored on IT computer systems seriously. Te Wânanga o Aotearoa also acknowledges the need for a flexible learning and operating environment, through the medium of modern day technology.</td>
</tr>
<tr>
<td><strong>Ngā Ture</strong></td>
</tr>
<tr>
<td>The knowledge that our actions are morally and ethically right and that we are acting in an honourable manner.</td>
</tr>
<tr>
<td>Te Wânanga o Aotearoa places a high value on protecting the integrity of all information passed through its systems, either internally or externally. It affirms the practice of using and developing technology and security measures as a key contributor for maintaining this integrity.</td>
</tr>
<tr>
<td><strong>Kotahitanga</strong></td>
</tr>
<tr>
<td>Unity amongst iwi and other ethnicities; standing as one.</td>
</tr>
<tr>
<td>Te Wânanga o Aotearoa IT computer systems encourage relationships to be fostered, both internally and externally. They provide secure systems and communication platforms to assist in aligning with the Kaupapa (Philosophy), Ngā Uara (Values), Whakakitenga (Vision) and Uaratanga (Mission) of Te Wânanga o Aotearoa.</td>
</tr>
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Table 5: Values reflected in good service, TWOA (2013)
1.2.1.5 Strategic Attributes

The institution has ten strategic attributes that were approved by Te Mana Whakahaere (council) in 2011. These attributes are in place to fulfill the Vision, Values, Mission and Kaupapa in alignment with the Government Educational Strategy, and to encompass our distinctive contribution to ensure "Whānau Transformation through Education".

Though some of these attributes do not relate directly to the use of e-Learning or instructional technology, the majority of them do, which provides the aspiration to remain a sustainable, innovative and relevant institution within the education sector. A main focus on attributes 1 and 4, outlined in (Table 6) below, display the significant importance of ensuring that equal opportunities are provided for all students the same as what other learning institutions would provide. E-Learning must be a priority in order for the institution to be a competitive player in the market keeping up with the modern trends of technology, and specifically Moodle.

<table>
<thead>
<tr>
<th>2030 Te Wānanga o Aotearoa Key Strategic Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nurturing Mātauranga Māori – This institution is steeped in te reo, tikanga and āhuatanga Māori, with a worldwide reputation for creative and innovative approaches to indigenous learning and understanding.</td>
</tr>
<tr>
<td>2. Consolidating Organizational Sustainability – This institution is a current, agile and financially sustainable organization with significant independent funds able to be used to further its mission.</td>
</tr>
<tr>
<td>3. Delivering Highly-valued, Relevant Skills – This institution has contributed to the critical thinking, learning agility, spiritual intelligence, emotional intelligence and analytical skills of tauira.</td>
</tr>
<tr>
<td>4. Driving Innovative Education – This institution creates and uses innovative educational models to support cradle-to-cradle education.</td>
</tr>
<tr>
<td>5. Promoting Tau Ora - Māori well-being has improved significantly as a result of our programmes, with Māori employment rates, income levels, and health and lifestyle measures greater than the national average.</td>
</tr>
<tr>
<td>6. Encouraging Uptake - Māori seek out our freely accessible Māori programmes alongside other peoples of Aotearoa who value living in a Māori culturally-aware, respectful and sharing nation.</td>
</tr>
<tr>
<td>7. Leading Indigenous Research - We are a leading-edge Māori and indigenous research organization and a recognised repository of mātauranga Māori.</td>
</tr>
</tbody>
</table>
8. Assuring Tauira Success - Achievement rates amongst our tauria surpass all other tertiary institutions, and our graduates are respected and sought after in the community, public and private business sectors.

9. Protecting the Environment – This institution respects Papatūānuku in urban and natural settings and seeks opportunities to rejuvenate our environment to create a sustainable future for our tamariki (children) and mokopuna (grandchildren).

10. Maintaining Active, Healthy Relationships – This institution has strategic relationships with iwi and other stakeholders that include equity investments in collaborative ventures resulting in positive outcomes for Māori and peoples of Aotearoa.

Table 6: 2030 Key Strategic Attributes

1.3 Background

With the explosion of digital learning and its ability to attract mass learners, it is critical that we not only have the availability of technology but also the knowledge and skills on how to use it. As with any innovation, e-Learning technology requires a basic understanding and a robust infrastructure that will provide a substantial service to all learners. E-Learning is providing another option for how learners engage with institutions in addition to the traditional face-to-face mode, thus providing a certain level of flexibility. Recently, there has been a transformation focusing on effective strategies that will allow Te Wānanga o Aotearoa to become a more competitive, robust, sustainable education provider. Its guiding principles distinguish it from all other tertiary institutions throughout the world.

The institution’s uniqueness is exemplified by its strategic focus on specific groups that have and are currently struggling in mainstream education. These groups are Māori, Pasifika students and young people under the age of 25. The institution’s intention is to increase enrolment numbers and provide a wider range of services. Technology is being used to find out how these groups are learning, with the use of on-line courses, on-line assessments, on-line collaboration, programme resource accessibility and on-line tutorials. Since the inception of Moodle 8 years ago it has been tailored and trialed over time to meet the satisfaction of staff in both classroom and distance learning environments. Moodle is now providing rich information via multiple media elements such as image, video, audio, and text.

Other studies have highlighted critical success factors for e-Learning amongst Māori and Pacific students. Ana Hau'alofa'ia Koloto (2006) pointed out the positive effects it was having as a result of the following factors:
• Access to information, learning centres, and other resources
• Access to and knowing how to use computers and the Internet
• Help from tutors and class members in an environment that is supportive of information technology (IT) use
• Attending class and handing in assignments on time
• Motivation and self-confidence
• Understanding e-Learning and course content
• Family support
• Funds for tuition fees
• Individual learning
• Time to work on the course on-line
• Good command of English

Soud Almahamid (2011) believes the significant factors impacting on the use of e-Learning technology were positive relationships “between system quality, information quality, service quality, Internet self-efficacy, perceived usefulness, intrinsic user-satisfaction and continuous intention to use e-Learning systems”. Therefore, the success of using Moodle within a Māori tertiary institution depends on how these factors are applied. According to Tyagi (2012), “an important and relevant instructional goal for educators preparing students for their professions is to help students learn to use these technologies for lifelong learning, teamwork, collaboration, document and idea sharing, inquiry”. The popularity of Internet technologies has stimulated and continues to stimulate the desire for e-Learning within several Indian universities. Tyagi (2012) pointed out that attention should be given to “faculty attitude and their perceived behavioural control which are strong predictors to their intention to use” e-Learning technology.

In a Māori learning institution, Moodle presents a very cultural feel and look through language, video, images, text and quality resources. According to Hanbing Yan and Qiyun Wang (2012), “In the new era that technologies are developing so quickly, we have to recognize that learning and teaching should take advantage of technology development… A successful class should effectively take advantage of technologies to develop students’ skills for the 21st century”.

This study investigates the current status and effects Moodle is having on staff within a Māori tertiary institution in order to understand some key factors that are influencing its adoption. It will also look at other studies of different cultures, and the impact e-Learning
technology is having within their learning environments, to ascertain what is or is not working for them and perhaps make comparisons with the present research that may provide recommendations for improvement. According to Hyeonjin Kim et al. (2012), “Evolving roles and competencies in the rapidly changing society, coupled with the emergence and adoption of new technologies, have become a legitimate area of focus”.

It was important to examine similar research that has been conducted by other cultures to provide clarity and vision for the future and the use of e-Learning technology. These similarities will help reinforce the objectives of this thesis by identifying the significant factors that have influenced the adoption of e-Learning technology.

1.4 Research Motivation

The researcher has previously worked as a teacher for the institution. The institution is unique with a national presence. Within the organization, there are variations between the regions. The researcher comes from Tainui, and the five campuses used in this study are in Tainui rohe (region).

Moodle was introduced into the institution in 2005 but the researcher felt that Moodle could be used in many more ways to improve student learning. Having looked at work carried out in mainstream tertiary institutions in New Zealand and elsewhere, and also at tertiary institutions catering mainly for indigenous student populations, the researcher felt that there are gaps in the knowledge about how to encourage its use among staff members.

Being a Māori tertiary institution made up of staff the majority of whom are Māori is unique in itself, which is and always has been of interest to the New Zealand public. What is more interesting is how the institution has dealt with the pressures of remaining sustainable in a competitive industry over the past 27 years. With emerging technological trends within the education sector, it is critical to ascertain what the impact is from a Māori perspective, hence the attempt to find the “significant factors that are influencing the adoption of Moodle by staff within a Māori tertiary institution” by identifying the current status of e-Learning and looking at similar studies to observe and make comparisons of what possible recommendations or improvements could assist in moving forward. To assist in answering the principal question, the researcher has used an additional six sub-questions outlined below:

1. To what extent does Māori culture affect the adoption of Moodle?
2. What effect does the reluctance to move away from traditional methods of learning have on the adoption of Moodle and to what extent?

3. What are the levels of computer literacy and what impact are they having on the adoption of Moodle?

4. To what extent is the training provided impacting on the adoption of Moodle?

5. What are the special requirements of Māori as users of Moodle?

6. To what extent is the accessibility of Moodle impacting on its adoption?

It is important to point out that for the purposes of this research only a kaiako (teacher) focus was required for the data to ascertain real-life influencing factors, from their perspective, on how e-Learning technology is impacting on their specific roles. A tauira (student) perspective was not sought and the researcher realises the student perspective could be an additional study for the future.

The purpose of this research is to obtain an understanding of:

- The significant factors that are influencing the adoption of Moodle by staff in a Māori tertiary institution.
- Similar research in other cultures to see how e-Learning is impacting on them and to learn from their experiences.
- How to make staff aware of the benefits of e-Learning technology.
- The data analysis to initiate appropriate recommendations for improvements.
2 Literature Review

2.1 Overview

In the literature review, research into the significant factors that have influenced the adoption of Moodle by staff within a Māori tertiary institution is explored. The academic literature used for the research will be obtained from journals, conference proceedings, books, websites and on-line databases.

The purpose of the literature review is to find relevant and supporting evidence that will assist in answering the research questions, as outlined in the thesis. This chapter has been divided into four parts; Overview, Literature, Literature Map and Summary.

The literature map is shown in section 2.3 (Table 9) to provide a clear overview of the research.

2.2 Literature

2.2.1 What is e-Learning?

It is an exciting experience to learn in an age of electronic technology where the learning process can occur not only in a classroom environment but outside the classroom as well. There is a plethora of reasons why e-Learning is critical to the survival of traditional education. To understand this principle one must first understand the concept of e-Learning. E-Learning is the combining of electronic learning and teaching strategies, where both the student and teacher experience an interactive and collaborative synergy unfolding, with varying sources of content delivered via the Internet, video, hyperlinks, audio, images and much more. Goyal and Purohit (2009) state that, “As educational technology becomes more prevalent in management education, teaching is no longer restricted to face-to-face instruction”. Nicole Crawford (2011) believes, “e-Learning technologies are often seen as a driving force in the democratization of contemporary education”. According to Ping Gao et al. (2009), “in an age of modern technology there is a diversity of delivery strategies and varying reasons why and how we can implement them in classroom situations”.

E-Learning is filling the gap between information technology and traditional classroom delivery. Rasimah Che Mohd Yusoff and Azlina Ahmad (2011) concluded that, “a new
technology is considered to have been integrated successfully into an organization or workplace when it is used by the people for the tasks it is intended for”. In other words, e-Learning in the education sector amongst the universities of the world will only be profitable if the right people utilize it, for the right reason, all heading in the right direction. Opportunities of e-Learning will provide learning ‘anywhere at any time’ with capable technology. The teaching aspect of e-Learning must be given as much attention as the technology used to complement its very existence.

The institution has benefited immensely from e-Learning technology, particularly with providing student on-line resources and communication tools. G.Vijayakumari (2010) lends support to this, by arguing that:

“Since technology-based e-resources development is a relatively original concept, new ideas about how to use e-resources technology in this form are coming out on a systematic basis. While this field is constantly changing, the future of technology-based e-resources development looks promising. Using the more traditional practices of educational development, educators must usually wait until the next workshop or training meeting to develop their teaching professional skills. With technology-based e-resources development, educators no longer need to wait. Rather, they have immediate access to e-resources. Furthermore, these on-line resources create a more personalized, individualized learning environment”.

The reality of traditional learning is slowly but surely diminishing with the insertion of new technology such as e-Learning, which tends to provide a more personal, comfortable, interactive and quality way of learning. K. Nachimuthu (2010) points out that, “E-Learning is a whole new world for most of us. It is important therefore to think of it as an innovative way of learning with new and sometimes different learning skills”.

2.2.2 What is Moodle?

E. Marcia Johnson et al. (2011) state that, “In response to recent social, economic, and pedagogical challenges to tertiary-level teaching and learning, universities are increasingly investigating and adopting e-Learning as a way to engage and motivate students”. Learning management systems are a critical part of e-Learning of which two of the more common ones, Moodle and Blackboard, are used in many tertiary institutions around the world. According to Lawler (2011a), “a learning management system is defined as a software
application that automates the administration, tracking and reporting of training events”.

Moodle like many other learning management systems is designed to support teaching and learning within classroom and non-classroom environments. Moodle is an open source learning management system that has no cost attached to it. Moodle is copyrighted which means that users may still “copy, use and modify” as long as they adhere to the original copyright terms and conditions. The name Moodle is an acronym of Modular Oriented Dynamic Learning Environment, and has approximately 43,000 registered sites in 208 countries, and continues to grow at a very rapid pace. In recent times it has moved to the forefront of e-Learning for this reason, and is currently one of the more widely used LMSs in the worldwide education sector. Moodle has a large and diverse user community, with more than 330,000 registered users, speaking over 70 languages in 196 countries. Lawler, (2011a) believes, “An important feature of the Moodle programme was that it allowed easy access from off-campus locations, including uploading of teaching and learning materials by the lecturer and uploading of completed assignments by the students”.

In a recent study Moodle was used in an on-line design project ensuring that “the resulting products and environments meet the needs of potential users with a wide variety of characteristics” (Elias, 2010). It also pointed out the following principles, which were used in the design process, with a main focus on “distance education”:

**Eight UID (Universal Instructional Design) Principles Tailored to Distance Education**

1. **Equitable use.** The design is useful and accessible for people with diverse abilities and in diverse locations. The same means of use should be provided for all students, identically whenever possible, or in an equivalent form when not.

2. **Flexible use.** The learning design accommodates a wide range of individual abilities, preferences, schedules, and levels of connectivity. Provide the learners with choice in methods of use.

3. **Simple and intuitive.** The course interface design is easy to understand, regardless of the user’s experience, knowledge, language skills, technical skills, or current concentration level. Eliminate unnecessary complexity.

4. **Perceptible information.** The design communicates necessary information effectively to the user, regardless of ambient conditions or the student’s sensory abilities.
5. **Tolerance for error.** The design minimizes hazards and adverse consequences of accidental or unintended actions.

6. **Low physical and technical effort.** The design can be used efficiently and comfortably and with minimal physical and mental fatigue.

7. **Community of learners and support.** The learning environment promotes interaction and communication among students and between students, faculty, and administrative services.

8. **Instructional climate.** Instructor comments and feedback are welcoming and inclusive. High expectations are espoused for all students.

Therefore, based on these principles shown above, the researcher emphasizes in chapter 5 a similar study of the design principles and the impact they are having on the adoption of learning management systems such as Moodle. It is fair to say that not all of these principles are having a positive effect on staff, but areas of improvement that require attention have been identified to achieve a high level of satisfaction. Much of the success staff has experienced or is experiencing with the use of Moodle is due to working towards meeting the standards of these principles. Though they may seem generic, in contrast, they tend to have an ad hoc implication with regard to e-Learning usability.

### 2.2.3 Why Moodle is needed

Although there are other learning management systems on the market, Moodle tends to have more appealing features, that can be tailored effectively and efficiently to suit the customer, than any other LMS. According to Pontydysgu (2007):

> "Institutions sought to control Internet based learning through Learning Management Systems and Virtual Learning Environments. Slowly we are coming to realize that we cannot simply reproduce previous forms of learning in the classroom or the university embodied in software. Such environments can be pretty sterile places. And of course young people realize this. Courses based on bulletin boards can be very lonely."

Moodle has been designed to support staff with the ability to create on-line learning resources, extensive communication and collaborative tools where staff, students and various groups can share and contribute in the learning journey. According to Venter,
Rensburg and Davis (2012):

“On-line and mobile technologies have surged upwards significantly providing education institutions growth in the adoption of on-line and mobile technologies, as well as the application and evolution of these technologies to enable greater collaboration and interaction which has been instrumental in the widespread use of e-learning platforms and applications by tertiary educational institutions.”

The findings in this research have shown that the majority of staff is fairly confident in using a computer and browsing the Internet, both of which capabilities tend to be fundamental prerequisites for working in an e-Learning environment. The statistical analysis shown in chapter 5 indicates this is one of several significant factors influencing the adoption of Moodle. Ana Hau'ālofa'ia Koloto (2006) stated, “that to fully participate in e-environments, learners have to be technologically literate, confident, and competent”. If learners possess the necessary technological skills they are more likely to engage in new instructional technology.

Similarly, Soud Almahamid (2011) in a supporting study, indicated that the aim of the research is to ascertain the critical factors affecting “long-term e-Learning usage intention” with the use of an assessment model. The analytical descriptive in (Table 14) of chapter 5 suggests that the capability of respondents to use a computer and the Internet is sufficient for them to engage in e-Learning technology.

The researcher discovered a high level of accessibility to computers at any given time within the five campuses. Again, in another supporting study, Ana Hau'ālofa'ia Koloto (2006) discovered that 90% of Pasifika and Māori students had access to a computer, indicating another contributing factor for using e-Learning technology. These results are consistent with the success factors influencing the adoption of Moodle by staff in a Māori tertiary institution, and will be discussed further in chapter 5.
2.2.4 Similar e-Learning research

2.2.4.1 Jordanian Culture and significant factors for e-Learning usage (Good)

Jordan University explored the relationships between “system quality”, “information quality”, “service quality”, “Internet self-efficacy”, “perceived usefulness”, “intrinsic”, “user satisfaction”, and “continuous intention to use e-Learning systems”. The aim of the research was to ascertain the critical factors affecting “long-term e-Learning usage intention” with the use of an assessment model.

The analytical descriptive in (Table 7) outlined below suggests that respondents’ capability to use a computer and the Internet is sufficient to enable them to engage in e-Learning technology; a similar indication was shown in (Table 8). It also showed that respondents do not use the e-Learning technology frequently enough, which is an area of focus that needs to be continually assessed and improved.

<table>
<thead>
<tr>
<th>118 males (63.4%)</th>
<th>68 females (36.6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates higher number of male respondents</td>
<td></td>
</tr>
<tr>
<td>&lt; than 6% of respondents have &lt;1 year’s experience using a computer</td>
<td>33% have between 7 and 9 years’ experience using a computer</td>
</tr>
<tr>
<td>Indicates that respondents are more than capable of using a computer, which is necessary to using an e-Learning system.</td>
<td></td>
</tr>
<tr>
<td>47% have between 4 and 6 years’ experience using the Internet</td>
<td></td>
</tr>
<tr>
<td>Indicates that nearly 50% of respondents are capable of using the Internet, which is necessary to use an e-Learning system.</td>
<td></td>
</tr>
<tr>
<td>36% spend &lt;1 hour a day using e-Learning system</td>
<td>&lt;1 hour a week spent using e-Learning system</td>
</tr>
<tr>
<td>Indicates that there is a low level of usage by respondents and indicates an area that requires attention in order to engage maximum usage.</td>
<td></td>
</tr>
</tbody>
</table>

Table 7: Descriptive analysis from similar research: (Almahamid, S., & Rub, F. A. (2011)
The findings in Tables 7 and 8 are very similar and do complement each other significantly. Apart from the gender comparison, about which the researcher makes the assumption that it is a cultural difference between males and females in two different countries, the evidence is very clear that there is a relationship between having the knowledge, confidence and skills and not only being able to use a computer but the Internet too, which will contribute to user satisfaction and a continuous intention to use e-Learning technology.

As depicted in Table 8 below, nearly 50% of respondents have “excellent” computer skills, 40% have “good” computer skills, and 12% of respondents have computer skills that are “fair”. In the current research, this was highlighted as a significant factor influencing the adoption of Moodle and the intention to continue to use this technology within a Māori learning institution. The ability to use the Internet by staff was another influencing factor presented in both research data analyses. Table 7 indicated nearly 50% of staff have between 4 to 6 years’ experience using the Internet, Table 8 indicates a high 60% of respondents have “Very Good” confidence in using the Internet, a further 28% have “Good” confidence in using the Internet, and 12% remained neutral.

A very interesting observation in both the previous and current research outlined the fact that just because students have the e-Learning technology and the knowledge, it doesn’t necessarily mean they will use it frequently. In fact the data analysis pointed out (Table 7) that there was a low level of usage by respondents, indicating a focus area that requires more attention, not only to engage students but to ensure a continual intention to engage more frequently.

Likewise with Table 8, which indicates a low 16% of respondents said “instructional technology” was “Very significant”, a further 40% indicated it was “Significant”, and 32% remained neutral. Given these results for both Tables 7 and 8, it appears that a high level of student satisfaction and continual intention to use e-Learning systems will be encouraged by providing quality service and a quality product.

<table>
<thead>
<tr>
<th>73.1% Female</th>
<th>26.9% Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compared to Table 7 above, this finding is the opposite, with females having the higher percentage than males.</td>
<td></td>
</tr>
</tbody>
</table>

| 48% have “Excellent” computer skills | 40% have “Good” computer skills | 12% computer skills are “Fair” |

| Indicating a level of computing skills suitable to engage in e-Learning technology. |
60% “Very Good” confidence in using the Internet
28% “Good” confidence in using the Internet
12% remained “Neutral” in using the Internet

Indicating a substantial percentage of respondents are more than capable of using the Internet.

16% indicated instructional technology “Very significant”
40% indicated instructional technology “Significant”
32% remained Neutral

Though it does not provide a frequency of usage similar to Table 8, it does highlight respondents’ views of the importance of e-Learning technology.

Table 8: Descriptive analysis from current research

Once again, there are obvious parallels indicated in factors influencing the adoption of Web 2.0 in several Jordanian universities and the factors influencing the adoption of Moodle in a Māori tertiary institution. In chapter 5.4 of the current research, ongoing training is discussed as an area of focus. Though 70% of respondents said they have had some form of Moodle training, only 5% said they have had “A lot” of training, 75% said “Not much”, and 20% said “None”. Based on these results, it is critical that further training occur frequently so that it becomes intrinsic to the institution and increases the technological usage over time.

Incentives for users have not been factored into the adoption process for Moodle, but certainly could provide interesting discussion on how they may look, especially if they contribute to learner satisfaction and the continuous intention to use e-Learning technology.

In regard to the following statement, “more attention to system quality, information quality, service quality, Internet self-efficacy, perceived usefulness, intrinsic, user satisfaction, and continuous intention to use e-Learning systems”, the author in the previous research noted that maintaining each of these factors would increase users’ satisfaction with e-Learning systems. In the current research, each of these factors is currently evident in some form and at varying levels. The objective of this research, like that of the previous research, is to increase usage and satisfaction by maintaining high levels of each of these factors.
2.2.4.2 Indian culture and significant factors for e-Learning adoption

Similar research has been conducted at six Indian universities to explore the usage of Web 2.0 technologies in a learning environment. Its main objective was to conduct a usage analysis of Web 2.0, by faculty, from different departments in the universities. According to Tyagi (2012), “Web 2.0 is an emergent key driver changing learning paradigms at academic institutions”.

Furthermore, its other research objectives were to:

- To know the purposes of faculty members for using Web 2.0 tools in learning environment;
- To know the stage of adoption of Web 2.0 tools and technologies;
- To identify which Web 2.0 tool is used mostly for teaching purpose; and
- To explore the benefits and contribution of Web 2.0 technologies in education.

Once again, there are strong similarities in the previous and current research that determine significant factors influencing the adoption of e-Learning technology (Web 2.0, Moodle). The author also highlighted that Web 2.0 tools are used for 3 major purposes:

- For Web-based teaching and research
- For interactive learning features
- Keep up-to-date on related topics and interests.

There are currently three main focus groups that have been given much attention within the institution’s strategic business planning for the next 2–5 years, namely, Māori, Pasifika and youth under the age of 25 years. Unfortunately, the more mature students that are 40 years and older will not find it as easy to return to school as they have done previously because of the use of technology.

Moodle is currently the vehicle that is assisting these priority groups that have previously been under-represented in mainstream learning across New Zealand. It has been designed specifically to provide a high level of collaboration, interaction and sharing of resources and ideas. We are living in an age of emerging technology where e-Learning is at the forefront of how learners engage, both on-line and mobile. Section 2.2.6.5 outlines the organization’s “Strategic Attributes” (see Table 5); attribute number 4 states the following:
“Driving Innovative Education – the organization creates and uses innovative education models to support cradle-to-cradle education”.

This means a great responsibility for the organization to remain reasonably current and up-to-date with technology as one of the largest education providers in the country. Section 2.2.7 (Table 6: Strategic Attributes 2030) implies a total commitment by the organization to ensure a high level of service is provided by way of excellent information technology systems, solutions, service and support.

2.3 Literature Map

In the literature review research into Moodle has been explored. It was important to reflect on the world of e-Learning, and how Moodle is playing its part, from a Māori perspective in a Māori tertiary institution.

<table>
<thead>
<tr>
<th>What is e-Learning?</th>
<th>What is Moodle?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guiding principles that impact on the use of Moodle</td>
<td>Why Moodle is needed</td>
</tr>
<tr>
<td>Similar e-Learning research</td>
<td></td>
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</table>

Table 9: Literature review map

2.4 Summary

This chapter has looked at the literature that has contributed to the body of research on the impact of technology in tertiary education, and the impact that Moodle is having on a Māori tertiary institution. It was necessary to discuss why this institution would use this particular learning management system, Moodle, and to provide examples of the more common uses of it. As a Māori institution, the researcher thought it critically important that its ‘Guiding
Principles’ would also be a main focus as they are the providers of the ‘living water’ for the past, the present and the future of the organization. Some of the literature also suggested the use of technology such as e-Learning is a commitment to providing the best learning environment, as outlined in section 2.2.7 and Table 8.
3 Research Methodology

3.1 Chosen Research Method

This chapter aims to provide an overview of the research method utilised, with a focus on determining some fundamental requirements of a specific learning management system, Moodle. It will look at it from a Māori perspective with the primary objective to attempt to answer the following research question: “What are the significant factors which have influenced the adoption of Moodle by staff in a Māori tertiary institution?”

The researcher used a mixed research methodology in order to capture both qualitative and quantitative data to assist in answering the research questions. This will enable a clearer understanding of the reasons why and how staff would make use of this technology.

Hence, to ascertain what factors influenced the adoption of Moodle, an on-line survey was conducted using SurveyMonkey.com with teaching staff from five campuses within the Tainui rohe (region), namely, Raroera (Te Rapa), Tokoroa (Tokoroa), Maniapoto (Te Kuiti), Apakura (Te Awamutu), Rāhui Pōkēka (Huntly), from semester b 2011, to semester a 2012. Interviews were also carried out with staff from the same campuses, at the same time keeping a record of critical observations made influencing the adoption. The mixed research method comprised of both qualitative and quantitative data collection is considered sufficient to achieve the research goals.

3.2 Survey Process

There were 30 survey questions created on SurveyMonkey. These survey questions were to probe and find out what factors were influencing the adoption of Moodle by staff within a Māori tertiary institution. A total of 71 survey invitations were sent out using SurveyMonkey, 26 responses were received, of which 25 were complete responses and 1 a partial response. Off the 25 respondents plus 1 partial, 19 were female and 7 were male. The respondents are also from a range of teaching programmes, which were identified in the survey. The results are as follows:

- Mātauranga Māori 15.4%
- Arts 11.5%
- Computing and Business 50.0%
• Sports and Fitness 11.5%
• Education 3.8%
• Foundation 3.8%
• Social Services 3.8%

The on-line survey was designed to find answers to the research questions. Its focus was on staff skill level, accessibility and availability of Internet and computers, usefulness of Moodle, comparing other LMSs to Moodle and, finally, the support and training of staff and the impact that Moodle is having in their current teaching environments.

Of all the respondents, nearly 90% were Māori, which provided interesting results from an indigenous majority perspective. The survey questions are attached in Appendix C. To ensure that the survey questions were adequate to address the research questions, a matrix was created. This matrix is given in Appendix E.

Each participant was sent the Information for Participant Form (Appendix A) extending the invitation and introducing the purpose of the research project. A Consent Form (Appendix B) was also sent to each participant to provide additional terms and conditions with their signature.

3.3 The Interview Process

The interviews were completed in two stages in order to add depth to the initial interview questions. As a result, stage two meant an additional three questions were added to the original seven to provide a stronger base for finding answers to the research questions. Stage one is the data collected from interview questions 1-7 (10 interviewees); stage two is the additional data collected from interview questions 8-10 (additional 10 interviewees). The interview questions are attached in Appendix D. Before being interviewed for stage two, once again, an Information for Participant Form and a Consent Form was given to each participant prior to the interview session. The interviewees chose either a telephone or face-to-face option to conduct a 30-45 minute interview in stage one, and a 20-30 minute interview in stage two. In stage one, the ten interviews were conducted face-to-face which required the researcher to travel to the five different campuses. In stage two, four interviews were conducted face-to-face and the other 6 interviews were conducted by video conferencing with the use of Microsoft Communicator. This was a big advantage as all staff members have access to Communicator.
It was interesting to note the different responses from the same interview questions that were asked of each participant. The researcher attempted to collect as much relevant data as possible from stages one and two of the interview sessions to provide answers to the research questions.

To ensure the research questions were covered by the interview questions, a matrix was also created, which is attached in Appendix F.

3.4 Observation

The researcher made several observations pertinent to the identification of factors influencing the adoption of Moodle. Of all the observations made, chapter 4 reflects the more appropriate ones, as also shown in the analysis.

3.5 Data Collection Method

The purpose of the data collection is to find supporting evidence to provide answers to the research questions. It was essential that the research questions demonstrated clear alignment to the data collection strategies used, so that absolute clarity would be evident in the documentation of the research.

Due to the mixed research method used (qualitative and quantitative) the researcher completed a literature review with an academic perspective, carried out an on-line survey, conducted two stages of interviews and recorded several observations influencing Moodle adoption. These data gathering strategies will be discussed in more detail below.

Step One: Literature Review

The researcher conducted a search on the Unitec library database, Internet and the on-line archives of the institution for literature on Moodle, e-Learning, policies and procedures, and the use of other technologies in tertiary institutions. In this section of the research, secondary data is critical to providing literature relevant to the thesis topic. The researcher collected and reviewed a series of journals, academic electronic databases, books and conference papers. The literature that was found has provided a sound base for the research study and identifies similar issues and possible solutions regarding the research questions.
Step Two: Questionnaires (survey), Interviews and Observation

The researcher conducted an on-line survey with the use of SurveyMonkey (see Appendix C) to collect quantitative data to contribute to the research. At first, an Information by Participant Form and a Consent Form were sent out to select teaching staff from five different campuses within Tainui. Both of these forms are noted. Once the on-line survey was completed, the survey link was emailed to each staff member’s email address. After a period of time the results from each respondent were calculated using the SurveyMonkey on-line tools. The data were then downloaded providing a graphical representation of each respondent regarding the research questions.

It was also imperative that a qualitative data collection method be used, which was done by conducting a series of interviews held in two stages. The first stage consisted of interviewing ten interviewees from the five different campuses. Each interview lasted approximately 30-45 minutes. The interview comprised seven questions pertaining to the research (see Appendix D). Over time, through meetings with the principal and associate supervisors, it was recommended that additional questions might need to be created in order to capture further relevant data that would assist in answering the research questions. This meant that stage two of the interview process was then conducted; with an additional ten staff members who would answer three additional questions. These interviews were conducted face-to-face and by telephone.

Over the duration of the research study the researcher has made significant observations of factors that are in some way influencing the adoption of Moodle. As mentioned in section 4.4, the government is shifting the dynamics of student demographics from the current mature students to a younger audience, with a particular emphasis on Māori and Pasifika students. These groups are being exposed to e-Learning technology in the early stages of their education within the institution. Te Paetoko is the Moodle support team for the institution that provides the support and training. Specific e-Learning features have been highlighted due to staff usage of them throughout the research, such as having access to the video resources, and the complete curriculum and course content being readily available on Moodle. A significant observation made was that the current policies that are available within the institution provide absolute guidance in ensuring the institution’s commitment to providing quality service in the form of a robust infrastructure and capable technology for all learners. One such document, discussed in chapter 4, is “Kaupapa Here".
With the results from the survey questionnaires, the two stage interview sessions and the observations made, sufficient in-depth data and relevant information was provided for the research.

3.6 Data Analysis Method

As explained previously, there are two types of data in the research comprised of quantitative data (survey) and qualitative data (interviews). The researcher has analysed both sets of results, which has provided supporting evidence for the research.

(Online Survey)

The objective of the on-line survey was to capture a minimum of at least 25 respondents, as outlined in the thesis proposal. Any extras would be a bonus though the researcher anticipated that even 25 would be a difficult task to achieve. Of the 71 survey links that were sent out to staff, 25 responded providing results that were downloaded in various formats. With the different graphical display and category options available, the researcher chose to use the pie and bar graphs, which are the best suited for this study and are, at the same time, time efficient. This customization capability on SurveyMonkey was very advantageous as it allowed the researcher to make changes to the documentation layout in a manner suitable for the research. Once this step was completed the data was then analysed by observing the different graphs, colours, text and categories that would provide factual results to help answer the research questions. Each research question was configured to use the appropriate figures or tables.

(Interview & Observation)

Initially, a series of interviews was set up to visit five campuses within the Tainui region. In each of the interviews an iPad was used to record and capture each session. The researcher was then able to review and re-review all the data gathered on the iPad to ascertain what parts of the recording to transcribe. Once the transcriptions for each of the interviewees were completed, the data were then transferred to Microsoft Excel to create a graphical representation of the final results. This was done by using bar graphs in similar colours, and layout formations with varying text, and the use of figures instead of tables. Consistency was a main focus on how the results would be displayed for each of the
interview questions, which would also help clearly identify what information could be beneficial in providing answers to the research questions.

**Summary**

It is critical that a mixed research methodology be used for this research so that a varying pool of data can be gathered to ascertain the significant factors that have influenced the adoption of Moodle by staff.

The researcher portrays how the mixed research methodology is conducted with the use of the literature review, questionnaire survey, interviews and observation methods. Through a qualitative and quantitative approach, data were gathered from teaching staff to provide detailed information on how best the research questions can be answered.
4 Data Collection

4.1 Introduction

The data collection involved three types of data - the results from the on-line survey, results from the two stages of interviews and, finally, the results from observations that were made and recorded. A total of 25 respondents completed the on-line survey providing a pool of data on how Moodle is impacting on their delivery strategies as teachers. Two stages of interviews were also conducted, either face-to-face or by telephone. The first stage of interviews consisted of ten face-to-face interviews consisting of seven questions, and the second stage of interviews consisted of four face-to-face interviews and six video conferencing interviews. Several observations were recorded which were deemed appropriate as factors influencing the adoption of Moodle, and are discussed further in this chapter.

The data collected from the survey and the interview sessions were analysed and strategically categorized to provide clarity on how the research questions may be answered.

4.2 Survey Data

The data collated in this section was acquired through the use of an on-line survey programme (SurveyMonkey) administered to staff members. The survey was conducted over the period from Semester B 2011 to Semester A 2012. A total of 71 respondents were invited to complete the survey, of which 26 responded, (1 partial completion and 25 total completions). Table 10 below summarises the demographic information of the survey respondents.

<table>
<thead>
<tr>
<th>Age</th>
<th>Response %</th>
<th>Response count</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 20 years</td>
<td>0.0%</td>
<td>0</td>
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<tr>
<td>21 - 30 years</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>31 - 40 years</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>More than 40 years</td>
<td>76.9%</td>
<td>20</td>
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<table>
<thead>
<tr>
<th>Gender</th>
<th>Response %</th>
<th>Response count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>26.9%</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td>73.1%</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Response %</th>
<th>Response count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Māori</td>
<td>88.5%</td>
<td>23</td>
</tr>
<tr>
<td>Pakeha</td>
<td>7.7%</td>
<td>2</td>
</tr>
<tr>
<td>Indian</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Chinese</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>----</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>7.7%</td>
<td>2</td>
</tr>
<tr>
<td><strong>Current position</strong></td>
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<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>92.3%</td>
<td>24</td>
</tr>
<tr>
<td>Administrator</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Manager</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Facilitator</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td>Secretary</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td><strong>Current area of teaching</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mātauranga Māori</td>
<td>15.4%</td>
<td>4</td>
</tr>
<tr>
<td>Arts</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>Computing and Business</td>
<td>50%</td>
<td>13</td>
</tr>
<tr>
<td>Sports and fitness</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>Education</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td>Social services</td>
<td>3.8%</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 10: Demographic Information

1. **Please select your age range**

Of the 25 respondents, the largest group was “More than 40 years” 76.9% (20 people), with the smallest groups being between 21–30 years 11.5% (3 people), and 31–40 years 11.5% (again, 3 people).

Figure 1: Age range for respondents
2. Please select your gender

Of the 25 respondents, 7 (26.9%) were male and 19 (73.1%) were female.

![Pie chart showing gender distribution]

Figure 2: Respondent gender

3. What is your ethnicity?

Of the 25 respondents, 88.5% (23 people) were Māori, 7.7% (2 people) were Pakeha, and 3.8% (1 person) was a Pacific Islander. The purpose of questions 1 to 3 was to gather basic information from 25 respondents regarding age range, gender and ethnicity, which provided strong but obvious results. The majority of staff, more than three-quarters, were more than 40 years old; and the majority of respondents, also three-quarters, were female. The majority ethnic group was made up of Māori, nearly 86% (23 people); then Pakeha at 7.7% (2 people), and 1 Pacific Islander, which accounted for 3.8%.
4. **What is your current position within the organization?**

Of the 25 respondents, 92.3% (24 people) are teachers, 3.8% (1 person) is a facilitator and another 3.8% (1 person) has specified that she is a lecturer. This pool is made up of staff from either the certificate, diploma or degree programmes. More than three-quarters of respondents are teaching members of staff who expected that, somewhere in their delivery, instructional technology would have a place with the use of Moodle.
5. What is your current area of teaching within the organization?

Of the 25 respondents, the majority 50% (13 people) are teaching in computing and business programmes, 15.4% (4 people) are teaching in Mātauranga Māori programmes, 11.5% (3 people) are teaching in the sports and fitness programmes, and another 11.5% (3 people) teach in the arts programmes. Finally, education, foundation and social services have 3.8% (1 person) who teaches in each of these programmes. Once again, these statistics are not surprising as the same is true nationwide, that is, that computing and business are the largest of the programmes, followed by Mātauranga Māori and the rest follow in behind. This means that the percentage of staff would also follow suit, hence the outcome depicted in Figure 6 above.

![Figure 5: Respondents’ current area of teaching](image)

6. How many years have you been employed by the organization?

Of the 25 respondents, over 50% has been with the organization between 0-5 years, by far the highest percentage, with 30.8% (8 people) between 6–10 years coming second, and 15.4% (4 people) between 11–20 years in third place. It is interesting to note that none had been with the organization for more than 20 years.
7. **What other roles have you performed within the organization other than your current position?**

Of the 25 respondents, 53.8% (14 people) had not worked in any other position within the organization other than their current position, 30.8% (8 people) had been a teacher of another programme, 26.9% (7 people) had been a facilitator, 23.1% (6 people) had been administrators, and 7.7% (2 people) had been a secretary before. Once again, it is interesting to note that, of the 25 respondents, none had been in a non-managerial role within the organization before.
The purpose of questions 4 to 7 was to gather specific information from the 25 respondents within Te Wānanga o Aotearoa regarding their current positions within the organization, what area of study they belong to, how long they have been employed here, and what other roles they may have worked in other than their current roles. Basically, this question was to get a general feel about how they fit within the organization. The results are interesting as they show over 50% have worked in their same teaching roles for the duration of time they have been with the organization. More interesting is that eight people have been teachers of other programmes, which shows the depth, and capability of some staff members.

8. How confident are you using the Internet?

Of the 25 respondents, 60% (15 people) said they were very good at using the Internet, 28% (7 people) said they were good, 12% (3 people) said they were neutral, which left not good at 0% and not very good also at 0%. These results show that the majority of respondents are relatively confident with using the Internet and technology.

![Figure 8: Respondents’ confidence using the Internet](image)

9. Where at work do you have access to computers? (You may select more than 1 answer.)

Of the 25 respondents, the results show that a majority have access to computers in a variety of areas such as their Office 88% (22 people), 76% (19 people) computer lab, 52% (13 people) classroom, 44% (11 people) library, and 16% (4 people) staff room. Strong evidence is shown that accessibility of computers is not an issue.
10. How often do you have access to a computer at work?

Of the 25 respondents, the results show that 84% (21 people) always have access to a computer at work, 12% (3 people) sometimes have access to a computer at work, and 4% (1 person) never has access to a computer at work. Once again, strong evidence shows that the availability of a computer is not an issue at this learning institution.
11. How would you rate your computer skills?

Of the 25 respondents, the results show that 48% (12 people) have said that they have excellent computer skills, 40% (10 people) have said that they have good computer skills, 12% (3 people) have said that they have fair computer skills, and 0% said they have poor computer skills.

![Computer skills rating for respondents](image)

The purpose of questions 8 to 11 was to gather specific information from the 25 respondents regarding the skill level of computing, capability of using technology/Internet and the accessibility of having a computer within the work environment. As the results show in Figure 12, nearly 50% have excellent computing skills and 40% have good computing skills, which can mean two things, either the staff are reasonably capable to use instructional technology, or that the staff requires more training to lift the skill level of computing.

12. What forms of technology do you currently use to keep in touch with your students? (You may select more than one answer.)

The many forms of technology used to keep in touch with students indicated that 84.6% (22 people) used a mobile phone, 80.8% (21 people) used email, 65.4% (17 people) used a landline telephone, 65.4% (17 people) used texting, 57.7% (15 people) by Facebook, 30.8% (8 people) used Moodle, 23.1% (6 people) used forums, 26.9% (7 people) used some form of chat, 7.7% (2 people) used Skype, with 0% for blogging, Twitter and the use of an iPad.
13. How do you provide your students with their learning resources, e.g., workbooks and assessments?

The results show that 96% (24 people) indicated that learning resources were provided to students in the form of a hard copy, 48% (12 people) by video, 36% (9 people) by email, 32% (8 people) by Moodle, 24% (6 people) by storage disk, 20% (5 people) by audio, and 4% (1 person) by URL links.
14. Have you used Moodle before?

Results showed that more respondents have used Moodle as opposed to not having used it. As reflected in the results, 80% (20 people) have indicated saying Yes, and 20% (5 people) have indicated saying No.

![Figure 14: Previous use of Moodle](image)

15. If you have selected No in question 14 above, what are your reasons for not using Moodle?

For those respondents (7 people) who had not used Moodle before, it was interesting that of the 10 possible reasons for not using Moodle, only five of the reasons were highlighted. Twenty nine per cent (2 people) said it was because they needed training, another 29% (2 people) said Moodle was not applicable to their programme, 14% (1 person) said they don't know about it, another 14% (1 person) said they lacked the computing skills, and the final 14% (1 person) said that it would be time-consuming. The other five reasons were no encouragement, fear of technology, my current system was sufficient, no student feedback and don't care, all indicating 0% response.
16. If you have selected Yes in question 14, please rate the usefulness of the main aspects related to Moodle (from 1 “Useless”, to 5 “Very useful”)
Useful aspects of Moodle | Rating average
---|---
Ease of use | 3.37
Flexibility | 3.26
Information & resource distribution | 3.37
Communication tools | 3.37

Ease of use, information & resource distribution, and communication tools had the highest rating average score (3.37) (19 respondents), using the scale from 1 “Useless, to 5 “Very useful”). Next was flexibility (3.26) (19 respondents also using the scale from 1 “Useless, to 5 “Very useful”).

17. What aspects of Moodle don’t you like? (You may select more than 1 answer.)

Of the 25 respondents that answered this question, the results showed the three biggest dislikes about Moodle were bad navigation (47.1%, 8 people); layout not very clear (47.1%, 8 people); and time-consuming (47.1%, 8 people. Second was, not user-friendly (41%, 7 people); third was, requires extensive training (29%, 5 people); and 11% (2 people) for don’t know. There were also nine responses highlighted in the section “other (please specify)” which are not reflected on the graph. These comments were as follows:

![Figure 17: Dislikes of Moodle](image-url)
18. How long have you been using Moodle?

Just over half of the respondents have been using Moodle for up to 2 years (52%, 13 people). Next was 36% (9 people) who have been using it between 3 to 5 years (9 people), and last of all was 12% (3 people) who have been using Moodle between 6 to 8 years. More than 8 years indicated 0% response.

![Figure 18: Length of time for using Moodle](image)

The purpose of questions 12 to 18 was to gather specific information from the 25 respondents regarding current forms of technology and the use of Moodle. It was important to find the reasons why or why not staff used the technology in order to contribute to the research.

19. Have you used an LMS before other than Moodle?

Of the 25 respondents the results show that the majority of staff have not used any LMS other than Moodle (64%, 16 people). The results also show that 36% (9 people) have used another LMS other than Moodle. It is interesting to note how popular Moodle has become in the past few years, whether the 64% of respondents have used it because they work for the organization or another learning institution, or they may have used it as a student during their studies. With all the learning management systems available, Moodle and Blackboard tend to be at the forefront of e-Learning technology, as depicted in the results.
20. If you have selected Yes for question 19, please select them from the list below. (You may select more than 1 answer.)

Of the 25 respondents, 77.8% (7 people) said they have used Blackboard before, 55.6% (5 people) said they have used WebCT, and 44.4% (4 people) said that they have used ATutor before. The remaining learning management systems from the list, all had a 0% response.
21. What is your view on instructional technology such as Moodle and other LMSs?

Of the 25 respondents, the majority 40% (10 people) indicated that instructional technology such as Moodle or other LMSs was significant, 32% (8 people) remained neutral, 16% (4 people) said it was very significant, 12% (3 people) indicated that they have not used Moodle or any other LMS, and there were 0% respondents for insignificant and very insignificant.

Figure 21: Respondents’ views on Moodle and other LMSs

22. How does Moodle support you in your teaching environment? If you have not used Moodle before, please skip this question.

Figure 22: Moodle support in teaching environment
<table>
<thead>
<tr>
<th>Function</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forums</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Resources</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Communications</td>
<td>3</td>
<td>4</td>
<td>6</td>
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<td>3</td>
</tr>
<tr>
<td>Updates</td>
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<td>2</td>
<td>8</td>
<td>1</td>
<td>3</td>
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<td>1</td>
<td>4</td>
</tr>
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<td>Grading System</td>
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<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>On-line Quizzes</td>
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<td>2</td>
<td>6</td>
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<td>6</td>
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<tr>
<td>Information</td>
<td>3</td>
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<td>5</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

It is clear that there are several functions of Moodle that are useful for teaching staff. Definitely, the resources play an important role for staff that enable them to provide workbooks, assessments, marking schedules and videos so that they can be accessible online for students. The other useful functions are forums, lecture notes, communications and information. The not so useful functions were considered to be updates, the grading system and on-line quizzes.

23. How does Moodle compare with other LMSs you have used, if any?

Of the 25 respondents, the highest remained neutral (44%, 11 people), 40% (10 people) indicated that it was not applicable, 8% (2 people) said that it was better, 4% (1 person) said that it was much better, 4% (1 person) said that it was worse, and 0% responded to much worse.

![Figure 23: Comparing Moodle to other LMSs](image-url)
24. Have you had any Moodle training before?

A majority (16 respondents) indicated that they have had some form of Moodle training before but, in addition, 33% (8 people) indicated that they had not had any Moodle training at all. Obviously, over 50% have received training for Moodle but still 33% of staff have not, which may be a concern for the organization if it is aiming to embrace on-line e-Learning technology to improve the delivery of all programmes.

![Figure 24: Previous Moodle training](image)

25. If you have selected Yes to question 24, how much training have you had?

The results show a substantial amount of respondents 75% (15 people) that indicated they have not had much training, 20% (4 people) indicated they had had no training in Moodle at all, and only 5% have had a lot of training. This finding shows that there is a critical need for training to maximise the usefulness of Moodle.

![Figure 25: Amount of Moodle training](image)
26. What encouragement have you received about using Moodle?

A clear majority of 32% (8 people) shows that encouragement for using Moodle has been good, 20% (5 people) said that it has been fair, 20% (5 people) said they have received no encouragement, 16% (4 people) remained neutral, and 12% (3 people) said they have received poor encouragement to use Moodle. This analysis highlights a vital need for staff encourage by all stakeholders connected especially management. Over 50% are currently benefiting from the encouragement to use e-Learning technology, which means the other 50% are at risk and possibly have no intention on using Moodle. It does highlight a concern and focus for the institution to engage upon.

![Moodle support chart]

Figure 26: Moodle support

27. What kind of feedback have you received from students about the use of Moodle or other LMSs?

Over a quarter of respondents (9 people) have indicated they have received good feedback regarding the use of Moodle or other LMSs from students, 28% (7 people) remained neutral, another 28% (7 people) indicated that they have received no feedback, 4% (1 person) said they had received very good feedback, another 4% (1 person) responded with not good feedback. There were no responses indicating not very good feedback. There appears to be a considerable lack of support for staff regarding the use of Moodle, as indicated by only 10 of the 25 respondents having received any positive feedback. Obviously, there is an urgent need regarding the development of a pro-active attitude towards Moodle and its e-Learning functionalities. This is an issue that needs to be highlighted.
28. Who was it that stimulated your thoughts about the use of Moodle? (You may select more than 1 answer.)

There is a clear indication that work associates have assisted in stimulating respondents (70%, 17 people) about the use of Moodle, however, 16.7% (4 people) said no one had, 12.5% (3 people) said self, 8.3% (2 people) said school colleagues had, while another 8.3% (2 people) said not applicable, and there was a nil response for friends, family and students.
29. As a result of receiving encouragement, has it provided less of a barrier to you in deciding whether to use Moodle or not?

Of the 25 respondents, 56% (14 people) have indicated that it has provided less of a barrier, and 44% (11 people) have indicated that, no, it has not provided less of a barrier.

![Figure 29: Barrier for using Moodle](image)

30. Do you prefer traditional methods of delivery or the use of Moodle or other LMSs?

Of the 25 respondents, a clear majority indicate that 68% (17 people) still prefer the traditional method of delivery, and 32% (8 people) would prefer an alternative delivery method such as Moodle or another LMS. These very interesting results show that staff remain hesitant about fully accepting the use of e-Learning technology such as Moodle. Nearly 70% still prefer the traditional forms of delivery, indicating that there is still a large gap between preferences for traditional delivery and emerging technology.

![Figure 30: Traditional or non-traditional](image)
4.3 Interview Data

There were two stages in the interviewing process. Stage 1 was conducted in face-to-face interviews with ten staff members at five of the campuses within Tainui, namely, Raroera (Te Rapa), Maniapoto (Te Kuiti), Apakura (Te Awamutu), Rāhui Pōkeka (Huntly) and Tokoroa. Two interviewees were selected per campus. Each interview was recorded on an iPad, and took approximately 30-45 minutes. The interview session consisted of seven questions that were asked of each Interviewee. Stage 2 was conducted with ten additional staff members being selected, four were interviewed face-to-face and six interviewed by telephone. The interview session consisted of an additional three questions that were asked of each interviewee. In this section, questions 1-7 are in stage 1, and 8-10 are in stage 2.

Of the 20 interviewees the age range showed 50% (10 people) were between the ages of 41 – 50 years, 25% (5 people) were between the ages of 31 – 40 years, 15% (3 people) were between the ages of 21 – 30 years, 10% (2 people) were between the ages of 51 years and over and 0% (no-one) were between the ages of 10 – 20 years.

![Age range for Interviewees](image)

Figure 31: Age range for Interviewees
Of the 20 interviewees the data shows 65% (13 people) were female and 35% (7 people) were male.

![Gender](image)

Figure 32: Gender for Interviewees

Of the 20 interviewees the data also shows 80% (16 people) were Māori, 15% (3 people) were Pakeha, and 5% (1 person) was a Pacific Islander. The purpose for providing the demographics was to gather basic information from 20 interviewees regarding age range, gender and ethnicity, which provided strong but obvious results. These results are similar to the survey results i.e 76.9% were older than 40 years, 73.1% were female and 26.9% were male, 88.5% were Māori, 7.7% were Pakeha and 3.8% were Pacific Islander.

![Ethnicity](image)

Figure 33: Ethnicity of Interviewees
1. In regard to the use of Moodle by staff, which e-Learning types are suitable, student-centric or teacher-centric?

![Student-centric - Teacher-centric](image)

Figure 34: Student-centric - Teacher-centric

Of the ten interviewees, nine preferred student-centric learning; only one interviewee thought that teacher-centric is a suitable e-Learning style. It is interesting that 90% of interviewees had a feel for what student-centric learning is all about. Although there was discussion on the definition of student-centric, the majority of interviewees quickly understood the question and were able to elaborate on their personal experiences with using Moodle.

2. What features of Moodle are used for e-Learning within your programme?

![Features of Moodle used in delivery of programmes](image)

Figure 35: Features of Moodle used in delivery of programmes
3. **What features are the most useful?**

The majority of interviewees considered that uploading workbooks and uploading assessments were the most useful features of Moodle. Uploading videos, uploading assignments and sending email were considered to be the next most useful features, followed by uploading lecture notes, which were mentioned by only three interviewees.

4. **What are the advantages of using Moodle?**

The majority of interviewees considered that communicating with students, providing student resources, reinforcing class learning, and technical support were the most important advantages of using Moodle. Video tutorials and student feedback were also considered important, followed by user friendliness, which was mentioned by only three interviewees.
Video tutorials appear to be the most widely identified advantage of Moodle, followed by its ability to communicate with students. Reinforcing class learning and technical support were considered the two next most identified advantages by five interviewees each. The others functions shown in the graph above were mentioned by a smaller number of interviewees.

5. What are the disadvantages of using Moodle?

The most widely identified disadvantage of using Moodle was that it requires training, followed by it being considered time-consuming, which was mentioned by six interviewees. Four interviewees identified that it was not user-friendly; and the fact that the students study at home was mentioned as a disadvantage by three interviewees. Network issues were of smaller significance and were mentioned by only two interviewees.

6. What are the new features you expect in Moodle 2, and the reasons why?
On-line video & audio was considered by five interviewees, whereas improve collaborative working and mobility was mentioned by four, as features they would expect in Moodle 2. There were three interviewees that mentioned improved security, two that mentioned repositories and ease of use; but only one response for on-line testing.

The reasons for the new features of Moodle 2, as identified in Figure 36:

![Bar chart showing reasons for new features in Moodle](image)

**Figure 40: Reasons for new features in Moodle**

The following table indicates the relationship between features and reasons.

<table>
<thead>
<tr>
<th>Number of interviewees</th>
<th>Features</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Repositories</td>
<td>Accessibility</td>
</tr>
<tr>
<td>6</td>
<td>On-line video &amp; audio</td>
<td>Cost-effective</td>
</tr>
<tr>
<td>5</td>
<td>Improve collaborative working</td>
<td>Time saver</td>
</tr>
<tr>
<td>5</td>
<td>Mobility</td>
<td>Convenience</td>
</tr>
<tr>
<td>4</td>
<td>On-line testing</td>
<td>Reinforce subject matter</td>
</tr>
<tr>
<td>3</td>
<td>Ease of use, improve security</td>
<td>Basic system requirement</td>
</tr>
</tbody>
</table>

Table 11: Features and reasons relationship
7. How has the learning management system Moodle improved your delivery as a tutor?

The majority of interviewees have indicated that open communication has helped improve the delivery of their programmes. Time efficient and reinforces subject matter were mentioned by three interviewees. Two responses each were given for Open access to resources, and not at all, with the smallest number indicating, caters for absent students.

8. What are the critical factors that contribute to Māori staff success in the programme delivery with the use of Moodle?

The results shows that “Accessibility to computers” and “Making on-line resources available” were the more popular factors assisting staff (Māori) with the use of Moodle. They both received a response of 16%. Having the “Ability to communicate with students” achieved a response of 14%, with “Availability of Internet access” at 12%, “Staff training at 10%, “Moodle support team (Te Paetoko)” and “Work colleagues’ support” both at 9% and, finally, “Support for student learning” and “collaborative environment” at 7%.
9. **What are the critical factors that contribute to Māori staff failure to adopt Moodle in programme delivery?**

The results show that “Time consuming” (22%) was a main factor for staff failure in the programme delivery with the use of Moodle. Then, “Lack of training” showed 18%, and 15% said the “Current delivery mode was sufficient” and they were not really interested in Moodle; 15% indicated that “Lack of support from senior staff” was also a contributor to staff failure. Both “Lack of understanding technology” and “Moodle not user-friendly” were 11% and, finally, “Lack of computing skills” and “Non-acceptance of on-line learning” at 4%.
10. What are the cultural factors that contribute to the use of Moodle for Māori staff within this Māori tertiary institution?

This question elicited some interesting results as it can overlap into many of the interview questions from 1-10, especially question 8. The interviewees found it difficult to put a cultural perspective on what factors contribute to the use of Moodle but, after transcribing the interview recordings, the following graphical representation was created. At 24%, both “Staff requesting training” and “Younger tauira (students) prefer on-line technology” were shown as the higher factors contributing to the use of Moodle. At 19%, “Instant feedback from tauira (student)” was displayed, 14% for both “Guiding principles are acknowledged” and “Reinforce student learning” was also displayed. One participant commented that having “Kaiawhina (assistant) support” was significant in the use of Moodle, as it provided additional help in the classroom scenario.

Figure 44: Critical factors that contribute to the use of Moodle for Māori staff
4.4 Observation data

4.4.1 Staff (kaimahi) statistics

<table>
<thead>
<tr>
<th>Age</th>
<th>Response %</th>
<th>Response count</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 20 years</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>21 - 30 years</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>31 - 40 years</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>More than 40 years</td>
<td>76.9%</td>
<td>20</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>26.9%</td>
<td>7</td>
</tr>
<tr>
<td>Female</td>
<td>73.1%</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Māori</td>
<td>88.5%</td>
<td>23</td>
</tr>
<tr>
<td>Pakeha</td>
<td>7.7%</td>
<td>2</td>
</tr>
<tr>
<td>Indian</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Chinese</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>7.7%</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current position</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>92.3%</td>
<td>24</td>
</tr>
<tr>
<td>Administrator</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Manager</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Facilitator</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td>Secretary</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>3.8%</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current area of teaching</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mātauranga Māori</td>
<td>15.4%</td>
<td>4</td>
</tr>
<tr>
<td>Arts</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>Computing and Business</td>
<td>50%</td>
<td>13</td>
</tr>
<tr>
<td>Sports and fitness</td>
<td>11.5%</td>
<td>3</td>
</tr>
<tr>
<td>Education</td>
<td>3.8%</td>
<td>1</td>
</tr>
<tr>
<td>Social services</td>
<td>3.8%</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 12: Demographic Information

As depicted in (Table 12), these statistics provide a clear indication of real-time demographics within Tainui (5 campuses). Nearly 80% of the participants are 40 years and over and many of them have worked for the institution for a significant length of time. The researcher makes the assumption that perhaps this could be part of the problem, that is, why there is reluctance to move from traditional to non-traditional methods of delivery. The data analysis does indicate that 90% of staff members, regardless of their age, either have “Excellent” or “Good” computing skills, which could possibly be because 50% of respondents were teachers in the “Computing and Business” department and possessed a level of skill already. Nearly 75% of participants were female, indicating it is a predominantly female-
oriented profession. Nearly 90% of participants are Māori, hence, as previously discussed throughout the research, a very strong Māori perspective is perpetuated in the writings of the thesis, for example, whānau support, guiding principles, daily karakia (prayer) within every campus, wānanga pedagogy with reference to types of learning resources, learning styles, learning technologies and the types of support and training. Though the data shows nearly 93% of participants are teachers, overall, the remaining 7% are still involved in teaching of some form. The data also show that participants come from a variety of programmes delivered within the institution, but the majority of them come from computing, as previously mentioned.

4.4.2 The student statistics

Since the institution’s humble beginnings it has focused on ‘specific priority groups’ that have been ‘under-represented’ across the education system in New Zealand. Its objectives have always been to:

- Increase the number of Māori students
- Increase the number of Pasifika
- Increase the number of young people (aged under 25)
- Improve literacy, language, numeracy and skills outcomes

This focus has embraced Māori and Pasifika communities around the country with the implementation of specific programmes targeted to these groups. To achieve this, the following strategies have been implemented:

- Delivering a diverse range of programmes at levels 1 to 3 that build confidence in re-engaged leaders
- Maintaining nil or low fees to eliminate financial barriers
- Offering foundation programmes that attract youth
- Delivering education nationally to provide access for those who are geographically isolated
- Providing culturally appropriate pastoral care

The question, therefore, is: why is there a focus on these specific groups in the institution? What this means for the institution is a whole new shift in developing new courses and curricula to meet the demands of engaging these groups and providing pathways to quality
learning. It necessitates engaging technology at its best, including the use of mobile, social networking, e-Learning technology such as Moodle, and the use of modern devices like androids, iPads, mobile phones and laptops. Currently, while these courses are set up each semester, all students are invited to register on Moodle in the first week and to utilise it throughout the course. At this point, the research indicates the current usage of Moodle. The research then highlights the areas for improvement that may encourage staff and their continued intention to use it. This new shift for the institution will be a major incentive influencing the use of Moodle by staff.

Hanbing Yan and Qiyun Wang (2012) stated:

“As teachers and educators, it is impossible for us to ignore the progress of the society. This means that we should develop the understanding on how our students would behave, think and live, and master the tools that our students are using to express themselves and communicate with others, then summarize educational meaning from it… A critical issue is when we attempt to identify the relationship between education and technology, we should always remember that education should be at the centre, and it is not a subordinate factor to technology”.

Hence, it is an enormous task this institution has taken upon itself and it must look to the future at ‘emerging trends’ within the education sector of New Zealand. As a result, these groups, youth in particular, have been enrolled in various programmes that provide the use of many technological advantages such as Moodle.

As of 2011, the Annual Report states the ethnicity statistics for tauira (students) enrolling in the institution are as follows.

Figure 45: Ethnicity statistics for tauira enrolments, 2011 (Retrieved from TWOA, 2012, p. 34)
As Figure 42 indicates, nearly 50% of students enrolled are Māori and 9% are Pasifika. These two ethnic cultures make up nearly 60% of student enrolments where, in the past twelve months, much attention has been focused.

The following chart shows the tauira (students) age demographic statistics for 2011:

![Pie chart showing age demographics](source: December 2011 SFR)

**Figure 46: Student age for 2011**

(Retrieved from TWOA, 2012, p. 34)

The growing shift is to decrease student entry for mature students 40 years and over, which is currently 53%, and to increase those under the age of 24 years, as they are the future leaders of the country. As indicated in (Figure 43), 15% of tauira enrolled are under the age of 24, which is a 2% increase from 2009, nevertheless, tauira demographics have remained relatively stable for the past three years. According to Ritchie, Drew, Srite, Andrews and Carter, (2011), modern technologies for group collaboration and distance learning can be employed for increased efficiency and effectiveness to support traditional methods of classroom instruction and training. As the benefits of e-Learning are more exposed to these particular target groups, over time it is expected these statistics will increase at a more rapid pace.

Further research results are discussed in chapter 5 of the study, which provide supporting evidence that Moodle is critical to the institution’s survival in a changing technological sector, and that the organization should continue to embrace such technology. Kim and Bonk (2006) state that, “Technology has played and continues to play an important role in the development and expansion of on-line education".
4.4.3 How Moodle is implemented

As this is a large tertiary institution, a team has been created to over-see and administer Moodle operations. Te Paetoko is the student help desk department that provides a variety of services to tauira (students) and kaimahi (staff) around the country. Its services include IT support, student email, on-line storage, dial-up Internet, Moodle assistance, or any other questions relating to assignments or work-related task. In most cases they will do everything possible to support students but, if they cannot help, they will certainly find someone who can. Te Paetoko is located at Mangakōtuku campus in Glenview, Hamilton, in the IT department. Because of the nature and delivery of some programmes, the hours of operation are as follows:

<table>
<thead>
<tr>
<th>Hours of Operation</th>
<th>Monday–Thursday 9.00am–7.00pm</th>
<th>Friday 9.00am–4.00pm</th>
<th>Saturday 9.00am–3.00pm</th>
</tr>
</thead>
</table>

Te Paetoko is the central point of contact for all Moodle and Windows Live email enquiries, and it services and supports the five Tainui campuses outlined in Figure 44 below. They can also assist with any technical issues either in relation to hardware or software.

Figure 47: Tainui campuses

Te Paetoko is a small team led by Hadyn Morgan who is the manager, along with Christina Morgan, Salesh Maharaj and Dean Hutt who are the current help desk coordinators who look after all Moodle enquiries. They also provide Moodle training and support to staff from right around the country.
The results of a similar study reported by Ana Hau'alofa'ia Koloto (2006) highlighted some of the critical success factors for e-Learning. Of the 11 that were outlined, three of them underline the necessity for having a support team such as Te Paetoko::

- Access to information, learning centres, and other resources
- Understanding e-Learning and course content
- Access to and knowing how to use computers and the Internet

The factors outlined above are consistent with the survey data in section 4.2 that reinforce that accessibility, computer literacy, Internet usage and e-Learning knowledge and skills are main contributors to the adoption of Moodle. Te Paetoko is an important part of ensuring that these services are available to all students and staff at all times.

Te Paetoko is currently working with several curriculum programme managers in uploading resources and creating on-line assessments as other options for students. Moodle basically runs as an interactive website with advanced features, tools and activities that provide learners the opportunity to engage in a collaborative student-centred learning environment. The benefit of using learning management systems such as Moodle is the power to reinforce student learning in a variety of different ways. Bowyer (2012) stated that, “Moodle should support and enhance the learning experience itself, reinforcing and tracking the implementation of new skills and behaviors”.

Figure 48: Te Paetoko (Moodle Team)
4.4.4 Examples of the institution’s use of Moodle

Moodle has recently upgraded to Moodle 2.3 in the past twelve months. One of the main reasons why the institution has chosen this particular learning management system was because there was no cost involved. It allowed the institution to engage in and provide an e-Learning experience for all ākonga (students) and kaimahi (staff) within the institution. Bower and Wittmann (2009) indicated that Moodle “provides another platform with which educators can design and deliver on-line learning experiences, and thus offers another possibility for developing education students’ technology-based learning design skills”. Moodle is now in its eighth year since its inception in the institution. Te Paetoko are continually improving and adding new features to meet the demands of both students and staff within the institution. This upgrade has promised several improvements and will ensure the provision of a more sustainable and robust learning environment than ever before. Some of the more widely used features on Moodle by staff are uploading of assignments, assessments and workbooks, webmail, video tutorials, and lecture notes. These are other tools the staff is utilizing on Moodle which are discussed in more depth in chapter 5.

4.4.4.1 Video links

A new video-editing department (Te Ipurau) was created and has been operating for the past few years. They are currently creating video content for many of the programmes within the institution for students and uploading them onto Moodle. Students with Internet access have access to these videos 24 hours a day, seven days a week. There are a series of video tutorials created for computing, which have been uploaded to Moodle. Students can use them as part of their learning, and staff can use them in their daily delivery. This has been a huge success for all teaching staff around the country. What this means is for all Microsoft Office applications that are taught in computing classes, there are video tutorials available that accompany each lesson. The same is true with Adobe Dreamweaver, Photoshop and InDesign. These videos are downloadable to mobile devices from Moodle. Though traditional teaching methods still exist in the institution, the digital technologies are slowly but surely becoming the norm in the various teaching environments, and providing reinforcement of what students are learning in class. Lai (2011) also pointed out that, “ICT was used primarily to support existing teaching practices being added on to the traditional classroom experience”.

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4.4.4.2 Programme Resources

Moodle now has the majority of programmes loaded and accessible to all students. Whether it is computing, business, social services, teaching or te reo Māori, staff members can now upload their entire curriculum to Moodle. This is a continual work-in-progress and is reviewed each semester based on delivery expectations. Examples of what they can and are uploading are student workbooks, student assessments both in PDF format, video, audio, images, lecture notes, YouTube links, website links and student assignments, just to name a few. Consistent with the research, this is a significant factor that is influencing the adoption of Moodle. According to Lai (2011), “Higher education institutions are asked to respond to the demands of globalisation and the knowledge economy, to prepare students with 21st century skills and competencies for the labour markets, which require changes in the curriculum and teaching practices”. This has been a slow process in the past but due to the pro-activeness of Te Paetoko (Moodle Team), staff training is being provided, and campus visits and support given to help staff engage with Moodle and to maximise its capabilities to embrace the benefits of new technology.
4.4.4.3 Blogging

One of the main features of Moodle is its ability to provide a more collaborative experience for both the student and teacher. Blogging is slowly becoming one of the more popular forms of communication, adding to the students' learning experience in providing information through questions, conversations and receiving feedback in the process.

The whole purpose of a blog is to provide a more real and interactive experience for both the learner and the teacher. Baker and Moore (2008) stated that, “blogs potentially open up possibilities of social support, friendship and positive interaction. Though a blog is similar to keeping a diary, it provides the reader the opportunity to interact and give feedback, potentially creating “likeminded and supportive communities” (Baker & Moore, 2008). According to Pontydysgu (2007), blogs have been designed as a tool that will be useful for staff in research and teaching, and have many different applications in e-Learning.
Figure 51: Blogging on Moodle
4.4.4.4 Email

One of the more useful tools staff is using from Moodle is the email link to communicate with students. This is further discussed in chapter 5. If a staff member clicks on the email link from Moodle’s home page it will automatically open up to their Microsoft Outlook Live account, as shown in Figure 49 below. Every student that enrolls will register with Microsoft Outlook Live, which then is activated on his or her first day in class. From this day onwards teacher and student will have the ability to communicate via email using Microsoft Outlook Live. Though this method of communication is not new, it is still one of the more commonly used technologies by staff for keeping in touch with students. In fact, the research indicates that over 80% of respondents said they use email for this purpose.

![Microsoft Outlook Live email account](image)

Figure 52: Micosoft Outlook Live email account

In a related study, Li et al. (2012) pointed out that “Collaboration, communication, resource sharing, social influence, usefulness and ease of use” were all desired features pertaining to e-Learning. The researcher has identified some of the more widely used tools by staff on
Moodle but, with time and the continual refining of best practices, they can only enhance the current uses and add more advanced features, as seen in the past. Li et al. (2012) provided some supporting evidence where (Upload/Watch Video & Photo), (Mail) and (Blog) were the three features that facilitated learning the most from a computing student’s perspective. Though these findings are only from a computing student’s perspective, the researcher realises it is consistent with the current research on staff right across the board. This finding is encouraging but, obviously, there is still some way to go, as e-Learning is comprised of so much more, and this study has been able to identify some of those gaps. For example, social networking sites are an area that is under-utilised by staff, and is an area of focus for potential future development. Li et al. (2012) also discovered that nearly 40% of respondents “agreed that the use of SNS in learning will play an important role in the tertiary sector in the future”, and 14.3% strongly agreed.

**4.4.5 The impact of Māori policy on the adoption of Moodle**

Another factor that is relevant to the use of Moodle and other technologies is *Kaupapa Here* (policy). This policy provides a commitment by the institution to ensure that a high level of service is provided to all tauira (students) while studying with this institution. Its main objectives are outlined, as follows:

1. Excellent Information Technology systems, solutions, service and support is provided.
2. Relationships are enhanced through effective communication services.
3. A culture of integrity, innovation, knowledge and motivation is synergized through the use of appropriate modern-day technology.
4. Systems and solutions are identified to increase the efficiency and effectiveness of delivery to all key stakeholders.

This document is critical to staff and students to ensure that all technology, information, networks and communication systems are secure and robust. It provides awareness of of the ‘what, how, when, where and why’ of the infrastructure of these systems and the impact they have on the delivery of learning. With new technology such as Moodle, it is vital that ongoing training is provided so that staff will feel more inclined to use it as the institution moves into the future of emerging technology.

Bowyer (2012) pointed out that:
“Learning management systems and virtual learning environments are intended to overcome the financial and logistical challenges of delivering learning on a large scale. In theory, they should also support and enhance the learning experience itself, reinforcing and tracking the implementation of new skills and behaviours”.

<table>
<thead>
<tr>
<th>Kaupapa Here</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Koha (contribution)</strong></td>
<td><strong>Kaitiakitanga (guardianship)</strong></td>
</tr>
<tr>
<td>This kaupapa (policy) here outlines the commitment of the organization:</td>
<td>This kaupapa (policy) seeks to protect kaimahi (staff) by:</td>
</tr>
<tr>
<td>• To provide access to information via secure computing and networking systems</td>
<td>• Establishing boundaries around system and computer usage</td>
</tr>
<tr>
<td>• To ensure communication of information is successfully achieved via appropriate technology systems</td>
<td>• Raising awareness of what is available and how to appropriately use the technology</td>
</tr>
<tr>
<td>• To provide training and support</td>
<td>• Raising awareness of access and security network-related information</td>
</tr>
<tr>
<td>• To provide appropriate solutions to benefit and enhance learning opportunities and decision-making</td>
<td>• Informing parties of the responsibilities that come with operating over the network</td>
</tr>
</tbody>
</table>

*Kaimahi (staff) are then able to better fulfil their respective responsibilities*

<table>
<thead>
<tr>
<th>Ahurutanga (Safe space)</th>
<th>Mauri Ora (Healthy space, mind, spirit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This kaupapa here is about:</td>
<td>This kaupapa aims to ensure that:</td>
</tr>
<tr>
<td>• Supporting user-friendly information systems and technology</td>
<td>• Network and information systems are secure</td>
</tr>
<tr>
<td>• Helping staff adapt to new technology</td>
<td>• Staff are protected from technology misuse</td>
</tr>
</tbody>
</table>
| • Staff knowing where to find resources and support | • Available technology is provided in a manner responsive to???
<p>| • Staff knowing what is and isn’t | • Reasonable staff expectations |</p>
<table>
<thead>
<tr>
<th>appropriate computer use in the current environment</th>
<th>The network and computing systems are safe for staff to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Staff knowing their responsibilities</td>
<td>• Carry out work duties without inappropriate interruptions</td>
</tr>
<tr>
<td></td>
<td>• Staff know what they are responsible for and why</td>
</tr>
</tbody>
</table>

Table 13: Kaupapa Here document

4.5 Summary

The data collection is critical to the study using a mixed research methodology comprised of 25 surveys and 20 interviews conducted face-to-face and by telephone. SurveyMonkey was used to create an on-line questionnaire made up of 30 questions, which were sent out to a select number of staff. The interviews were conducted with 20 participants to provide qualitative data for the research.

SurveyMonkey was not only used to create the survey but, once the respondents had completed the survey, the researcher was then able to analyse the results with the use of the SurveyMonkey analytical tools in the software. This was very helpful once the desired graphs, colours, text and layouts were chosen, they could then be downloaded and inserted into a Word document. The interviews were done in two stages, as mentioned previously, in chapter 4. In stage one all interviews were conducted face-to-face using questions 1-7, stage two, 4 interviews were conducted face-to-face, and 6 over the telephone. A matrix was completed to ensure both the survey and interview questions were linked to the research questions. All the data from the survey and interviews were reviewed and analysed to provide quality answers to the research questions.

The survey and interview results indicated that there are significant factors influencing the adoption of Moodle in the institution. Though research questions 1 and 5 tend to overlap with each other, the fact remains that these influencing factors are consistent throughout the research. The results also show that the research was unable to identify a specifically Māori culture impact on the adoption of Moodle, but with 90% of participants being Māori the findings would reflect this composition.
5 Data Analysis and Discussion

In this chapter the researcher will analyse the data results by reading and re-reading the interview transcripts and survey data to define the answers to the outlined research questions. This will be done with the use of 25 survey respondents and 20 interviews conducted either face-to-face or by telephone.

The purpose of the analysis is to identify some key points that may be able to be linked to the research questions. The questions for both the survey and interviews were designed specifically to answer the research questions, and to enable the drawing of some final conclusions based on the research results. Table 13 below will provide clarity on the connected relationships.

Table 13 indicates the relationship between the research questions and the survey and interview questions.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Survey Questions = SQ Interview Questions = IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To what extent does Māori culture affect the adoption of Moodle?</td>
<td>IQ8, IQ10</td>
</tr>
<tr>
<td>2. What effect does the reluctance to move away from traditional methods of learning have on the adoption of Moodle and to what extent?</td>
<td>SQ13, SQ15, SQ17, SQ30 IQ1</td>
</tr>
<tr>
<td>3. What are the levels of computer literacy and what impact are they having on the adoption?</td>
<td>SQ5, SQ8, SQ11, SQ18, SQ19, SQ20, SQ21, SQ23</td>
</tr>
<tr>
<td>4. To what extent is the training provided impacting on the adoption of Moodle?</td>
<td>SQ24, SQ25 IQ5, IQ8, IQ9</td>
</tr>
<tr>
<td>5. What are the special requirements of Māori as users of Moodle?</td>
<td>SQ2, SQ3, SQ12, SQ16, SQ22, SQ27 IQ1, IQ2, IQ3, IQ4, IQ7, IQ8, IQ10</td>
</tr>
<tr>
<td>6. To what extent is the accessibility of Moodle impacting on its adoption?</td>
<td>SQ9, SQ10, SQ14 IQ8</td>
</tr>
</tbody>
</table>

Table 14: Relationship between research question and (survey, interview) questions

In Table 13 above, it is obvious that some interview/survey questions overlap which will assist in answering more than one research question. Now, with the alignment of research
questions and survey/interview questions, an in-depth search is undertaken to provide supporting evidence to the thesis.

5.1 Māori culture impact on the adoption of Moodle

It was difficult to identify from the results in what context the term Māori culture could be used, and, therefore, its impact on the adoption of Moodle, as it seemed to overlap with section 5.4 of this chapter. As a result, this question will be answered from a Māori perspective to reflect Māori culture, as nearly 90% of the participants are Māori. Certainly, four of the interview questions can be linked to the research question (RQ1) for that very reason.

One of the significant factors of Māori culture is providing whanau support, which is evidently embedded in the teaching and learning practices of the organization. According to a similar study conducted on Māori and Pasifika students, Ana Hau'alo'ia Koloto (2006) pointed out some critical factors for e-Learning, such as, “family support” being a significant factor that was highlighted, and stated the following:

“Family members’ understanding of student experiences in the tertiary institutions was also critical to students’ success. As one graduate suggested: Family members have to understand what the study is all about so that they know what their child or partner is going through in the next 3 or 4 years of study. With a sound understanding of what tertiary students need to do in order to achieve their goals, family members will be in a better position to support them”.

Living the values discussed previously in the research is the greatest contribution one can make in providing whānau support. What this means is expressing aroha and genuinely having concern for each other’s well-being and those you are responsible for and accountable to. It is providing well-being spiritually, physically, academically and socially. Stated in the philosophy outlined in Table 1 is, “To provide a unique Māori cultural learning environment”, which is demonstrated each morning as every campus right throughout the country will start the day with karakia (prayer) and hīmene (hymn) to acknowledge God and seek continual guidance for all people. It is also the opportunity for all to present any announcements pertaining to their respective programme and to inform other departments of upcoming events. Again, outlined in Table 1 is, “To provide support, encouragement and guidance to all in pursuit of personal development, learning and employment”.

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Once students are enrolled they are encouraged to use Moodle as a means of accessing learning resources, utilise communication tools such as blogs, forums and emails, and even attempt some of the quizzes and games pertaining to each programme.

In survey question 28, “Who was it that stimulated your thoughts about the use of Moodle”. A strong indication of 70.8% (17 people) acknowledged “Work Associates” were providing support and motivation to use Moodle. In contrast, the lower percentages of support had a minor impact from a cultural perspective, indicating 16.7% (4 people) said “No one” was responsible for stimulating the use of Moodle, 12.5% (3 people) said it was “self” that was responsible for making the choice to use Moodle, 8.3% (2 people) commented that it was “School colleagues” that provided the stimulation and, finally, 8.3% (2 people) said that it was “Not applicable”. This is significant as, once again, it demonstrates that the whānau concept within Māori culture is critical and is not just a vocation but a way of life.

Like survey question 28, survey question 26, “What encouragement have you received about using Moodle”, also shows that the majority of encouragement within the whānau was acknowledged by 32% (8 people) who received “Good” encouragement, and 20% (5 people) said “Fair” encouragement. Once again, blended within the culture is the emotion of aroha and concern and a feeling of support, encouragement and guidance to all that are in the pursuit of education. From a Māori perspective, it is a way of life, a practice that uplifts, edifies and provides continual support through all facets of life. Other results show 20% (5 people) said “None”, 16% (4 people) remained “Neutral” and 12% (3 people) said “Poor” encouragement.

For interview question 4, “What are the advantages of using Moodle”, the results show several advantages that were highlighted, with number one being able to upload “Video tutorials” for students to view. Over the past two years the institution has developed a film production and editing crew, which has created an enormous amount of video tutorials for each of the programmes throughout the institution. These tutorials have been uploaded to Moodle by teaching staff from around the country, and are proving to be very popular with tauira (students) in their learning experiences, reinforcing what they have learnt in the classroom scenario. The ability to communicate with students was also highlighted, either by email, blog, chat, Facebook or forums. This collaborative environment between teacher and students is beneficial, especially when instant feedback can be provided. Also, “Provide student resources” on-line, tends to be a significant advantage, which is also reflected throughout the research. Staff found this function to be very helpful for students uploading
workbooks, assessments, PowerPoint presentations, URL links, video, audio, images and other relevant documentation.

For interview question 7, “How has the learning management system Moodle improved your delivery as a tutor”, the results indicate that 6 of the 10 participants chose “open communication”, which was discussed earlier, but implies classroom learning is not just teacher-focused anymore but has more student focus. Also, the ability to communicate, interact and collaboratively respond, even outside of class time, is an important tool. This technology provides a strong student-centric scenario. It showed that 3 of the 10 participants said “Time Efficient” and “Reinforce subject matter” has also contributed to the success of their delivery. It was commented that the initial setting up of resources and links on Moodle for a particular programme took some time but, certainly, in the following semester, it just required minor tweaking to the original settings. Staff also said that many of the tools, functions and resources on Moodle were there to reinforce the students’ learning. Results also show that 2 of the 10 participants liked the “open access to resources” available to students, whether in or outside of class. Interestingly, 2 participants commented that Moodle had not improved their delivery of teaching at all. One participant commented that Moodle helps students that are absent from class, but it was also suggested that this could potentially be an excuse for students not wanting to attend classes.

Interview question 8, “What are the critical factors that contribute to Māori staff success in the programme delivery with the use of Moodle”, highlights a number of interesting facts. First, of the 10 interviewees, 16% (7 people) said that “Making on-line resources available” and, again, 16% (7 people) said that “Accessibility to computers” were critical factors in the delivery process. Research has shown and will continue to reflect that the majority of staff provide students with all the necessary resources on Moodle. Another critical factor was the “Ability to communicate with students”, for which 14% (6 people) indicated that the collaborative environment to communicate with students was very positive in providing answers to questions between student and teacher. Other critical factors were 12% (5 people) support for “Availability of Internet access” being important, 10% (4 people) who said “Staff training”, and 9% (4 people) also indicated the Moodle support team” (Te Paetoko) and “Work colleagues support”. Finally, 7% (3 people) said “Support for student learning” and “Collaborative environment” were all profitable in contributing to Māori staff success in programme delivery with the use of Moodle. Because (IQ8) overlaps into (RQ4), (RQ5) and (RQ6) it will also be discussed in more depth further in the chapter.
Though interview question 10, “What are the cultural factors that contribute to the use of Moodle for Māori staff”, looks very similar to (RQ1), “To what extent Māori culture is impacting on the adoption of Moodle”, the researcher at this point would like to point out specific cultural factors that contribute to the use of Moodle and, in doing this, will also help answer (RQ1). Those factors are as follows:

1. Since 2009, nearly 50% of students enrolled have been Māori, of whom 15% were under the age of 24, and the percentage continues to increase each year. Hence, a significant factor encouraging the use of Moodle shows that 24% (5 people) commented, “Younger tauira (students) prefer on-line technology”. According to Kim and Bonk (2006), “Technology has played and continues to play an important role in the development and expansion of on-line education”. We are living in an innovative society and it is rapidly becoming the norm to possess any form of e-Learning technology, especially in the younger generation. This fact has provided much motivation for staff to not only use Moodle but also to learn how to utilise the best tools on Moodle that appeal to the younger students, such as uploading video, audio, resources, interactive forums and blogs with a variety of games and quizzes.

2. As mentioned in section 5.4, Moodle training has become more relevant and is now essential for staff to cope with the e-Learning shift within wānanga pedagogy. For this reason, there is a sense of urgency among staff to be more pro-active regarding their up-skilling in the use of Moodle. As pointed out in Te Uaratanga (Our Mission), this has a significant cultural impact on staff, that is, to “empower one’s potential for learning as a base for progress in the modern world”. As a result, this research has showed that 24% (5 people) said "Staff request training", which showed enthusiasm by staff to use Moodle. It was also indicated that 19% (4 people) said "Instant feedback from tauira (student)" was critical in the learning process, as students could interact with teachers by asking questions regarding assignments, assessments and about concepts learnt in class.

3. Also discussed earlier in the study, the researcher acknowledged that this organization was founded on Guiding Principles designed to provide “transformation through education” for all those that are in pursuit of it. According to the 2011 Annual Report:

“This institute is grounded in Māori values in alignment with its character, as defined in the Education Act 1989. These values drive strategy and policy and are embedded in day-to-day activities; they advocate caring and supportive learning environments;"
they nurture tauira (students) to achieve to the best of their abilities; they support high levels of tauira satisfaction; and they encourage unity amongst a highly motivated whānau whānui”.

Through its Guiding Principles, the institution would provide long-term sustainability so that all generations would be able to benefit from the fruits of its labour. Since the beginning there has always been a focus on life-long learning that would not only benefit current generations but future generations, a very Māori concept where learning is passed from one generation to the next. The Guiding Principles of this learning institution will ensure it remains current, agile and responsive to all stakeholders involved, and will continue to provide opportunities for all people who seek to realise their aspirations and an improved quality of life. For example, in 2010 and 2011, the course completion rates for all tauira (students) studying at this institution indicated significant achievements, as shown in Figure 50 below:

The following table shows the course completion rates for all tauira studying in 2010 and 2011:

<table>
<thead>
<tr>
<th>NQF Levels</th>
<th>2010</th>
<th>2011</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>All levels</td>
<td>76%</td>
<td>79%</td>
<td>73%</td>
</tr>
<tr>
<td>Levels 1 to 3</td>
<td>77%</td>
<td>79%</td>
<td>75%</td>
</tr>
<tr>
<td>Levels 4 and above</td>
<td>76%</td>
<td>79%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Figure 53: Completion rates for tauira, 2011

(Retrieved from TWOA, 2012, p. 34)

It was surprising that only 14% (3 people) said, “Guiding Principles are acknowledged” as one of the significant cultural factors impacting on the use of Moodle. The Guiding Principles provide holistic education opportunities to explore new technologies and provide support to all kaimahi (staff members) to reach their fullest potential.

4. Another factor that is reflected throughout the study is “Reinforce student learning”, indicated by 14% (3 people). This significant cultural pedagogy is demonstrated by in-class learning through speech, music, audial, dance, hands-on practical’s and group
interaction activities. Many of these strategies delivered in class are also uploaded to Moodle for students to review, reflect on and rehearse. As this technology advances, a high level of reinforcement of concepts learnt in class is occurring.

5. Finally, 5% (1 person) appreciated that the student support service is able to provide a kaiawhina (student aid worker) for support during class sessions. The support provided includes all aspects of the programme curriculum taught, including the use of technology.

5.2 The reluctance to move away from traditional methods

The findings show there is currently a level of reluctance to move away from traditional methods of teaching and not to embrace e-Learning so willingly. According to Prince (2004), “extensive and credible evidence suggests that faculty consider a non-traditional model for promoting academic achievement and positive student attitudes”. Obviously, a surge to embrace e-Learning is crucial and particular attention needs to be given to the areas that have been identified. Prince (2004) also pointed out, “The best available evidence suggests that faculty should structure their courses to promote collaborative and cooperative environments”. This reinforces the notion that learning institutions should not solely rely on the traditional forms of teaching but require much direction and support from upper management.

The research shows the following reasons for not wanting to move away from traditional methods:

1. Upload Resources
For those staff that use Moodle, the ability to upload resources has been one of the features used quite frequently. The survey results (SQ13) indicate 96% (24 people) still prefer to provide students with learning resources in a hard copy format as opposed to using Moodle. One of the reasons why is because He Ātea Taonga, which is the resource department, is responsible for producing resources for each programme. These learning resources may come in the form of workbooks, video, audio and even e-Learning technology. According to Kim and Bonk (2006), “Considering the extensive turbulence created by the perfect storm surrounding e-Learning, it is not surprising that opinions are mixed about the benefits of online teaching and learning in higher education”.

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2. Non-users of Moodle and reasons why

(SQ14) results also show that 80% (20 people) have used Moodle before, and those respondents who had not (20%, 5 people) indicated the following reasons why:

- 29% required training – staff is still apprehensive about using Moodle, as they require a sufficient level of training to build confidence.
- 29% said it was not applicable to their programme – especially Te Reo Māori programmes, that were involved with waiata (song), kanikani (dance), Marae visits, guest speakers, kapa haka, and learning to korero Māori. To incorporate technology into the learning strategies would take more time.
- 14% said they don’t care – similar to the “not applicable” group who are also not interested, as they feel their current system is sufficient.
- 14% said it was time-consuming – they said they could not be bothered as it took too much time to upload resources, prepare a programme curriculum as well as the initial setting up.
- 14% said they don’t know about it – a surprising result, as one would assume that all staff should know about Moodle by now.

Even though 20% of respondents have not used Moodle before, these issues still need to be addressed. Some possible solutions have been outlined:

- Provide continual Moodle training for all staff on a regular basis till such time as a level of confidence and familiarity with the system has been attained.
- For those programmes that noted it was not applicable to their programme, it is and it can be, if they really want to. This would mean providing exceptional resources in the form of video and audio recordings that can be loaded to Moodle. Any hard copy resource can be created in a PDF format and loaded to Moodle for students to access.
- Those that don’t care will, unfortunately, be left behind while the rest of the world moves forward. The paradigm shift involving the use of Internet technology is education in its modern form, delivered through instructional technology. Much encouragement and engagement needs to be asserted to change the mindset of this particular group.
- Time management is critical to allow staff to spend time organizing resources and classroom delivery on Moodle.
- For staff still to be unaware of what Moodle is about is concerning, and needs to be addressed from a Management perspective to ensure there is sufficient training, support and engagement with e-Learning technology.
Over time and with the advancement of instructional technology in the education sector, there has always been and still is a level of resistance or reluctance to transform traditional teaching practices to cater for the changing trends in learning. This organization is no exception, as the literature above shows some of the reasons why a level of reluctance exists. In a similar study, a group of professors were invited to participate in a project involving an “open software, hardware, and content communities” concept within their teaching practices. No doubt, a significant shift in teaching practices was necessary and obviously stemmed a level of reluctance amongst the participants. The study also highlighted some similarities, as shown below, comparing the current study to a similar study and the reality of potential reluctance in such a situation.

<table>
<thead>
<tr>
<th>Similar study (Chua, 2012)</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lack of technical background or training</td>
<td>• Lack of computing, Internet or Moodle operating skills</td>
</tr>
<tr>
<td>• Wished for more time</td>
<td>• Time-consuming</td>
</tr>
<tr>
<td>• Trust that support will be provided</td>
<td>• Need support and training</td>
</tr>
</tbody>
</table>

3. Don't like about Moodle
Survey question 17, “What aspect of Moodle don’t you like”, provided practical evidence of why staff would prefer not to use Moodle. The 3 reasons were “Bad navigation”, “Layout not very clear” and “Time-consuming”, all indicating the highest score of 47.1% (8 people). “Not user-friendly” scored 41.2% (7 people), “Require extensive training” scored 29.4% (5 people) and, finally, “Don’t know” scored 11.8% (2 people). The research has shown that some staff members have their reasons for not embracing Moodle, and indicate a focus for the organization and Te Paetoko to address in the future and to find solutions to all the issues outlined.

4. Traditional methods over Moodle
In the final question of the survey (SQ30), the results show that nearly 70% (17 people) preferred the traditional methods of teaching as opposed to the use of Moodle. Obviously, a high percentage of Māori teaching staff still prefer the traditional method of delivery in a classroom scenario. This particular group may also be Moodle users but prefer traditional methods of teaching to the use of Moodle.
While interviews were providing the qualitative data for the research it was very interesting to note the contrasting views to some of the survey questions. Though 96% of participants prefer to provide hard copy resources in the traditional format, as discussed earlier in this section, the results of the interview question 1 show that 91% of the participants say that “Student-centric” is the more suitable learning type with the use of Moodle. A complete mind shift is required to increase the use of e-Learning in the classroom. Tyagi (2012) stated, “might focus their attention, efforts, and investments on improving faculty attitude and enhance their perceived behavior”.

5.3 Computer literacy and the impact on the adoption of Moodle

According to the survey data results from question 5, a variety of participants from different programmes were selected to ascertain the level of computer literacy they each bring. E. Marcia Johnson (2011) stated that, “*While core concepts of a discipline might evolve slowly over time, student cohorts and e-Learning approaches to teaching change more rapidly and affect teachers’ development of learning activities and assessed tasks*”. The researcher anticipated that the reality of this would be very likely as the dynamics of Business and Computing versus Mātauranga Māori are extremely different. Each participant represented 7 different areas of teaching, Computing and Business 50% (13 people), Mātauranga Māori 15.4% (4 people), Sports and Fitness and Arts both show 11.5% (3 people) and, finally, Education, Foundation and Social Services were all 3.8% (1 person each). These results are not surprising as Computing and Business and Mātauranga Māori are two of the largest programmes in the organization. Mātauranga Māori participants commented that the current delivery methods they used were sufficient for those students learning Te reo Māori, and embracing new technology would mean investing more time which they cannot afford.

According to Ana Hau'alofa'ìa Koloto (2006), knowing how to use a computer along with browsing the Internet were highlighted as critical success factors for e-Learning amongst Māori and Pasifika students, and suggested that the majority of them were confident and technologically capable of participating in the e-Learning environment. In contrast, the researcher identified that survey question 8 was important, which meant exploring each participant’s confidence level and capability to use the Internet. The results show 60% (15 people) said they were “Very Good”, which indicates a good percentage of staff that are majority Māori have self-confidence to use the technology. Then 28% (7 people) said they
were “Good” at using the Internet, once again, showing they have the skill and mindset to be able to utilise e-Learning technology. There were 3 people (12%) that remained “Neutral” regarding their ability to use the Internet and, finally, 0% results for “Not good” and “Not very good”. Of all the respondents, it was good to see that none of them fell into the last two categories, “Not good” and “Not very good”. Overall, the literacy level and potential to embrace Moodle looks positive. In addition, survey question 11, “How would you rate our computer skills”, is just as critical. Once again, to explore all participants’ computing skill levels produced a positive re-assuring confirmation. The results show that nearly 50% (12 people) acknowledged their computing skills were “Excellent”, and 40% (10 people) said their computing skills were “Good”. Adding these two groups together indicates 90% of participants felt confident using computers. Similarly, Soud Almahamid (2011), in another supporting study, conducted an evaluation with the use of an assessment model to ascertain the critical factors affecting “long-term e-Learning usage intention”. The analytical descriptive in Table 13 suggests that respondents’ capability to use a computer and the Internet is sufficient in order to engage in e-Learning technology. The researcher has found similarities in these supporting studies, which are consistent with the findings that contribute to the fact that Moodle is a technology that the majority of the staff is capable of using.

These similarities between Table 15 and Table 16 below are very close and do complement each other significantly. The evidence is very clear that there is a relationship between having the knowledge, confidence and skills not only to use a computer but to browse the Internet, which will contribute to user satisfaction and a continuous intention to use e-Learning technology. As depicted in Table 15 below, nearly 50% of respondents have “excellent” computer skills, 40% have “good” computer skills and 12% of respondents have computer skills that are “fair”. In the current research, it was highlighted that this was a significant factor influencing the adoption of Moodle and the continued intention to use the technology within a Māori learning environment. The ability to use the Internet by staff was another influencing factor presented in both research data analyses. Table 15 indicated nearly 50% of staff have between 4 to 6 years’ experience using the Internet, with Table 16 indicating a high 60% of respondents have “Very Good” confidence in using the Internet, and a further 28% with “Good” confidence in using the Internet, and 12% remained neutral.

There were interesting findings in the supporting studies pointing out the fact that just because students have the e-Learning technology and the knowledge, does not necessarily mean they will use it frequently. In fact, the data analysis indicated in Table 15 that there was a low level of usage from respondents which is a focus area that requires attention, not only to engage students but to ensure a continued intention to engage more frequently.
Likewise with Table 16, indicating a low 16% of respondents who said “instructional technology” was “Very significant”, a further 40% indicating “Significant”, and 32% remaining neutral. Given these results for both Table 15 and Table 16, it appears that a high level of student satisfaction and continued intention to use e-Learning systems will come by way of providing quality service and a quality product.

<table>
<thead>
<tr>
<th>118 males (63.4%)</th>
<th>68 females (36.6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates higher number of male respondents</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>&lt; than 6% of respondents have &lt; 1 year’s experience using a computer</th>
<th>33% have between 7 and 9 years’ experience using a computer</th>
<th>Less &lt; than 83% have 4 or more years’ experience using a computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates that respondents are more than capable of using a computer which is necessary for using an e-Learning system.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>47% have between 4 and 6 years’ experience using the Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates that nearly 50% of respondents are capable of using the Internet which is necessary to use an e-Learning system.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>36% have &lt;1 hour a day using an e-Learning system</th>
<th>31.5% have &lt;1 hour a week using an e-Learning system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicates that there is a low level of usage in respondents and it is an area that requires attention in order to engage maximum usage.</td>
<td></td>
</tr>
</tbody>
</table>

Table 15: Descriptive analysis 1

<table>
<thead>
<tr>
<th>73.1% Female</th>
<th>26.9% Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compared to Table 13 above, it is the total opposite, with females having the higher percentage than males.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>48% have “Excellent” computer skills</th>
<th>40% have “Good” computer skills</th>
<th>12% computer skills are “Fair”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicating a reasonable level of computing skills required to engage in e-Learning technology.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
60% “Very Good” confidence in using the Internet  
28% “Good” confidence in using the Internet  
12% remained “Neutral” in using the Internet  

Indicates a substantial percentage of respondents are more than capable of using the Internet.

16% indicated instructional technology “Very significant”  
40% indicated instructional technology “Significant”  
32% remained Neutral  

Though it does not provide a frequency of usage similar to Table 13, it does highlight respondents’ views of the importance of e-Learning technology.

Table 16: Descriptive analysis 2

The findings show that Moodle is the vehicle allowing staff to move into the e-Learning world with a sense of confidence, and by being supported down several pathways moving forward. These pathways can and are being achieved by the following strategies:

- **Sufficient staff training using Moodle**: Over the past 24 months Christina Morgan (Senior Student Help Desk Coordinator) from Te Paetoko (Student Help Desk) has travelled around the country providing staff training to all campuses. She has extended an invitation to all staff that should they need any further training she would be available. One would suggest that, as a result, their search indicates that 80% of respondents have used Moodle before, and, as long as there is support and training available, this percentage can only increase. The impact and critical need for Moodle training is reflected in section 5.4 below.

- **Allocated preparation time given to Moodle during work hours**: This is currently occurring as a majority of courses operate from Monday to Thursday every week. Staff is allocated every Friday to focus on the administrative side of teaching, preparing lessons, attending hui (meetings), training and marking assessments. Resources, assessments, assignments and announcements are continually posted and updated to enable students to access and collaborate with them regularly. According to Bower and Wittmann (2009), Moodle “provides students with a rich array of tools with which students can create their learning sequences, including chat, forum, wiki, share resources, Q&A, multiple choice, and voting activities”.

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• **100% support from management and stakeholders**: Currently, the research shows that over 70% of the respondents have said that “Work Associates” provide support to use Moodle in their teaching delivery. Whether by management or fellow teaching staff, this is a good indication of why 80% of respondents have actually used Moodle before and, because of it, are able to provide support and encouragement. Teo, Luan, Thammetar and Chatthiwat (2011) stated, “The success of any technological initiatives such as e-Learning may be substantially affected by the degree to which potential users (students) are willing to use it”.

• **Collaboration between students and teachers**: According to Abulibdeh and Hassan (2011):

> “Interaction in an e-Learning educational environment is different as compared to the interaction in traditional educational settings. The difference is mainly in the medium used in teaching and not with the components of interaction, as both of them share similar interactions. The traditional and the e-Learning environments both share student-student, student-instructor, and student-content interactions”.

As previously discussed in the research, there are features on Moodle that are more widely used by staff which tend to indicate the more popular and relevant use of it. Blogging, use of discussion boards and chat were collaborative tools used between staff and students as a way of interacting both in and out of the classroom.

> “Baker and Moore (2008) stated that, “Blogs also potentially open up possibilities of social support, friendship, and positive interaction unavailable with diaries, because blogs have a ‘readership’. They introduce social issues into what was traditionally a private activity. Blogs can promote social interaction through a comment feature that allows readers to respond to entries.”

• **Availability of hardware and software**: The accessibility and availability of computer hardware and software is a huge advantage for both staff and students. The research indicates that nearly 90% of respondents have access to a computer system with Internet in their own offices. Not only do they have access to computers in their offices but also in other areas of the campuses, such as in a classroom (52%), computer lab (76%), library (44%) and staffroom (16%). What this means is staff accessibility to a computer is very wide which allows them to access Moodle from either one of these.
areas and provides the flexibility to do so. Another significant factor was how often one had access to a computer while at work, nearly 90% of respondents said “Always” which once again reiterates that “availability” and “accessibility” of a computer is fairly high. All staff are currently benefiting from this, which is reflected in the values under “Te Aroha” which states, “provide appropriate solutions using relevant technology; and ensuring appropriate access to systems, technology and information”. According to Stanciu, Mihai and Aleca (2012), the technological boom in IT&C technology allows access to web sites at any time, anywhere through mobile communication devices. Flexibility of access provided by new technologies has a significant influence on the frequency of accessing social networking sites and learning management systems.

- **Robust Internet connection:** Like any network operating within either a corporate or educational environment, it is heavily reliant upon a secure and robust Internet connection as, without it, it would be practically impossible to exist in today’s advanced technological sphere. Subramaniam and Kandasamy (2011) state that, “environments that have the interactive and asynchronous aspects enable active learning”. This means the institution ensures they uphold their commitment to “providing access to information via secure computing and networking systems”, “to ensure communication of information is successfully achieved via appropriate technology systems” and to “provide appropriate solutions to benefit and enhance learning opportunities and decision-making”, as outlined in the Kaupapa Here (policy). Two years ago “Wi-Fi” Internet connection was provided to all campuses through the country, thus providing an additional service along with the existing broadband service to staff and visitors.

There were 3 people (12%) who commented that their computing skills were “Fair”. One would assume their computing skills were average but still sufficient to work in an e-Learning environment. Also reassuring was that no participants said their computing skills were “Poor”, which means 100% of all participants, potentially, have the ability to be successful with the use of Moodle. Survey question 18, “How long have you been using Moodle”, indicates that all participants have used Moodle for a reasonable period of time. Results show that 52% (13 people) have used Moodle for up to 2 years, 36% (9 people) have used Moodle between 3 to 5 years, and 12% (3 people) have used Moodle between 6 to 8 years. This is a reasonable indication from the participants of the level of literacy and the impact it is having on the use of Moodle. Survey question 19, “Have you ever used another (LMS) before other than Moodle”, is another indication that there is a percentage of staff that has experienced using a learning management system other than Moodle. Even though results
show a humble 36% (9 people), the contribution adds to the overall computer literacy level of the organization. Survey question 20, “If you have selected Yes for question19, please select them from the list below” shows that of those 9 participants, or 36%, who said Yes in (SQ19), nearly 80% of them (7 people) indicated they have used “Blackboard”, 55.6% (5 people) said they have used “WebCT”, and 44.4% (4 people) indicated ATutor. Survey question 21, “What is your view on instructional technology such as Moodle and other (LMS)”, provided data pertaining to each participant’s personal views, 40% (10 people) indicating that the technology is “Significant”, 32% (8 people) remained “Neutral”, 16% (4 people) said “Very significant” and, finally, 12% (3 people) said “I have not used it”. To combine “Significant” and “Very significant” would mean 55% (14 people) are in favour of e-Learning technology and, once again, contribute to the level of literacy impacting on the adoption of Moodle. Survey question 23, “How does Moodle compare with other (LMS) you have used, if any”, shows that of the 25 respondents, “Neutral” was the highest at 44% (11 people), 40% (10 people) said “Not applicable”, only 8% (2 people) said “Better”, 4% (1 person) said “Much better” and another 4% (1 person) said “Worst”. This is only a small percentage of positive results but, no doubt, this is due to the low percentage of participants that have actually used another (LMS) other than Moodle, as reflected in (SQ19).

Interview question 5 looks at the disadvantages of using Moodle. It highlighted to the researcher that regardless of how confident a participant is using the Internet or their level of computer skills, if they lack the literacy skills to know how to use Moodle, this potentially may hinder the adoption process to actually use it. Though the research showed that staff ability to use a computer and browse the Internet was fairly high or above average, it did not reflect the ability to feel confident in using Moodle. In fact, the research also indicated that “required training” was the most widely identified disadvantage amongst the respondents regarding the use of Moodle. Even though nearly 70% of the respondents said they had received Moodle training, nearly 80% of them said it was “Not much” training, which perhaps reflects why “required training” is the highest disadvantage count. Hyeonjin Kim et al. (2012) conclude that:

“The new direction of ICT education for teachers lies primarily in the development of a set of adaptive and transferable knowledge and skills, so that teachers are better able to adapt to the challenging and complex nature of future learning environments.”
5.4 Staff training and the impact on the adoption of Moodle

According to Kim and Bonk (2006):

“Faculty training and support is another critical component of quality on-line education. Many researchers posit that instructors play a different role from that of traditional classroom instructors when they teach on-line courses, as well as when they teach residential courses with Web enhancements. Such new roles for on-line instructors require training and support. Some case studies of faculty development programs indicate that such programs can have positive impacts on instructor transitions from teaching in a face-to-face to an on-line setting.”

Currently, there is no formal training schedule for Moodle but over the past two years Te Paetoko (Help Desk - Moodle Support Team) has provided training for teaching staff at all campuses. The Moodle team has visited each region and invited all staff to the training sessions. Moodle has become more accepted amongst teaching staff with the training provided and is often spoken about in daily conversation. After a particular research project Ping et al. (2009) commented, “evidently, the pre-service teachers increased their technology skills and comfort level for adopting student-centred teaching approaches, and developed a constructivist orientation towards teaching and learning after taking the ICT course”. As a result of the training that was provided, staff were shown how to create their own personal Moodle site for their students based on their specific programme. They were given the following guiding fundamentals to assist them when creating these projects:

- Keep it simple
- Make it user-friendly
- Provide relevant and necessary information
- Ensure good navigation and labelling
- Make it flexible in all aspects of usability

In chapter 2, section 2.2.2, in an existing study Elias (2010) pointed out eight similar principles that are used in the design process of e-Learning, with a focus on distance learning, namely, equitable use, flexible use, simple and intuitive, perception information, tolerance for error, low physical and technical effort, community of learners and support and instructional climate. These critical factors were to ensure that learners would experience satisfactory achievement in the learning process and contribute to their continued intention
to use the technology. Again, in another similar study and due to an increasing demand for assessment of LMS quality, a comprehensive e-Learning assessment model was developed to evaluate e-Learning systems such as Moodle. Ozkan and Koseler (2012) pointed out six e-Learning success factors:

1. System quality, measures the performance of the system and its success.
2. Information (content) quality, which measures the appropriateness and effectiveness of the delivered information in LMS.
3. Service quality measures the effectiveness of an IS and service quality.
4. Instructor’s quality with a focus on instructional implementation of the technology and not so much the technology itself.
5. Learners’ Attitudes or one’s attitude towards an LMS is considered an important factor for effectiveness.
6. Supportive Issues or indirect factors such as trends, popularity, technological developments, environmental issues.

These two similar studies are consistent with the type of training that is currently being offered to all staff in the institution to provide a quality product in a student-centric learning environment. These are all critical success factors mentioned in the previous literature given above, emphasizing the significant contribution of the training provided by Te Paetoko.

In survey question 24, “Have you had any Moodle training before”, the results indicate that nearly 70% of participants have received some form of training either internally, studying as a student, or in other working environments. No research has been done on the quality of training provided by Te Paetoko. Those who have not received any Moodle training are at 33% (8 people). One would have to assume that this is the percentage of non-users of Moodle that have yet to commit to the instructional technology trend within the education sector.

The study results confirm that if staff members receive training in Moodle they are more likely to use the technology. Like any e-Learning technology, it tends to create student-centric environments with collaborative strategies used to engage both the student and teacher. Hannon (2009) points out that, “A consequence of this translation of teaching onto the LMS was the displacement and alignment of learning activities to the text-based mode of electronic communication”. This is certainly the case amongst staff, as indicated in section 5.3 which indicates nearly 70% of respondents have received a level of Moodle training before and are currently using it at different levels as a result. Survey question 22 shows that
staff using Moodle are supported in their teaching environments by providing updates, resources, on-line quizzes, grading systems and using the communication tools such as blogging, forums, chat and emails. Survey question 21 indicated 40% of respondents said that instructional technology such as Moodle and other LMSs are “significant” and should be utilised. The features that are most useful to staff are:

1. Upload workbooks
2. Upload assessments
3. Upload video/URLs
4. Send email
5. Upload assignments
6. Upload lecture notes

The end goal is for all teaching staff to experience the reality of on-line learning through Moodle. Divaharan, Lim and Seng-Chee (2011) pointed out:

“To provide a truly meaningful learning experience and to appreciate the unique disposition of NIE, and taking into consideration student teachers’ ICT competencies, it was pertinent to provide a learning framework where student teachers will be able to experience the use of the various ICT tools as learners themselves before they are adept at applying the knowledge and experience to design lessons”.

Divaharan et al. (2011) said that this ICT learning experience “can be categorized in three broad spectrums”, as outlined in Figure 51 below:

![ICT learning experience categorised in 3 broad spectrums](Retrieved from Divaharan, Lim, & Seng-Chee, 2011, p. 5)
For the 66.7% that indicated they have received training, the survey question 25, “If you have selected Yes to question 24, how much training have you had”, also indicated that 75% (15 people) said “Not much”, 20% (4 people) said “None”, and 5% said “A lot”. The results show that even though nearly 70% of participants have received training they haven’t necessarily received a lot of training, or perhaps very little. It also may indicate that teaching staff may require ongoing training or increased training sessions throughout the year. It could be suggested to Te Paetoko (Help Desk/Moodle support) that there is growing interest for further training for all teaching staff around the country. Currently, there is no formal schedule for Moodle training but Te Paetoko have expressed their willingness to visit any campuses should they request it.

Interview question 5, “What are the disadvantages of using Moodle”, identified that “Requires training” was the most widely chosen response by participants from the list of 5 main disadvantages. It is interesting that participants have noted this and that there is some urgency to provide more training throughout the organization. Interview question 8, “What are the critical factors that contribute to Māori staff success in the programme delivery with the use of Moodle”, once again, highlighted by 10% (4 people) that “Staff training” is critical is the third highest from a list of 9 significant factors that contribute to Māori staff success in programme delivery using Moodle. Interview question 9, “What are the critical factors that contribute to Māori staff failure in the programme delivery with the use of Moodle”, is similar to the disadvantages outlined in question 5 above. The results show “Lack of training” 18% (5 people) is contributing to Māori failure, and is the second highest from a list of 8 failures, again showing that training should be a high priority for teaching staff for the use of Moodle.

Amani Bell (2009) suggested that:

“Within the context of professional learning, and in designing on-line resources to support and stimulate such learning, practice theory can be usefully interrogated for an understanding of how individuals become engaged in their environments and how best to facilitate their learning”.

Kim and Bonk (2006) said, “Instructors’ abilities to teach on-line are critical to the quality of on-line education”.

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5.5 Special requirements of Māori users of Moodle

The commitment for the organization to ensure equal opportunities for its tauira (students) extends to equal opportunities for kaimahi (staff). Equal opportunity programmes include family-friendly environments, flexible working options and support for kaimahi to undertake studies that enable career progression.

Of the 25 respondents, the same is true, with females being the higher percentage compared to males. The survey question 3, “Please select gender”, results show that females were 73.1% (19 people) versus males at 26.9% (7 people). Obviously, this comparison was always going to be female dominated but, what is more interesting, is survey question 3, “What is your ethnicity”, which indicates that nearly 90% (23 people) are Māori, 7.7% (2 people) are Pakeha, and 3.8% (1 person) is a Pacific Islander. As discussed earlier, several survey questions inter-link due to the organization being a Māori tertiary institution and, therefore, the majority of staff are Māori. So, from that perspective, what impacts on staff in general will impact on Māori as a whole. For this reason, survey question 3 inter-links with survey question 16, “If you have selected Yes in question 14, please rate the usefulness of the main aspects related to Moodle (from 1 “useless”, to 5 “very useful”).

The results show the 3 highest-rating average scores are all 3.37 (19 respondents) for “Ease of Use, “Information & resource distribution” and “Communication tools”, using the scale from 1 “useless”, to 5 “very useful”. For the 80% respondents that have used Moodle, two of the usefulness aspects related to Moodle tend to be a common identity throughout the research. They are “Information & resource distribution” and “Communication tools”, which means the research is showing that the majority of respondents are using Moodle for the purposes of uploading resources such as assessments, workbooks, evidence and judgement statements, PowerPoint presentations, assignment outlines, video, audio, images, other relevant documentation pertaining to the programme of study, and much more. Thus, uploading is one of the most popular features used by staff in providing these resources for students.

In a similar study, Li et al. (2012) have provided some supporting evidence, though only from a computing student’s perspective, which is consistent with what e-Learning features staff are using more commonly in the current study. They have discovered that “Upload/Watch Video”, “Mail”, and “Blog” were ranked the top three of features that facilitated learning in that particular e-environment. The overall rankings were shown asf “Upload/Watch Video”
(32) 66.7%, “Chat Room” (25) 52.1%, “Games” (14.6%, “Forum” (26) 54.2%, “Mail” (31) 64.6%, “Blog” (28) 58.3%, “Event” (10) 20.8%, and “Other” (5) 10.4%. As mentioned earlier, nearly 90% of respondents are of Māori ethnicity and one can only make the assumption that the majority of Māori tend to be more visual, audial and kinesthetic learners, hence the findings show that providing on-line resources, video, images and presentations, amongst others, are of a significant advantage to staff.

The other useful feature that is commonly used amongst Māori staff is the ability to communicate with students, and vice versa, with the use of email, blog, chat, forums and even Facebook. According to Debbi Weaver and Nair (2008), tertiary pedagogy is concerned with building meaningful learning relationships between learners and teachers, and learners and their peers. This tool provides live interaction with real people who are able to ask questions and give instant feedback. For Māori staff especially, “Ease of use” is important, so that the e-Learning experience does not become a tragic scenario reducing the desire to use the technology. Finally, “Flexibility” had the lowest rating average score of 3.36 (19 respondents), of whom some said that Moodle was restricting and its use was limited to what was available only, however, others disagreed.

Survey questions 3 and 22 were another inter-linking combination showing the impact of “Moodle support in the teaching environment” for Māori users. Once again, the results shown in Table 15 highlight what has been reflected in other areas of the data collection, both in the interviews and the survey. In the first 3 categories of “Excellent”, “Good”, and “Fair”, the response indicates a substantial amount of feedback that Moodle is definitely having a level of impact on each of the respondents’ teaching environments. E. Marcia Johnson et al. (2011) suggests the “research that is grounded in activity theory focuses on the interactions of people, tasks, and mediating tools, rather than on individual behaviours, performance, or mental models”.

It also indicates, once again, any application to do with resources and communication is having a positive effect on staff delivery. Category “Poor” has a low impact on the staff teaching environment, which is a good result for the organization, but still indicates there is room for improvement in forums, communications, updates, lecture notes and the grading system.
Survey question 12, “What forms of technology do you currently use to keep in touch with your students”, outlined some special requirements by staff. The results show 84.6% (22 people) use “Mobile phone” to contact students, 80.8% (21 people) use “Email”, 65.4% (17 people) use “Phone” and “Text”, 57.7% (15 people) use “Facebook”, 30.8% (8 people) use “Moodle”, 26.9% (7 people) use “Chat”, 23.1% (6 people) use “Forums”, and 7.7% (2 people) use “Skype” and, finally, there was 0% use of “Blog”, “Twitter” and “Ipad”. Of the 12 communication technologies shown in (SQ12), 5 are accessible on Moodle; they are “Email”, “Forums”, “Chat”, “Blog” and “Facebook”. One of the reasons why Moodle is at the forefront of e-Learning technology is due to the variety of tools available and its ability to meet the demands of different learning institutions. From the results, certainly “Email” and “Facebook” are experiencing some use, but “Forums”, “Chat” and “Blog” are not used as much. As the results show, 3 of the 12 communication technologies are phone-oriented and indicate high levels of usage for keeping in touch with students. A Mobile App for Moodle may be something the organization can look at for the future.

Survey question 27, “What kind of feedback have you received from students about the use of Moodle or other (LMSs)”, produced interesting results, half positive and the other half not so positive. 32% (9 people) said they have received “Good” feedback from students regarding the use of Moodle, 20% (5 people) said “Fair”, another 20% (5 people) said “None”, 16% (4 people) remained “Neutral”, and the final 12% (3 people) said they have received “Poor” feedback. Feedback has been discussed several times throughout chapter 5, as the research indicates it has been a focus as one of the special requirements staff are experiencing with the use of Moodle.

Interview question 1, “In regard to the use of Moodle by staff, which e-Learning type is suitable (student-centric or teacher-centric)”, the results indicate that 91% of interviewees chose “Student-centric” as the more appropriate e-Learning type when using Moodle. Like any learning management system, it automatically changes the way learning has been perpetuated. The focus is no longer teacher-centric but has more student focus, providing a more collaborative environment where continual communications and live interactions

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forums</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Resources</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Communications</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Updates</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Lecture Notes</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Grading System</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>On-line Quizzes</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Information</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>
between student and teacher unfold. Only 9% commented that in regard to the use of Moodle it could be more “Teacher-centric” than “Student-centric”. Interview question 2, “What features of Moodle are used for e-Learning within your programme”, had a lot of feedback that required reviewing the recording several times over. There was no surprise with the data collected, as the two themes “Communication” and Resources” were, once again, highlighted as being the features of Moodle that are used by each of the interviewees in the e-Learning concept.

Table 16 shows the various features available on Moodle, with the most-used to the least-used in order, by each interviewee.

<table>
<thead>
<tr>
<th>Features of Moodle</th>
<th>Number of Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload assignments</td>
<td>5</td>
</tr>
<tr>
<td>Upload assessments</td>
<td>5</td>
</tr>
<tr>
<td>Send emails</td>
<td>5</td>
</tr>
<tr>
<td>Upload video/URL links</td>
<td>4</td>
</tr>
<tr>
<td>Share resources</td>
<td>4</td>
</tr>
<tr>
<td>Upload lecture notes (PowerPoint)</td>
<td>4</td>
</tr>
<tr>
<td>Upload workbooks</td>
<td>4</td>
</tr>
<tr>
<td>Use discussion board</td>
<td>3</td>
</tr>
<tr>
<td>Use chat</td>
<td>3</td>
</tr>
<tr>
<td>Upload course grades</td>
<td>3</td>
</tr>
<tr>
<td>Use blog</td>
<td>3</td>
</tr>
<tr>
<td>Use calendar</td>
<td>2</td>
</tr>
<tr>
<td>Upload activities</td>
<td>2</td>
</tr>
<tr>
<td>Create an event</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 17: Most-used to the least-used features

In Table 17 the Moodle features have been broken down and categorised in order to identify the focus of what features are beneficial to each of the interviewees. These results confirm, as discussed earlier, that there is a consistent use of the same features available on Moodle by staff, which may be a result of the type of training that is provided by Te Paetoko, or of the sharing of information amongst staff within the Tainui campuses.
Table 18 categorises the features used for e-Learning within the programme

<table>
<thead>
<tr>
<th>Resources</th>
<th>Communication</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload assignments</td>
<td>Send emails</td>
<td>Upload course grades</td>
</tr>
<tr>
<td>Upload assessments</td>
<td>Use discussion board</td>
<td>Use calendar</td>
</tr>
<tr>
<td>Upload video/URL</td>
<td>Use chat</td>
<td>Upload activities</td>
</tr>
<tr>
<td>Share resources</td>
<td>Use blog</td>
<td>Create an event</td>
</tr>
<tr>
<td>Upload lecture notes (PowerPoint)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upload workbooks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 18: Categorised features used for e-Learning

Interview question 3, “What features are the most useful”, simplifies question 2 even more by providing the data indicating what, of all the features outlined in question 2, are the most useful ones. There were 5 interviewees that said, “Upload workbooks” and “Upload assessments”, 4 interviewees said, “Upload video/URLs”, “Upload assignments” and “Send email”, 3 interviewees said “Upload lecture notes”. Again, consistency is demonstrated in the use of the same features on Moodle. Some of the interview questions tend to overlap each other but they do provide supporting data that reconfirms the results in the research. Interview question 4, “What are the advantages of using Moodle”, shows that “Video tutorials” is the most widely identified advantage (7 interviewees), followed by “Communicate with students” (6 interviewees), then “Reinforce class learning” and “Technical support” (5 interviewees), “Provide student resources” and “Student feedback” (4 interviewees), and, finally, “User-friendly” with (3 interviewees).

The research has covered the advantages in more depth throughout this section. Interview question 7, “How has the learning management system Moodle improved your delivery as a tutor”, does not have a direct link to research question 5 but, more so, to the benefits. Nevertheless, the special requirements outlined in this section have assisted interviewees to improve delivery as teachers. The results show that “Open communication” (6 interviewees) has played a significant part in the improvement of delivery, where each interviewee has the ability to use such technologies as sending email, chat, blog, forums and social media to collaboratively assist the teacher-student relationship. Comments highlighted the power of instant feedback and the positive contribution that it provides with assignments, assessments and questions raised from classroom lectures.

Other outcomes from the use of Moodle indicate that “Time efficient” and “Reinforces subject matter” (3 interviewees), “Open access to resources” and “Not at all” (2 interviewees) and
“Caters for absent students” (1 interviewee), have all also contributed to the improvement of delivery as a teacher. Interview question 8, “What are the critical factors that contribute to Māori staff success in programme delivery with the use of Moodle”, overlaps with (RQ5), “What are the special requirements of Māori users for Moodle”, due to the majority of participants being Māori. It was difficult for interviewees to differentiate between “Critical factors for Māori staff” and “Special requirements for Māori staff” as they were seen to mean the same thing during the interview discussions. Interview question 8 has also been explored in sections 5.1 and 5.4 of chapter 5. Interview question 10 has also been explored in section 5.1 of chapter 5, with the research indicating, “Cultural factors” in this context can mean the exact same thing as “Special requirements” in (RQ5), hence the terms overlapping and interlinking, as expressed in this chapter.

5.5.1 Summary

This section reviewed special requirements for Māori users of Moodle and identified a common consistency in the uploading of resources and the use of communication tools such as blogging, email, chat, forums, and social networking, which were the most widely used features by staff. The demographics showed both gender and ethnicity results with a higher percentage of females than males, and Māori making up 90% of staff (respondents). The researcher concluded that from this perspective, what impacts on staff would impact on Māori as a whole. There were several inter-linking questions, which relied on the previous in order to continue to the next question, for example, “If you have selected Yes in question 14, please rate the usefulness of Moodle. This format of questioning was important as it was used to probe each participant for additional data to support the research. E-Learning and instructional technology automatically promotes “student centric” learning experiences, with a high focus on collaboration and communication by all respondents. Wang (2010) pointed out that “Interaction among course participants helps them apply and integrate newly gained knowledge in the course of engaging in group activity”.

5.6 Accessibility to Moodle and the impact on the adoption

One of the benefits that staff experience is the accessibility and availability of computers and Internet. Every teaching staff member in the organization is provided with a personal laptop with the necessary software pertaining to his or her specific programme. For example, all computer teachers are provided with Windows 7, Office 2010, Adobe CS5.5 and many more
applications specific to what they teach. Other teaching staff is provided with their own PCs located in their offices through the campuses. Each of the 5 campuses within Tainui provides student labs that hold up to approximately 20 PCs per lab. Many of the classrooms have PCs available for both staff and students. Wi-Fi is provided at all campuses around the country where two generic passwords are made available, one for guests and the other for staff, which allows Internet access in and around each campus. There are computers available in the libraries at the various campuses for students and staff to use. This type of technological environment opens the doors to providing e-Learning experiences for all staff and students who wish to study. As mentioned in the literature review, it bridges the gap between information technology and traditional classroom delivery. According to Boris Handal (2011), “New technology offers significant potential for enhancing the learning and teaching”. Having access to the technology not only means access to hardware but also to all software pertaining to one’s specific programme. In this case, Moodle is relevant to all programmes delivered within the institution and strongly impacts on its adoption.

The research indicates there is always an abundance of computers that are accessible as long as a campus is open, as some campuses run both day and night courses. This, again, is reflected in the study, providing strong evidence, as the results of survey question 9, “Where at work do you have access to computers”, show that nearly 90% (22 people) have access to computers in the confines of their own “office”, 76% (19 people) said in the “Computer lab”, 52% (13 people) said in the “Classroom”, 44% (11 people) said in the “Library”, and 16% (4 people) in the “Staff room”. The literature provides clarity through one of its Māori policies (Kaupapa Here: Table 7) in chapter 2, which outlines four objectives: two of them point out it will provide “excellent information technology systems, solutions, service and support, and “systems and solutions are identified to increase the efficiency and effectiveness of delivery to all key stakeholders”. The research also shows that question 9 has established the fact that there is no problem with accessing a computer or Internet connection for staff. The researcher decided that (SQ9) would be important to answer first as it links to (SQ10), and then on to answering the final research question (RQ6), “To what extent is the accessibility of Moodle impacting on its adoption”. Survey question 10, “How often do you have access to a computer at work”, indicates that nearly 90% (21 people) “Always” have access to a computer at work, followed by 12% (3 people) who “Sometimes” have access to a computer at work and, finally, 4% (1 person) said they never have access to a computer at work. So far, the results first show that nearly 90% of respondents have access to a computer at either of the 5 areas on each campus, i.e., office, classroom, computer lab, library and staff room and, second, nearly 90% of respondents have access to a computer at work all the time. In the past two years there has been a push for all teaching
staff to use Moodle, which has resulted in Te Paetoko (Moodle Team) travelling to each campus and providing training for all teaching staff. Management from each campus has been encouraged to engage and support staff and students with the e-Learning technology.

Every semester as students enroll, they are given a Moodle username and password, which is activated ready to use on day one of class. Moodle is now a daily occurrence prior, during and after class for both students and staff. With the available technology and the proactiveness from staff members, the level of accessibility of e-Learning technology is having a very positive impact on the adoption of Moodle. In a similar study, Ana Hau'alofa'ia Koloto (2006) indicated that a relatively high access to computers by Māori and Pasifika students while studying was impacting on their e-Learning experience. In fact, statistics showed that 90% of Māori and Pasifika students had access to a computer, which provides an indication of another critical success factor for e-Learning and the contribution towards the adoption of it in education. Therefore, these findings are consistent with the researcher’s literature in the above paragraph outlining that 90% of staff have access to e-Learning technology thus reinforcing the notion that accessibility is definitely an influencing factor regarding the use or the intention to continually use this technology in an e-environment. In fact, survey question 14, “Have you used Moodle before”, indicated that 80% (20 people) said, “Yes”. This is a large percentage of Moodle users within the institute, which is no doubt, due to the accessibility of this technology.

By providing accessibility to the Internet and Moodle, staff and students are able to utilise Moodle frequently as they collaborate one with another. One of the ‘key attributes’ stated in the literature is “Driving Innovative Education” by creating and using innovative educational models to support cradle-to-cradle education. This statement has great significance, as focus will not only be on enrolling a student to complete an 18-week course but also to provide a pathway of study so that the student can study for the next 4 to 5 years. Knowing that the technology is available, relevant and up-to-date provides a sense of ease or koha (contribution). The “Kaupapa Here” policy outlines a commitment by the organization to “provide access to information via secure computing and networking systems”, “to ensure communication of information is successfully achieved via appropriate technology systems”, and “provide appropriate solutions to benefit and enhance learning opportunities and decision-making”. Having accessibility to e-Learning technology is one thing, but ensuring the system and network is robust is another. Ozkan (2011) stated that, “as we are exposed to a digital age, it is essential that we make sound decisions about how the Internet can be integrated most successfully into the classroom”.

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5.7 Summary

The purpose of this chapter was to analyse and discuss the data collected. The results showed the connection between the research, survey and interview questions, so that an accurate assessment could be made based on the results. This was achieved by coding each research question to the survey and interview questions. This made it easier to compare and analyse the data to find answers to the research questions. This also helped to provide brief summaries for each of the comparisons made.

Whānau support is a significant concept in Māori culture and is practiced by all who conscientiously seek the well-being of others. Embedded in the Guiding Principles of the institution, it provides the caring for all who engage in educational opportunities for themselves and their families. In Māori culture, whānau support extends outside the classroom, and lives and breathes amongst the communities served. The research shows there is a wealth of whānau support and encouragement provided within the organization towards e-Learning technology.

Though the research indicates there is a high percentage of staff that use Moodle, there is still a percentage of staff that are reluctant to move away from traditional methods of learning, for reasons such as the training that is required, it is not applicable to their current delivery strategy, it is time-consuming, not user-friendly, bad navigation, and even those that don’t care. Possible solutions would be to provide regular Moodle training, provide quality attractive resources for every programme, use Fridays for preparing lessons with the use of Moodle, and ensure that Management are supportive and encouraging with a mindset to embrace e-Learning technology.

It was impressive to see the high level of computer literacy throughout the research, in fact, 90% of participants felt reasonably confident and, no doubt, would demonstrate the same level of confidence if using Moodle. Pathways for the increased use of Moodle were discussed and would be advantageous if executed in an effective manner including: allowing sufficient training, allocating specific Moodle preparation time, strong support from Management, collaboration between students and teachers, ready availability of hardware and software, and the provision of a robust Internet connection.

Evidence suggests that some staff members prefer using hard copy teaching resources rather than electronic versions. This may suggest that an electronic LMS is still a fairly new
concept and method for staff and will require more time and training to get used to the new approach. This may also suggest that, on the other hand, as they are already familiar with the traditional approaches they are more likely to be biased towards what is currently working well for them. This is not an isolated situation. According to Ana Hau'alo'aia Koloto (2006), Pacific Island staff faced similar experiences in their pursuit to engage e-Learning technology.

Te Paetoko has been providing Moodle training over the past few years and still there is a need for more training. It was suggested that on-going training would be beneficial over time, or as needed. Te Paetoko has extended an invitation to all staff needing training. Though the research showed 70% of participants had received Moodle training before, it did not explore to what extent or the quality of training received, as many staff still requested more training. This is an area to be explored in the future.

The learning management system Moodle demonstrates a student-centric environment that is slowly taking the main focus away from the teacher-centric scenario and becoming a more interactive student-teacher relationship. The features of Moodle that have the highest usefulness, as rated by staff, are information and resource distribution and collaborative-communication learning tools, which are reflected repeatedly throughout chapter 4.

With the abundance of technology available to staff, it is inevitable that sooner or later e-Learning technology will become the normal practice. The recognition of Māori policy guiding the institution is very significant, thus ensuring commitment to teachers and students.

*The research shows the following factors are influencing the adoption of Moodle in a Māori tertiary institution:*

- Possession of significant levels of computer literacy helps in the adoption of Moodle.
- High level of Internet usage.
- Advantages of using Moodle outweighed the disadvantages.
- Accessibility of computers and frequency of availability.
- Significant focus on youth groups that are exposed to e-Learning technology early in their learning journey.
- Nearly 71% acknowledged that much of the support and motivation to use Moodle was coming from work associates, mainly other teaching staff.
• Aspects of Māori culture impact on the adoption of Moodle, namely, whānau support, daily karakia (prayer) within each campus and wānanga pedagogy.
• The Guiding Principles of the institution that recognise the need to be agile and keep up with the latest technologies, teaching and learning strategies and promote e-Learning technologies and tools.
• Robust infrastructure.
• Staff who receive training in Moodle are more likely to use the technology.
• Special requirements for Māori users (90%) indicated any collaborative or resource-oriented features were providing a positive impact.

The researcher also found that even though Moodle has been used since 2005, there is still some way to go in providing solutions to the following issues:

• Extensive training is required
• Encouragement and support from Management is required to use Moodle
• A majority of staff prefer traditional over non-traditional teaching methods
• Initial set-up and maintenance of resources for the successful use of e-Learning technology takes a significant amount of time input
6 Conclusions, Limitations and Recommendations

6.1 Limitations of the Research

During the study the researcher identified the following limitations. Though 71 invitations went out to complete the on-line survey, only 25 respondents completed the survey, making it a smaller sample than anticipated initially. Originally, as well as conducting the survey, the objective was to interview only 10 staff with a compilation of 7 interview questions. However, because more depth was needed in the interview questions to be able to collect the best possible data, 3 additional questions were added later to answer the research questions. The researcher then, in a second round of interviews, interviewed an additional 10 interviewees who provided answers to the 3 new questions. This research has been conducted since semester B of 2011.

This research is limited to the teaching staff of varying programmes. It would be useful to conduct a similar study, from a student perspective, on the significant factors influencing the adoption of Moodle in a Māori tertiary institution.

In hindsight the researcher realises that in survey question 25, “None” should not have been an option. Survey question 24 asked the participants whether they have had Moodle training and, if they selected Yes, they were asked to answer question 25, which asked how much training they have had.

It is interesting to reflect that although this paper is about the computing topic of e-Learning technology, it has delved more deeply and broadly around this particular topic in order to capture the realism from a Māori perspective. There is more to consider than just possessing the technology, it is observing how the technology is being used, for what purposes it is being used, and how can it be better utilised in a changing educational environment, as well as how the adoption of its many functions can be encouraged.
6.2 Conclusion

E-Learning technology has found a place in a Māori tertiary institution with the use of an open source learning management system called Moodle. Since its introduction in 2005 it has become more popular as staff members continue to receive the necessary training and realise its potential to benefit tauira (students) and kaimahi (staff). This study has explored the significant factors that were influencing the adoption of Moodle in a Māori tertiary institution from a teaching staff point of view only.

Additional to the main research question, the study also included six sub-questions that linked to the on-line survey and interview questions so that quality data could be provided in the research. To solidify the linking process, a matrix was used so that the researcher could ascertain not only the quality but the usefulness of each question, and whether or not they could be answered using a compilation of data.

The institution lives by a set of Guiding Principles that specifically promotes and provides support for e-Learning. This study found that training provided to the teaching staff contributes to the adoption of Moodle in a significant way, and is consistent with the findings by other researchers in non-Māori institutions. In Malaysia, Kim and Bonk (2006) suggest, "It is crucial that universities in the region equip their staff with the appropriate knowledge, skills and aptitudes to be competitive in an increasingly global and competitive economy".

The results from this research indicate that staff members from the five campuses of the institution have a good level of computer literacy and are able to use the Internet, which are significant factors that have contributed to the adoption of Moodle. Again, this is consistent with studies conducted in other learning institutions. Ana Hau'alofa'ia Koloto (2006) believes that knowing how to use a computer along with browsing the Internet were critical success factors for e-Learning amongst Pasifika students, and suggested that the majority of them were confident and technologically capable of participating in an e-Learning environment.

This study found that staff members are very comfortable using e-Learning technologies in a Māori tertiary institution, and had positive perceptions regarding the advantages that come with using it.

Accessibility to computers and on-line access to Moodle was found to be another significant factor. The research identified 5 areas on each campus where computers were accessible
and showed the frequency of availability was very high, as all campuses are open as long as there are courses running. These overall results are very positive and have contributed to the success of e-Learning technology within a Māori tertiary institution. Other similar studies have also identified accessibility as an important factor. Ana Hau'alofa'ia Koloto (2006) concluded that a relatively high access to computers by Pasifika students while studying was positively impacting on their e-Learning experience. Nearly 90% of Pasifika students had access, which suggests accessibility is a significant factor for e-Learning and the adoption of it in education.

One thing that has presented itself very strongly throughout the research is the consistent acknowledgement of providing different resources on line. This is reflected in the results more than once. Another highlight was the use of communication technologies between student and teacher, which has proved to be one of the most useful functions of the e-Learning technology.

Emerging technologies, especially computing and communication are changing fast and impacting on the way education is being delivered throughout the world. Both learning institutions and businesses frequently have to make critical decisions on whether to embrace technology or not in order to remain competitive, innovative and robust. E-Learning is now a major focus in mainstream education, opening the doors of interactivity between student and teacher. Technology is moving the focus from a teacher-centric environment to a student-centric learning experience. This learning institute must continue to move forward in this direction, if it does not the consequences may be detrimental to its existence. According to Prince (2004), “extensive and credible evidence suggests that faculty consider a non-traditional model for promoting academic achievement and positive student attitudes”.

As previously discussed, the findings show there is a preference for traditional over non-traditional teaching methods by staff, with a level of reluctance due to lack of training, a perception that it is time consuming to set up, the need for support and the belief that it is not applicable to the delivery of their programme. The findings also indicate that staff prefers using hard copy teaching resources rather than an electronic version. As Moodle is still an emerging technology and a work-in–progress, staff requires adequate time to adjust to new approaches. This is not an isolated situation. According to Ana Hau'alofa'ia Koloto (2006), Pacific Island staff had a similar attitude when they adopted e-Learning technology.

Changing the staff mindset was discussed, and support and encouragement from
Management is considered crucial. A user-friendly quality product that meets the needs of customers is also essential.

6.3 Recommendations for Further Research

According to the research presented, the adoption of Moodle in a Māori tertiary environment by staff is both driven, and influenced by, some significant factors.

Although 75% of staff indicated they had received some form of training, 75% also indicated they had not received much training. Further research may include in the planning process, a focus on the quality of training based on stakeholder needs; it may also include sufficient workshop sessions on an annual basis. Te Paetoko (Moodle support team) may also anticipate feedback from each rohe (region) as a follow-up in order to measure the success of the training provided.

With great variation in programmes available, further research is required to see how Moodle can be tailored to suit course pedagogy and to meet the specific needs of each programme. According to Goyal and Purohit (2009), “the software should be customised to suit the requirements of the institute and more features should be added to it”. This would entail working very closely with Te Paetoko so course-specific configurations may be achieved. Once again, this is a task that may require feedback in order to measure its success.

Student teacher communication with the use of technologies was a consistent theme throughout the research. In the study, specific technologies were identified, from the most-used to the least-used, when communicating between teacher and student. Mobile phone communications (text and phonevoice?) were found to be the most used, as opposed to chat, blog, forums, Skype, YouTube, Facebook and Twitter. A future focus could investigate mobile apps with the use of Moodle capability.

With mobile capability and ownership of smartphones on the rise, this may be a worthwhile research opportunity for the institution to explore. As the scope of this research only included 1 of the institution’s 6 regions throughout New Zealand, further research could be conducted to explore the impact Moodle is having on the institution on a national level. It would be interesting to explore, from a Māori perspective, how e-Learning is embraced outside of Tainui. No doubt there will be variations from one rohe (region) to the next, but research
could explore whether the consistency is the same regarding the use of Moodle right around the country.

Further research could also investigate how other indigenous tertiary institutions are embracing e-Learning technology and what significant factors are impacting on staff with the use of Moodle and other LMSs. The potential exploration of these learning institutions could be beneficial as the organization can observe the strengths and limitations experienced with the use of e-Learning technology. The quantitative and qualitative data would be valuable, especially from those learning institutions that have been using the technology for longer periods of time.
References


9 Appendices

9.1 Appendix A: Information for Participants Form

Significant factors which have influenced the adoption of Moodle by staff at Te Wānanga o Aotearoa.

Tena Koe, Talofa Lava, Hello!

My name is Tane Kaka, I am a student at UNITEC and currently doing a Master’s degree which requires me to complete a research project. My project looks at the factors which have influenced the adoption of Moodle by staff at Te Wānanga o Aotearoa.

What I am doing
I would like to find out what significant factors are influencing the adoption of Moodle by staff in a Māori tertiary institution.

What it will mean for you
It will mean completing 30 on-line questions that will take approximately 20 minutes. If you are not keen to complete an on-line survey there is another option to do it by telephone.

What I will do with this
By taking part in this you will be helping me to understand what is relevant and important regarding the impacts that Moodle can have on you as a staff member.

Consent
If you agree to participate, you will be asked to sign a consent form. This does not stop you from changing your mind if you wish to withdraw from the project. However, any withdrawal must be done within 2 weeks after I have interviewed you. If you have any concerns about the research project you can contact me on 027 520 4804, or my principal supervisor Xiaosong Li on (09) 815-4321 ext. 6019.
Confidentiality

Your name and information that may identify you will be kept completely confidential. All information collected from you will be stored on a password-protected file and the only access to your information will be by you, my supervisors and me.

This study has been approved by the Unitec Research Ethics Committee from (2011) to (2012). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretariat (Ph: 09 815 4321 ext.6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix B: Consent Form

Significant factors which have influenced the adoption of Moodle by staff at Te Wānanga o Aotearoa.

I have had the research project explained to me and I have read and understand the information sheet given to me.

I understand that I don't have to be part of this if I don't want to and I may withdraw at any time within two weeks of the interview.

I understand that everything I say is confidential and none of the information I give will identify me and that the only persons who will know what I have said will be the researcher and his supervisors. I also understand that all the information that I give will be stored securely on a computer at Unitec for a period of 5 years.

I understand that my discussion with the researcher will be taped and transcribed.

I understand that I can see the finished research document.

I am aware that I or my superiors may contact the Research Supervisor, Xiaosong Li, at Unitec, (09) 815 4321 ext. 6019 if I have any queries about the project.

I have had time to consider everything and I give my consent to be a part of this.

Participant Signature: ...............................  Date: .................................

Project Researcher: .................................  Date: .................................

This study has been approved by the Unitec Research Ethics Committee from (2011) to (2012). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretariat (Ph: 09 815 4321 ext.6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
9.2 Appendix C: On-line Survey

1. Impact of Moodle on staff at Te Wānanga o Aotearoa

Kia ora whānau, my name is Tane Kaka and currently working as Kaiārahi (National Programme Manager) for computing at Te Wānanga o Aotearoa. I am a student enrolled in UNITEC’s Master of Computing Programme and completing my thesis which requires me to engage in a research topic. My project looks at the factors which have influenced the adoption of Moodle by staff at Te Wānanga o Aotearoa. I would like to invite you to participate in my research project by answering this online survey which will take about 20 minutes.

What am I doing?
I would like to find out why Te Wānanga o Aotearoa has chosen this particular learning management system (Moodle) and the impact it is having on staff.

What will it mean for you?
It will mean completing 30 online questions that will take approximately 20 minutes. If you are not keen to complete an online survey there is another option to do it by phone.

What will I do with this?
By taking part in this you will be helping me to understand what is relevant and important regarding the impact that Moodle can have on you as a staff member.

Consent
Completing this survey is taken as consent to participate in the research project. This does not stop you from changing your mind if you wish to withdraw from the project. However, any withdrawal must be done within 2 weeks after you have completed the survey. If you have any concerns about the research project you can contact me on 027 363 4376 or my supervisor Kay Fielden on (09) 815-4321 ext. 6456.

Confidentiality
Your name and information that may identify you will be kept completely confidential. All information collected from you will be stored on a password protected file and the only access to your information will be by you, me and my supervisors.

This study has been approved by the UNITEC Research Ethics Committee from (Sep 2011) to (Dec 2012). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretariat (Phone: 09 815 4321 ext. 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

*1. Please select your age range
- [ ] 19-20 years
- [ ] 21-30 years
- [x] 31-40 years
- [ ] More than 40 years

*2. Please select your gender
- [ ] Male
- [ ] Female
3. What is your ethnicity?

- Maori
- Pacific
- Indian
- Chinese
- Pacific Islander
- Other (please specify)

4. What is your current position with in the organisation?

- Teacher
- Administrator
- Manager
- Facilitator
- Secretary
- Other (please specify)

5. What is your current area of teaching with in the organisation?

6. How many years have you been employed by the organisation?

- 0 - 5 years
- 6 - 10 years
- 11 - 20 years
- More than 20 years

7. What other roles have you performed with in the organisation other than your current position?

- Teacher of another programme
- Administrator
- Manager
- Facilitator
- Secretary
- None
- Other (please specify)
8. How confident are you using the internet?
- Very good
- Good
- Neutral
- Not good
- Not very good

9. Where at work do you have access to computers? (you may select more than 1 answer)
- Office
- Classroom
- Computer lab
- Library
- Staff room
- Other (please specify)

10. How often do you have access to a computer at work?
- Always
- Sometimes
- Never

11. How would you rate your computer skills?
- Excellent
- Good
- Fair
- Poor
**12. What forms of technology do you currently use to keep in touch with your students?**
(you may select more than 1 answer)

- Email
- Forums
- Chat
- Blog
- Skype
- Mobile phone
- Phone
- iPad
- Text
- Facebook
- Twitter
- Moodle

Other (please specify)

**13. How do you provide your students with their learning resources? (e.g) workbooks and assessments**

- Email
- URL links
- Storage disk
- Moodle
- Hard Copy
- Video
- Audio

Other (please specify)

**14. Have you used Moodle before?**

- Yes
- No
15. If you have selected NO in question 14 above, what are your reasons for not using Moodle?

☐ Not applicable to my programme
☐ Time consuming
☐ Need training
☐ Don't know about it
☐ Lack of computing skills
☐ No encouragement
☐ Fear of technology
☐ My current system is sufficient
☐ No student feedback
☐ Don't care

Other (please specify)

16. If you have selected YES in question 14, please rate the usefulness of the main aspects related to Moodle (from 1 "useless" to 5 "very useful")

<table>
<thead>
<tr>
<th>Aspect</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Ease of use</td>
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<td>Flexibility</td>
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<td>Information &amp; Resource distribution</td>
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<td>Communication tools</td>
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</table>

17. What aspects of Moodle don't you like? (you may select more than 1 answer)

☐ Not user friendly
☐ Bad navigation
☐ Layout not very clear
☐ Time consuming
☐ Requires extensive training
☐ Don't know

Other (please specify)
18. How long have you been using Moodle?
- [ ] 0 - 2 years
- [ ] 3 - 5 years
- [ ] 6 - 8 years
- [ ] More than 8 years

19. Have you ever used another (LMS) before than Moodle?

20. If you have selected YES for question 19, please select them from the list below. (you may select more than 1 answer)
- [ ] Blackboard
- [ ] WebCT
- [ ] GCNet
- [ ] Eboard
- [ ] Absorb
- [ ] ATutor
- [ ] Roampus
- [ ] EBLearn
- Other (please specify)

21. What is your view on instructional technology such as Moodle and other (LMS)?
- [ ] Very Significant
- [ ] Significant
- [ ] Neutral
- [ ] Insufficient
- [ ] Very insignificant
- [ ] I have not used it

Please explain your view

...
22. How does Moodle support you in your teaching environment? (If you have not used Moodle before, please skip this question)

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<td>Forums</td>
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<td>Lecture notes</td>
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<td>Grading system</td>
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<td>Online quiz’s</td>
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<td>Information</td>
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*23. How does Moodle compare with other (LMS's) you have used (if any)?

- Much Better
- Better
- Neutral
- Worse
- Much Worse
- Not applicable

Please explain your view

24. Have you had any Moodle training before?

25. If you have selected YES to question 24, how much training have you had?

- A lot
- Not much
- None
26. **What encouragement have you received about using Moodle?**

- Excellent
- Good
- Fair
- Poor
- Neutral
- None

Please explain your view

27. **What kind of feedback have you received from students about the use of Moodle or other (LMS's)?**

- Very Good
- Good
- Neutral
- Not Good
- Not very good
- None

28. **Who was it that stimulated your thoughts about the use of Moodle? (you may select more than 1 answer)**

- Friends
- Family
- Work Associates
- School Colleagues
- Students
- Self
- No one
- Not applicable
29. As a result of receiving encouragement, has it provided less of a barrier to you in deciding whether to use Moodle or not

Please explain your view

30. Do you prefer traditional methods of delivery or the use of Moodle or other (LMS's)?

- Traditional
- Moodle or other (LMS's)

Please explain why
9.3 Appendix D: Interview Questions

1. In regard to the use of Moodle by staff at Te Wānanga o Aotearoa, which e-Learning type is suitable? (Student-centric or teacher-centric).

2. What features of Moodle are used for e-Learning within your programme?

3. What features of Moodle are the more useful?

4. What are the advantages of using Moodle?

5. What are the disadvantages of using Moodle?

6. What are the new features you expect in Moodle 2 and the reasons why?

7. How has the learning management system Moodle improved your delivery as a tutor?

8. What are the critical factors that contribute to Māori staff success in the programme delivery with the use of Moodle?

9. What are the critical factors that contribute to Māori staff failure in the programme delivery with the use Moodle?

10. What are the cultural factors that contribute to the use of Moodle for Māori staff at Te Wānanga o Aotearoa?
9.4 Appendix E: Matrix RSQ & SQ

Research Sub-Questions

1. To what extent Māori culture is impacting on the adoption of Moodle.
2. To what extent the reluctance to move away from traditional methods of learning and the impact it's having on the adoption.
3. What are the levels of computer literacy and the impact it is having on the adoption.
4. To what extent is the training provided impacting on the adoption.
5. What are the special requirements of Māori users for Moodle?
6. To what extent is the accessibility to Moodle having on the adoption?

Matrix (Research Sub-Questions & Survey Questions)

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SQ = Survey question  
RQ = Research sub-question

Table 19: Matrix research sub-questions & survey questions
## 9.5 Appendix F: Matrix RSQ & IQ

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IQ = Interview question  
RQ = Research sub-question

Table 20: Research sub-questions & interview questions