

Science and Mathematics Education Centre

**An Investigation into the Effectiveness of an IT-Based
Learning Management System to Support Learning in a
New Zealand Primary School**

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**This thesis is presented for the Degree of
Master of Philosophy
of
Curtin University**

May 2012

Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university

Signature: *Jana Benson*

Date: *27/3/2012*

ACKNOWLEDGEMENTS

First, my sincere thanks go to Professor Darrell Fisher who was so supportive and reassuring every step of the way. Your encouragement and patience was significant when reaching each milestone and you always managed to focus us in and make the impossible seem quite achievable.

I am grateful to both Janet McCarroll (Deputy Principal – St Mary’s School) and Steven Vincent (Technology Wise) who inspired me, mentored me and fuelled my enthusiasm for this study. Our meetings, presentations, and publications were all an integral part to the success of this research.

To the dedicated and hardworking teachers, parents, students and wider school community of St Mary’s who participated in this research, thank you; I appreciated the time and effort you set aside.

Mum, Dad and James thanks for your unconditional love, guidance and moral support. You have always been there for me every step of every journey and I appreciate it immensely... my amazing friends; you guys have pulled me through right to the bitter end and helped me to maintain balance and perspective. Your support during my ‘time off’ was a godsend.

ABSTRACT

The major purpose of this study was to investigate the use of an “IT” based Learning Management System to support education in a New Zealand Primary School. Perceptions of teachers, parents and students were gathered through collecting qualitative and quantitative feedback. In order for this to be achieved, surveys/questionnaires were collected and collated and focus group interviews assisted in interpretations of the data for each group of participants.

In particular, the TROFLEI was the chosen instrument for the students to complete providing information on their perceived actual and preferred learning environment. The initial validation was conducted with 200 students across two separate schools. Statistical analysis revealed that the TROFLEI was suitable for use in upper primary and was a valid and reliable tool.

There were 122 students enrolled in St Mary’s across the Year 5 and 6 year levels and students’ attitude and achievement outcomes were statistically significantly correlated with each of the TROFLEI learning environment scales. Associations were also made according to year levels and gender of students.

Focus group interviews allowed for qualitative data to be collected by each group of participants. There were four groups for each of the teachers, parents and students. Gathering data from each of these groups meant that a triangulation of data was sought creating a rich picture of results.

The results were categorised into the following themes Perceptions, Technological Changes, Change of Existing Processes and Adapted and Improved Learning Environment. Within each of these themes, findings were presented according to the readiness of participants, improved learning, connections, add on approaches, workload, buy in of participants, potential of the system, competency, functionality, skills, professional development, time, key processes, assessment capabilities, ownership, student voice, reflection, language, paper technology, portfolios, practice, questioning, equity, awareness, experts, different learning styles, involvement, barriers, engagement, progress, change and support.

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GLOSSARY

BoT	Board of Trustees
CES	Classroom Environment Survey
CFG	Child Focus Group
DANZ	Directions for Assessment in New Zealand
e-TAP	Electronic – Teaching Assessment Planning
ICT	Information and Communication technology
IT	Information Technology
LEI	Learning Environment Inventory
KN	Knowledge NET
LMS	Learning Management System
MoE	Ministry of Education
MOLE	Managed Online Learning Environment
NZ	New Zealand
OLE	Online Learning Environment
PD	Professional Development
PFG	Parent Focus Group
PROBE	Prose Reading Observation, Behaviour and Evaluation of Comprehension
PTA	Parent and Teacher Association
SLO	Student Learning Outcomes
SMS	Student Management System
SSO	Single Sign On
TFG	Teacher Focus Group
TROFLEI	Technology Rich Outcomes Focused Learning Environment Inventory

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This research focuses on the dilemma facing primary schools on how to integrate Information and Communication Technology (ICT) into classroom practice. A Learning Management System (LMS) is a software product that is found in a school-managed online learning environment (M-OLE). A second software product is a student management system (SMS), the purpose of which is to manage student learning. The M-OLE fits under the e-learning concept as it supports the New Zealand Ministry of Education (MoE) e-learning action plan.

The MoE currently support and fund Edtech, Dataview and Catalyst IT to develop LMS products that meet interoperability standards across and between systems, these LMS products consist of Ultranet, KnowledgeNET and Moodle. New Zealand introduced a new curriculum document as a draft for revision during 2000 – 2002. This was then accepted and distributed to schools as the “official” document. The new curriculum gave schools the opportunity to design and implement their own school curriculum allowing them to have the flexibility and opportunity to create and design a program that aligned with their core beliefs and practices while ensuring that there was an essential framework for all schools to follow.

The New Zealand MoE’s E-learning action plan for schools was accepted and implemented throughout schools from 2006 to 2010. It was designed to enable 21st century learners to achieve their potential through e-learning. Furthermore, it contributed directly to the Key Competencies. The Key Competencies are outlined in the NZ Curriculum as Managing Self, Using Language Symbols and Text, Relating to Others, Participating and Contributing, and Thinking. The supporting document (Ministry of Education [MoE], 2006) outlines the goals for e-learning and describes the projects, tools, and resources to help schools achieve these goals. This document states that LMSs “enable teachers and students to access, manage, use, create, and distribute content easily and efficiently” (MoE, 2006, p.14) and with “effective use has a positive effect on student engagement and student learning outcomes” (MoE, 2006, p.14).

1.2 BACKGROUND AND CONTEXT

1.2.1 Ministry of Education Expectations

1.2.1.1 The Curriculum

The first outcomes-focused curriculum was implemented in 1992, however, since then New Zealand has experienced a lot of social change. This led to a review of the curriculum during the years 2000-2002 and this process resulted in a document *The NZ Curriculum: Draft for Consultation 2006*. The MoE received feedback which has influenced the current curriculum document named *The New Zealand Curriculum for English-medium teaching and learning in Years 1 - 13*. The requirement for schools to implement this curriculum was effective from February 2010.

The *NZ Curriculum* has a vision that all young people will be confident, connected and actively involved lifelong learners. Underpinning this vision is a set of Principles, Values and Key Competencies which provide schools with the basis for designing a learning program throughout the learning areas: English, The Arts, Health & Physical Education, Learning Languages, Mathematics and Statistics, Science, Social Studies and Technology.

The New Zealand curriculum has been designed to allow individual schools the scope, flexibility and authority to design their curriculum so that it addresses the particular needs, interests and circumstances of the students and community. To support this, the national curriculum is intended to be a framework for common direction for education sectors. The school curriculum should also allow interpretations to be made so that teachers can design a classroom curriculum addressing the individuality of their students.

Another huge development was introduced during 2010 with National Standards being implemented throughout New Zealand. The National Standards are for English medium Schools in Years 1 to 8, and are a set of standard expectations in reading, writing and maths. They require teachers to report to parents in plain language twice a year and indicate whether a child is below, at, above, or well above the standard.

1.2.1.2 ICT in Schools

It is the Ministry of Education's responsibility to look at pathways for learning and ensure that all school sectors have a clear understanding of what is expected regarding education. The MoE has ongoing initiatives which seek to improve student learning outcomes as stated:

Used effectively ICT has the potential to bring about improvements in educational outcomes for all 21st century learners. To achieve this, however, it is vital that ICT becomes better integrated with teaching and learning. Successful integration requires schools to plan and develop ICT systems around the needs of their students, teachers and their organisation (customisation). This needs to be combined with an understanding of effective teaching practice and ongoing access to high quality professional development (MoE, 2008).

Current priorities of these on-going initiatives include supporting improved student information management, promoting the effective use of information and communication technologies in New Zealand schools; and developing IT systems to improve data quality, accuracy and access to information. These priorities are addressed in the 'ICT in Schools' initiative, and they are all aspects associated to a M-OLE. The *Review of Schools' Operational Funding: ICT Resourcing Framework – Final Report* (MoE, 2008) outlines ideas for a framework to be developed regarding resources for schools.

Software and programs are continually being revised and developed by the Ministry of Education. Software that is provided to schools is Antivirus Software and Microsoft Software: a contract was signed by the MoE for three years and will end at the end of 2012. Programs have been initiated to reflect and support government educational priorities. One program that is designed to do this is the *ICT Professional Development Collaboration Program*. This program means that schools can apply for up to \$120,000 for a maximum of three years to support their focus. It is intended that a cluster of schools can share their knowledge and this sort of funding can support 100 to 120 staff for the length of a three year contract. Innovation or communication networks such as Online Learning Environments (OLEs) help in facilitating the communication of ideas and shared knowledge for

educators. Most ICT clusters have developed an OLE for their group of teachers to access and utilise for this purpose.

An *ICT Strategic Framework for Education* (Ministry of Education, 2006b) was released for consultation in 2006. Feedback sought to establish priorities and needs for education across the schooling sector. The current strategy is explored in the document *Enabling the 21st Century Learner: An E Learning Action Plan for Schools* which addresses the goals, key outcomes and actions for e-learning and education and what projects, tools and resources are required to achieve this. The first ICT strategy for schooling was released in 1998. These dates give us an indication of when ICT was first being developed and encouraged at a Ministry level.

More than ever, education is taking place in a time of rapid social, cultural, economic, technological, and global change. In New Zealand, the education system needs to respond to the changes taking place as we become a knowledge-based society. (Ministry of Education, 2003a, p. 6)

The decision of when and which products, systems, programs and software schools choose is at the discretion of individual schools. However, it is a MoE outcome that: 'there is increased knowledge and understanding of e-learning and emerging technologies in New Zealand contexts' (MoE, 2006a, p. 18). The action is for teachers to share learning with other educators when they have been given the opportunity to research e-learning in their practice. The research becoming freely available will be an indicator that the outcome has been achieved (MoE, 2006).

Two well-known software tools that make up the MLE are the SMS and LMS. Every school in New Zealand currently has a MLE 'software tools and digital content that supports learning'. The MoE are making a tool MyPortfolio available free for schools until at least 2013 and offering different types of sessions to assist with Professional development (MoE, 2011d). Other LMS's can offer portfolio based tools however the Ministry is supporting MyPortfolio as a specific portfolio tool. There are also developments around the requirements for LMS integration so that information can be shared and transferred efficiently with a SMS. There are continual developments around guidelines for e-portfolio use in and by schools. A recent document, *Digital Portfolios: Guidelines for Beginners* has been published by the Ministry. This

document outlines the role of digital portfolios in teaching and learning and presents 11 profiles of selected schools' ePortfolios pathways as case studies.

The E-learning Action Plan explores in detail the power of e-learning and how it has the capacity to change the way in which we learn. Used effectively across the curriculum as a tool to enhance learning opportunities it is thought that learning outcomes will improve. Measuring and monitoring this improvement has been of huge interest to educational leaders and the MoE over recent years.

Outcomes that are outlined in the E-learning Action Plan address key areas, such as reflective practices, managing developments, public understanding, ICT infrastructure and system improvements. There is a huge differentiation with how these key areas are implemented and developed within different education sectors, and that is where the MoE intend to provide schools with guidance and support. The MoE document, *Digital Portfolios Guideline for Beginners*, aims to provide an understanding of e-portfolios and the place that they could have in a school's ongoing educational strategic plan and framework.

1.2.2 KnowledgeNET - Learning Management System

KnowledgeNET started their development in 2001 with Takapuna Normal Intermediate being one of the first recognized schools to begin using KnowledgeNET in 2003. There are now 240 schools that are using KnowledgeNET as their LMS provider. There are, on average, 7,000 individual users per day and over 200,000 individual user accounts. The majority of user accounts are teachers, administration, support staff, management, students and parents/caregivers. The initial design and build of KN occurred in 2001 with Mark Treadwell who is a director and business partner in the software development company that built KnowledgeNET. Key developments since then occurred in 2006 when KN started their interoperability pilot with MUSAC (a SMS vendor). During 2007, there was the introduction of Ministry Digital Learning Object's directly into KN followed by the addition of focused e-portfolio tools such as e-reflections and Learning Stories in 2008. An initial KN user conference was held in 2009 with 200 attendees, this grew to 320 attendees in the second user conference in 2010. And 2011 has seen the

development of a single sign on (SSO) (School email, personal communication, 11 April 2011).

St Mary's was invited to be a part of a Ministry LMS/SMSv2 Trial, which involved trialing the interoperability between eTAP and the KnowledgeNET Parent Portal and implementing the data integration between the two systems. This led to the publication of *Implementing a parent portal (SMS-LMSv2) lessons learnt at St Mary's Catholic School, Tauranga*.

1.2.3 St Mary's School

1.2.3.1 Context – St Mary's Primary School

St Mary's Catholic School is a primary school offering education for children in years 0 to 6. It is located in the city of Tauranga within the Bay of Plenty region. The region is known for its white sand surf beaches, harbour and coastal climate. The regional economy is based on horticulture and in particular kiwi fruit production, a large dairy farming sector, forestry and a large port (biggest export port in New Zealand). More recently, rapid population and infrastructure growth have seen the startup of many new businesses and generated many new jobs. Tauranga is 2.5 hours' drive from Auckland, New Zealand's largest city. For these reasons, Tauranga has become a desirable place to live and a lot of teachers have moved to the Bay. There has not been a shortage of teachers applying for positions in the area unlike other parts of New Zealand.

St Mary's Catholic School is located next to the Cluny Sisters' Convent and was established in 1959. Initially, the school was led by the Cluny Sisters. The school encourages and has a working relationship where the sisters are an integral part of the school Catholic character. The school was originally three syndicates – Junior (Years 0, 1 & 2), Middle (Years 3 & 4) and Senior (Years 5 & 6), however in 2011 the school was restructured into Year level groups instead of syndicate based. The school covers all curriculum areas including Religious Education.

Since 2008, the student roll has been 410 children which has been the roll limit. Roll growth is anticipated over the next few years 2012 and beyond. The majority of children attending St Mary's have a European background. The school has

received positive ERO (Education Review Office) reports from the last four visits to the school in 2001, 2004, 2007 and 2010.

The school is structured into six areas:

1. Teaching Staff
2. Management
3. Administration
4. Support Staff
5. Children
6. Parents/Caregivers

Of the 41 staff within the school, nine are non-academic, the remaining 32 staff are employed on academic staff contracts. There are no doctorates, one staff member has a master's degree, 26 have bachelor degrees, and the rest a range of diplomas, certificates and industry qualifications. (St Mary's School, personal communication, November 11, 2011)

1.2.3.2 Vision of the SMS and LMS within the school

The vision for all teachers to utilise the capabilities of KnowledgeNET, the LMS, was to use a whole school approach to report to parents using the Assessment for Learning process. A template or Learning Story was designed to demonstrate the purpose for the learning, the learning intention, success criteria, and student evidence and reflections on their learning activity or artefact and include teacher feedback and feed forward. Using writing as the context for our MOE Target for 2009¹, the school aimed to 'personalise' the learning. St Mary's trialled the web 2.0 tool, 'Jing', an audio tool, to capture both student voice and teacher feedback/feed forward.

The pedagogical aim was to shift teacher belief and understanding towards valuing the voice of the students and to recognise the impact on learning

¹ 2009 MOE Target Goal: To use KnowledgeNET school wide establishing the use of Learning Stories in writing, using Listening Pedagogy, Questioning, Teacher Feedback, Feed forward, Student Reflection and Parent comment.

outcomes when a student can articulate where they are in their learning, where they need to go to next and how to get there.

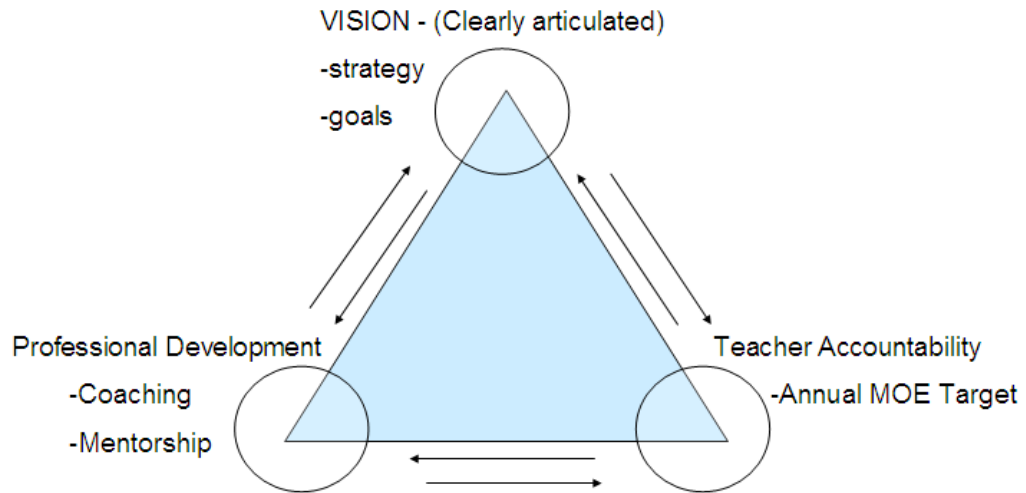


Figure 1.1. Implementation Model

In school support included professional development on how to use KnowledgeNET and focussed around the expectations for staff in relation to the Learning Story templates. The principal, senior teachers, ICT leaders and the Think Tank Team visited Buckland's Beach School, to gain insights into their use of a 'Reflective e-Portfolio' using KN as their LMS. Professional readings around the use of an e-Portfolio as a vehicle for capturing student reflection and sharing the 'Assessment for Learning' process with a wider audience were explored. Mark Treadwell who is an independent educational consultant and director/ business partner in KnowledgeNET presented at a Parent Information Evening with the purpose of sharing 'the big picture' in relation to the rapid shifts in teaching and learning and to introduce KnowledgeNET to the community. Significant release was provided to staff to enable the capture of student reflections and the feedback/feed forward with each individual student. The school employed an IT-support person to assist teaching staff with the scanning of evidence and the uploading into the templates.

Instructions on 'Accessing and Using KnowledgeNET Templates' and 'Instructions for the Writing Template' were provided for the teachers (see Appendix P and Q).

1.2.3.3 Introducing KnowledgeNET LMS

KnowledgeNET was introduced in St Mary's during 2006, however, during 2007 and 2008, St Mary's used KnowledgeNET as a Learning Management System (LMS). KnowledgeNET was a participating software vendor that was working with the education sector as a part of a consultation group. As a result KN is now an approved LMS vendor for the MoE.

Throughout this period the use of the KnowledgeNET LMS within St Marys School, had been minimal and not all teachers embraced the system for the intended purpose of improving student learning outcomes. Senior management used some of the KN capabilities, exploring functionality and establishing a resource portal. Each classroom teacher had/has access to a laptop, projector and each classroom has access to computers varying between one to five computers.

1.2.3.4 Introducing e-tap SMS

ETAP was the chosen SMS and was introduced to St Mary's in 2006, eTAP was chosen as it was web based. The principal and deputy principal at that time saw the benefits of future interoperability between the SMS and the LMS. Initially the SMS was used wholly by office administration. Teachers quickly saw the benefits that eTAP offered in classroom administration, for example, the drawing up of class lists. Teachers opposed the use of eTAP for notices, as they didn't like the use of three portals, eTAP, KN and email. The interface of eTAP, was not well received by teaching staff, who struggled for some years in uploading assessment data to create school wide reports and also with the system design. With the requirement to complete an online roll school wide in 2010, teaching staff have crossed a barrier into regular use and navigation around the SMS.

A Professional Development meeting in 2009 with eTAP staff, to explore the possibilities of using eTAP for recording planning and summative teacher comments, was confusing for teachers. The interface and shift in thinking required to see the link into reporting and interoperability with KN appeared overwhelming. Since then, with reporting National Standards and more emphasis placed on the functionality and meeting of teacher needs by management, e-Tap use has increased substantially.

Senior management recognised the advantages of entering student achievement data into eTAP, in creating a personalised St Mary's wedge graph to enable teachers to record their Reading Running Records and Prose Reading Observation, Behaviour and Evaluation of Comprehension (PROBE). This graph would indicate the National Expectations and place St Mary's expectations above the National Expectations.

ETAP at the time could not configure St Mary's teachers exact requirements, encouraging us to use the table graph already within eTAP. (This graph has now been configured within the LMS through the support of our external IT Company – Technology Wise). Teaching staff were able to enter Diagnostic Assessment data into eTAP by 2009. The office administration and senior management collated the data for school wide reports to report to Ministry and Board of Trustees. Office administrators use the SMS on a continual daily basis for: accounts, attendance, health and immunisation information, personal student details, bus/travel records and to generate email lists for classes or groups e.g. PTA.

1.2.3.5 Professional Development

Additional to conference opportunities and staff development programs offered within the school consisting of Horizon Hours, Quality Learning Circles and Professional Friends; St Mary's was a part of a MoE ICT Professional Development Collaboration Programme mentioned in section 1.2.1.2. The ICT Professional Development Cluster (Te Whakatipuranga Hou) had five schools participating in it, Ti Akau ki Papamoa, Welcome Bay, Omanu Primary, St Mary's and Mount Primary. Te Whakatipuranga Hou Cluster was being developed in 2007 and implemented throughout the schools during 2008 – 2010.

At the end of the 2010, the milestone report indicated that St Mary's had envisioned and planned for a localised 21st Century Curriculum in an e-learning environment. This was achieved through using the school LMS as a portal for sharing 'Visible Thinking', the valuing and inclusion of student reflection as a key element in formative assessment. This was incorporated into the Knowledge NET Learning Stories as National Standards reporting to parents, and the personalisation of home/school learning through use of the LMS KnowledgeNET.

It has been a challenge to make sure that all Ministry requirements, strategic plans, cluster goals, the school curriculum and the 'Big Picture' are all aligned. With different pedagogies, focus and leadership it is more challenging to keep everything aligned and has created an overwhelming workload for teachers at times.

1.3 RATIONALE FOR THE STUDY

This study was designed to evaluate the effectiveness of a Learning Management System and assess the perceptions of teachers, students and parents/caregivers. It considered all participants who are primarily involved in using the LMS to communicate and personalise learning at home and school.

As documented in the *New Zealand Curriculum* foreword, New Zealand is currently experiencing a lot of social change with an increasingly diverse population, complex workplace demands and sophisticated technologies (MoE, 2007). The MoE has responded to this by revising the New Zealand curriculum and introduced National Standards. With new learning and change, there is often uncertainty. Individual schools have had to navigate their way through this shifting landscape of pedagogy and practice. In this research, there were a lot of variables that needed to be considered, such as the demographic characteristics, religion, socio-economic impact, cultural diversity of the community, capabilities of individuals and availability of hardware. These variables range across the education sector throughout New Zealand.

There are New Zealand Universities offering research masters degrees with flexible studying programmes, however most of the research has been Ministry based. Also, some e-fellowship recipients have done prior research relating to e-learning in NZ contexts. It is a challenge for teachers to complete research relating to chosen fields due to time constraints and other work load demands, therefore, unless you take leave from work or receive a study grant/award it is difficult for study to be completed by current practitioners.

As a New Zealand citizen currently employed by the MoE to teach primary education, I have worked in St Mary's School for the last five years. During 2011, I received a study leave award allowing me to focus wholeheartedly on this research. This was a huge advantage while undertaking this research. It was also beneficial because I understand the New Zealand education system and factors which

influence the day-to-day running of schools. Furthermore, I am aware of the personalities of participants who are involved, pedagogical practise, characteristics and resources that all have an impact on student learning.

As a local, connected researcher it was easier to communicate and gather information from participants and have knowledge of general interactions, roles, settings, norms, programs and communication throughout the school. Usually, data gathering happens within the school in order to report to the Board of Trustees (BOT). The BOT are in charge of running the school and making any major decisions. Data are also collected and analysed by management to identify areas of strengths and weaknesses. The validity of data is often at the discretion of the teacher who has administered the formal/informal assessments, and whether results have been moderated. Through my role as a colleague, staff member and teacher, hopefully I encouraged honesty in participants' responses and a non-threatened situation through ensuring privacy and anonymity.

This study looked closely at one school and the perceptions of all stakeholders – teachers, students and parents/caregivers. To achieve this, specific surveys and interviews were designed and a learning environment questionnaire the Technology-Rich Outcomes-Focused Learning Environment Inventory (TROFLEI) (Koul, Fisher, & Shaw, 2011), was adapted and used to assess eight different classroom environment dimensions and four attitude scales.

1.4 AIM AND RESEARCH QUESTIONS

1.4.1 Aim

The aim of this study was to evaluate the effectiveness of a Learning Management System (LMS) by assessing the perceptions of teachers, parents and children of its implementation in a school and relating this to the MoE's expectations regarding student learning outcomes. To achieve this aim, the following research questions were investigated and answered.

1.4.2 Research Questions

Continual surveys have been administered to staff and parents over the last three years to determine a 'shift in thinking,' also to measure the attitude of stakeholders after key developments in professional development and steps towards the implementation process. This process and information led to the first research question.

1. What are parents', teachers' and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?

Through the involvement in an ICT Cluster programme - Te Whakatipuranga Hou, the facilitator administered several interviews and surveys which provided rich data regarding ICT change and the feelings associated with the change throughout 2008 – 2010. Conversations and personal communication is also a huge part of the process while addressing this question as participants are more open and honest in a less formal situation such as written surveys and feel less intimidated around a colleague rather than someone in a supervisory or management role. Thus, the second research question was:

2. How do teachers cope with the technological changes involved with a LMS?

The school held an information evening with a keynote speaker Doctor Scott McLeod on 13th April 2011. Scott is the Associate Professor in the Educational Administration Program at Iowa State University and is the Director of the UCEA Center for the Advanced Study of Technology Leadership in Education (CASTLE). He addressed parents and staff in processes involving ICT and remaining receptive to new and different ways of learning. Follow up from the evening and the presentation *Dangerously Irrelevant* is available online (McLeod, 2011). This study included all participants in the LMS including the parents, therefore the third research question was:

3. How do parents cope with the changes regarding processes in relation to communication received through the LMS?

It is often theorized that children adapt better to change than adults especially relating to technology. This idea will be explored through the TROFLEI results and student discussions/forums, observations and interviews.

4. How do students cope with the technological changes involved with an LMS?

Processes are constantly changing in education especially with a new curriculum being introduced. Monitoring and establishing processes are important. Therefore, documentation will be sought through tracking the site and strategic plans.

5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?

Holding 'action conversations' and formalising what St Mary's School needs to do at a BOT (Board of Trustees), PTA (Parents Teachers Association) and staff level where all stakeholders need to be asking each other difficult questions established the rationale for the following research question.

6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

1.5 SIGNIFICANCE

This study is significant for a number of reasons. First, it documents the implementation of a Learning Management System that primary schools need in order to keep up with the ICT age we have entered. It supports research relating to the MoE e-learning action plan within key curriculum areas. The results of this study could motivate and encourage further qualitative and quantitative research studies and inspire new significant research.

Secondly, it explores the power and potential of a LMS and the impact this has connecting schools (teacher, child) and the community (parents, caregivers) and how this enhances the learning environment and opportunities for the learners. It provides valid and reliable data through the TROFLEI student questionnaire which was used for the first time in relation to LMSs. The surveys explored the pedagogy and capability of teachers and parents and the interviews gave an opportunity for a more thought provoking discussion to be held exploring these ideas in greater detail.

Thirdly, it provided thorough research and evidence of different perceptions of those who are active participants and contributors to the LMS (teacher, student and parent/caregiver). It provided a case study type approach looking at other factors that can influence perceptions. It is likely to provide significant data to teachers and other researchers including the MoE in regard to the implementation and uptake of a LMS and explore the successes and challenges that are involved. The evidence that this research provides has the potential to influence decisions and choices that are made in relation to the educational curriculum at all levels.

1.6 OVERVIEW OF METHODS

In this study, questionnaires, surveys and interviews were used in order to best identify the perceptions of those involved in the use and implementation of a LMS. Initially, tools such as e-surveys were investigated and used. E-surveys enable researchers to create web surveys and view results graphically.

It will be important to listen to the student/teacher/learner/parent voices as these are the people most likely to be effected by this change. The implementation of such a tool needs to be carefully thought through and planned initially with the teachers. These are the people who will grow the functionality of the LMSs within their classes and help create a culture which the children and parents feel comfortable embracing. If teachers are pushed into the use of tools too early it can lead to frustration and then implementing it further along is twice as hard because of the negative experience.

In this study, the impact of a LMS KnowledgeNET was studied. The research was undertaken in St Mary's Primary School, New Zealand. I am the researcher and a staff member at the school, teaching across different Year levels ranging from Year 0/1 through to Year 5 in the last five years. Over the last three years, opportunities have been sought to collect data from teachers and parents in regards to their perceptions. These have been administered and collected at times that key developments have occurred such as professional development and/or new systems, structures and hardware being made available. While the school supported the study almost no special provisions or consideration was given to accommodate and complete the research. Therefore, opportunities to gather and collect research data were limiting and accessing appropriate resources and time with participants dictated the sample size.

Opportunities were limiting across the school for Knowledge NET to be implemented throughout the five years which are discussed in detail in Chapter 4 – Results Analysis and Discussions. Every child, teacher and parent/caregiver had the opportunity and access rights with individual logins by 2010. This allowed them to use and access Knowledge NET from wherever they were, provided they had Internet access.

Patton (1990) refers to the strengths and weaknesses of differing data collection strategies. Triangulation facilitates validation through cross verification of multiple sources of information that is gathered. In this research, triangulation is achieved through assessing the perceived thoughts and ideas of teachers, students and parents/caregivers. Quantifiable data/feedback was sought through surveys and questionnaires. Forums and interviews were designed to create opportunities for deeper thinking to be shared through facilitation of discussion and reflection. These varying data collection methods gave an opportunity to seek information from different angles. These occurred throughout the study, however, student data were gathered in 2011 limited to Years 5 and 6 students to minimise disruption to classroom teaching across the school. Also the student questionnaire (TROFLEI) that this research required students to complete was originally designed for able senior students. Students from this sample group were taught by me as a teacher during the years 2010, 2008, 2007 and 2006; further teaching of some of these students is anticipated throughout 2012.

Surveys and questionnaires for parents and teachers were administered through using an open source survey application, Lime Survey Version 1.90+ Build 9642. Features of Lime Survey include basic statistical and graphical analysis with export facility. Student data gathered through the use of the TROFLEI were administered on paper and then coded and analysed using the Statistical Package for the Social Sciences (SPSS) (Norusis, 1993).

1.7 OVERVIEW OF THESIS

This thesis presents the results of research on the effectiveness of the implementation and use of a LMS and is divided into seven chapters. The first chapter of this thesis provides background to this study in the areas of Ministry expectations, Knowledge NET as the LMS that is being used throughout this research and St Mary's Primary School as the context for the research to be

undertaken. The rationale, aim, research questions, and significance are also outlined in this chapter. Also, there is an overview of the methods that were used.

Chapter 2 is a Literature Review focusing on learning environments and curriculum and assessment in New Zealand also will be explored. It also looks at previous literature associated with LMSs, e-portfolios and e-learning environments. Previous research has been carried out in other countries in relation to on-line learning. Acknowledging this and seeing how this correlates to our New Zealand education system will be explored by considering New Zealand documents and material that is available. Participants, roles and commitment to the change process will also be identified.

Chapter 3 describes the methodology involved with completing this research. It looks into the research title and significance of this study in detail and explores the research questions and research design. Sampling and distribution needed to be carefully administered to ensure effective data gathering and determining the cohort of participants to be used. Instruments are adhered to such as Lime Survey and the use of the TROFLEI questionnaire. Modification of surveys to suit the purpose of this research is addressed. Data collection and analysis is referred to through the procedures and instruments, administration and data analysis that will be undertaken. Assumptions and ethical considerations are also identified in this chapter.

In Chapters 4, 5 and 6 results analysis and discussions are presented in various sections relating to the research questions and the responses from the participating students, teachers and parents. The validity and reliability of the results are explored. Chapter 4 presents the results relating to the student data, Chapter 5 focuses on the teacher data and Chapter 6 presents the parent data that were gathered. Each chapter presents qualitative and quantitative data for each group and identifies key ideas from the research questions.

Chapter 7 outlines the conclusions of this research. It presents major findings and readdresses the implications, significances and limitations for this research. It provides suggestions for further research to be undertaken and final comments that are made in relation to implementing a LMS and the effective use of a LMS to improve student learning outcomes.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This literature review presents an overview of several areas relevant to this thesis. The first section looks at curriculum and assessment in a New Zealand context focusing in on the learning philosophy, process and assessment. This then leads into the learning environment theory and research. Key ideas and theories are highlighted, such as those of key researcher Lewin dating back to 1936 who established that the environment and interactions of people determined how people behave. Since then there have been many researchers focusing on the learning environment and in particular many tools and instruments designed to help with this research.

In particular, the use and design of questionnaires has been important in learning environment research. The development of the Technology Rich Outcomes Focused Learning Environment Inventory (TROFLEI) is discussed and supported with other research that has used this tool. This research uses the TROFLEI to assess how effective the LMS is as a part of the learning environment. To help support the TROFLEI results, the web learning environment as well as e-portfolios and Learning Management Systems were also examined. The change process and commitment to change was also identified as a key area to cater for 21st century learners.

Furthermore, participants and their roles in the learning process are explored through a student-centered learning approach, parental engagement and involvement, and the teacher as a facilitator and support person during the learning processes.

2.2 CURRICULUM AND ASSESSMENT IN A NEW ZEALAND CONTEXT

This section explores the notion of environment and learning that pertains to schools, classes and web environments. 'It has been widely accepted that learning environment can influence students' attitudes and learning outcomes' (Wanpen &

Fisher, 2006, p. 298). If this is the case, it is important for this research in particular to explore these ideas and their influence as the aim of this study is to evaluate the effectiveness of a LMS (a web learning environment) and relate this to student learning outcomes. It is one of the strongest traditions relating to classroom environment research to investigate the links between the environment and cognitive and affective outcomes (Dorman, Fisher, & Waldrip, 2006). From these ideas it is important to consider the e-learning environment and how similar research impacts and influences learning outcomes.

2.2.1 Philosophy for Learning

The focus in this research is on St Mary's School where there is a learning environment: where formative assessment is well embedded and valued; the teachers of the school identify the need for students to accept greater responsibility for their own learning; and for parents to be further educated in the formative assessment processes. Supported by current research on the power of student self-reporting, we had a desire to further refine our feedback/feed forward strategies and place greater value on student reflection which led to a shared school-wide learning vision - To develop assessment capable students, teachers, school leaders and parents.

It is the *Directions for Assessment in New Zealand* (DANZ) report (Absolum, Flockton, Hattie, Hipkins, & Reid, 2009) that has influenced and shaped the learning philosophy and school vision for St Mary's school. The DANZ report focuses on developing student's assessment capabilities. To provide the required help and support to developing 'Assessment Capable Learners', it is necessary for all stakeholders to develop and strengthen their own assessment capabilities. It was identified that parents, school leaders and teachers all need to improve understandings of assessment data and how to interpret the data to best support the students' learning (Absolum, et al., 2009).

It is a DANZ (2009) recommendation 'That all our young people be educated in ways that develop their capability to assess their own learning' (p. 23). Given this assumption, it is important to consider the educational umwelt of a child (umwelt referring to the world as it is experienced by a particular organism). It is the understanding of our students' umwelt that allows for the creation and accommodation of the student (Koudstaal & Pugh, 2006). To ensure that our

assessment practices are 'inclusive and informative' (Absolum, et al., 2009, p. 6) we need to connect intended learning to the familiar world and environment of the learner. Absolum, et al. (2009) suggest that one way of achieving this is by: 'engaging students as active participants in assessment conversations where they are given opportunities to present- and have heard- their own perspectives on their efforts and achievements' (p. 7).

Student self-reflection and self-reporting in critical learning conversations capture the 'teachable moment', and forge deep learning, clarifying the pathway forward for the learner. It is 'when students are actively involved in assessment they are well placed to recognise moments of important personal learning' (Absolum, et al., 2009, p. 20) which fosters their educational umwelt. Critical conversations, allow the teacher to assess what desired learning outcomes we value as a school, rather than value what we assess. A level of courageous leadership is required to shift the value schools place on the 'process' of reflection to valuing the voice of the learner as most authentic evidence of learning.

St Mary's was encouraged to use online Learning Stories as a way of reporting to parents to help establish the shared language for learning and to implement our learning vision.

Prior to rolling out the Learning Story in 2009, as a school we had reported 'to' parents and students in written format. Using direction from the NZ Curriculum to 'engage' and 'involve' students in assessment practices, we moved towards the concept of involving students 'with' both assessment and reporting their progress and achievement, using the Learning Stories.

With is also a design philosophy for learning. People learn most effectively with other people, not just from them. Learning tends to be more effective when it is more collaborative and interactive, when the learner is an active participant in making sense of what they are learning, developing their knowledge by trying it out' (Leadbeater, p. 6, 2009).

2.2.2 Assessment

Students should be at the centre of all learning experiences and developing the skills to become 'assessment capable' continually reflecting on feedback and feed-

forward opportunities refining their learning goals and next learning steps. This would enable the educational Umwelt of a child to be fostered. Assessment for learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where the need to go and how best to get there (Barrett, 2005, p. 2).

Hattie (2009) states that feedback is most powerful when it is from the student to the teacher and when this occurs, it helps to make learning visible. St Mary's school incorporated this feedback into the Learning Stories which had an uploaded audio file of a critical conversation that focused on this form of powerful feedback from student to teacher. The critical conversations were supporting evidence for an artifact of learning. Barrett (2005) says: 'To effectively use portfolios for assessment, whether formative or summative, a learning organisation needs to establish a culture of evidence (p. 3), as previously discussed in section 2.2.1.1, the school philosophy for learning. A culture of evidence had been established and dialogue/feedback was valued in the classroom especially during assessment processes. Children were scaffolded with questioning to promote reflection.

Overall, one should not forget the importance of multiple measures in assessment: one type of assessment does not fit all situations (Barrett, 2005, p. 3). St Mary's and individual classes still used multiple measures for assessment and reporting. The Learning Stories were designed and 'rolled out' to show the process of learning, during 2010 they met the needs for reporting against the National Standards for the mid-year requirements.

Kliebard (1975) also refers to the essentiality for multiple measures in assessment. He says: to match outcomes with learning objectives ignores or, at best undervalues, the student's engagement in a learning process of a creative or cognitive nature and he observed: 'The most significant dimensions of an educational activity, or any other activity, may be those that are completely unplanned and wholly unanticipated. An evaluation procedure that ignores this fact is plainly unsatisfactory (Kliebard, 1975, p. 163 cited in Koudstaal & Pugh, 2006, p. 329).

2.2.3 Learning processes

It is not the computer or the LMS that will necessarily improve the Learning Outcomes but the engagement, connectedness and involvement that these tools allow within and outside the classroom. These aspects all relate to and are what we can deem as effective teaching. The current NZ Curriculum is highly regarded internationally and is considered to be sufficiently open ended to allow for 'effective teaching' aligning with the Key Competencies. "We need to re-conceptualise the nature of curriculum, to see it not in terms of plans preset or ideologies advocated, but as an image hovering over the process of education, giving direction and meaning to that process" (Doll, 2002, p. 23, cited in, Koudstaal & Pugh, 2006, p. 333). NZ schools have the ability to do this with the current curriculum document.

Each classroom identified their 'purpose' for learning, established a Learning intention and co-constructed Success Criteria with students. An artifact of learning was scanned into the 'Learning Story'. 'Jing' was the chosen web 2.0 tool used to capture the critical learning conversation between student and teacher, using questions to prompt self-reflection and reporting and provide opportunity for the 'teachable moment' or teaching intervention, which often occurred spontaneously within the conversation.

The power of student voice should not be underestimated. To hear students reflecting on their own work, in their own voice, with their own intonations and expressions, conveys meaning in a manner that is simply not possible in written form. Voice adds depth to the work, allowing the author's personality to come through. It enables the author to communicate more directly with those viewing the work who are then able to listen directly to the author's thoughts and reflections." (Fox, 2008, p. 8)

This process for the Learning Stories aligned to the "learning to learn" portfolio model which highlights that 'portfolios can assist in this process by helping the learners 'metacognitive development through student goal setting and critical reflection as well as through the introduction of thinking and learning models' (Fox, 2008, p.1).

The Learning Story was developed to show the process of learning. Parents asked in an interview if this was a 'staged' experience for the child, it is important to note that the 'learning' that was documented in the Learning Story is true to what

happens in the classroom with constant teaching interventions, prompting, feedback, feed-forward and questioning. The difference is that this often happens in a group situation or with peers rather than one on one with the teacher. They showed the process of reflection which we at St Mary's have recognised as powerful moments of self-recognition of learning. The process of "learning is affirmed when assessment leads to a consensus of what has been achieved: the teacher and student together recognise and value the evidence of learning. Progress can then be documented and celebrated, either privately or publically." (Absolum, et al., 2009, p. 22)

2.3 LEARNING ENVIRONMENTS

2.3.1 Learning Environment Theory and Research

Research on learning environments began as early as the 1930's when Lewin (1936) recognized and identified that the environment (E) and interactions of people (P) determined how people behave (B), he introduced the formula, $B=f(P,E)$ (cited in Koul, Fisher, & Shaw, 2011). Since that time, many researchers have referenced Lewin's theory and work. Quinton and Houghton's research in 2006 referenced the ecological learning environment, identifying key ideas that can be loosely connected to Lewin's theory in that people and the places/ environment have an important impact on learning and education.

An ecological learning environment can assist learners to seek greater value from their learning experiences. The fundamental ingredients are people, places and ideas connected through a loose combination of planned design and random chance to produce the conditions needed for inspiring creative thinking and innovation (Quinton & Houghton, 2006, p. 519).

"The concept of environment, as applied to educational settings, refers to the atmosphere, ambience, tone, or climate that pervades the particular setting" (Dorman, Fisher & Waldrip, 2006, p. 2). Educational settings of environment can also be referred to as a learning environment. Assessing the learning environment, having evidence that supported research and evaluation was important, and *the Learning Environment Inventory* (LEI) was developed by Walberg and has been widely used since (Fraser, in press). It was the social climate scales that were developed by Moos that led to the development of the *Classroom Environment*

Scale (CES). The work of Walberg and Moos on perceptions of classroom environment has since led to many research initiatives and these are reflected in many historically significant and more recent books that Fraser (in press) refers to.

Rudolf Moos proposed a scheme for classifying human environments that was categorised into three dimensions:

‘Relationship Dimensions (which identify the nature and intensity of personal relationships within the environment and assess the extent to which people are involved in the environment and support and help each other), Personal Development Dimensions (which assess basic directions along which personal growth and self enhancement tend to occur) and System Maintenance and System Change Dimensions (which involve the extent to which the environment is orderly, clear in expectations, maintains control and is responsive to change) (Fraser, in press, p. 5).

These dimensions provided a framework for the development of questionnaires.

2.3.2 Learning Environment Questionnaires

There are four ‘historically-important and contemporary instruments’ (Fraser, in press, p.4) used in association with the learning environment, the *Learning Environment Inventory* (LEI) (Fraser, et al., 1982), *Classroom Environment Scale* (CES) (Moos & Trickett, 1987), *Individualised Classroom Environment Questionnaire* (ICEQ) (Fraser, 1990) and *College and University Classroom Environment Inventory* (CUCEI) (Fraser & Treagust, 1986). Other notable questionnaires and instruments are *My Class Inventory* (MCI) (Fisher & Fraser, 1981), *Questionnaire on Teacher Interaction* (QTI) (Wubbels & Levy, 1993), *Science Laboratory Environment Inventory* (SLEI) (Fraser, et al., 1993), *Constructivist Learning Environment Survey* (CLES) (Taylor, et al., 1997), *What Is Happening In this Class?* (WIHIC) (Fraser, et al., 1996), *Constructivist – Orientated Learning Environment Survey* (COLES) (Maor & Fraser, 1996) and the *Technology Rich Outcomes Focused Learning Environment Inventory* (TROFLEI) (Aldridge, et al., 2003).

Most of the instruments above have two different forms to measure the perceptions of the ‘actual’ and ‘preferred’ learning environment. The difference between the two

forms being what is experienced and actually happening in the class and what is ideally liked or preferred by the students.

2.3.2.1 TROFLEI

The TROFLEI was designed by Aldridge and Fraser in 2008 when they conducted a study on a new innovative post-secondary school that had particular emphases on the use of ICT in program delivery and outcomes focus. The TROFLEI was used 'as a part of the formative and summative evaluation of this new school' (Fraser, in press, p.12). It is the focus and emphases that the TROFLEI has on ICT and outcomes that make this a suitable tool for this research.

The WIHIC classroom environment instrument that was developed by Fraser, McRobbie and Fisher (1996) was used as a starting point for the development of the TROFLEI. Another contributing instrument that influenced the development of the TROFLEI was the ICEQ capturing the 'individualised nature of an outcomes-based program' (Aldridge, Dorman, & Fraser, 2004, p.113) namely, differentiation.

The original TROFLEI was adapted for use in this research. Further explanation of the scales and items within the TROFLEI and adaptations that were made are discussed in Chapter 3 of this thesis.

Fraser (in press) reported that the original TROFLEI was suited for secondary level and contained scales that covered the dimensions according to Moos' scheme. In the adapted TROFLEI the Relationship Dimension included the scales of Student Cohesiveness, Teacher Support and Involvement; Personal Development dimensions included Task Orientation and Cooperation; and the System Maintenance and Change Dimensions included Equity, Differentiation and Computer Use.

2.4 WEB/TECHNOLOGY LEARNING ENVIRONMENT

Do paradigm shifts in educational beliefs and values occur only as a result of a realisation that particular pedagogical practices, once imbued with hope, do not ultimately lead to originally conceived or desired learning outcomes? Thomas Kuhn argues that paradigm shifts in beliefs and values are common during a time of social and scientific change (1962). One might say that one

such example is the emerging claim that today's student might achieve better learning outcomes if the use of ICT in relation to hypermedia is encouraged and facilitated (Koudstaal & Pugh, 2006, p. 327).

Nussaum – Beach (2007 as cited in, Fox, 2008) says that 'We are the last generation of teachers who will have a choice whether or not to use or not to use the new technologies in the classroom' (p. 16). We have an ethical and moral obligation as teachers of 21st century learners to allow the students that we teach to have exposure and experience to the world of the web. The web provides the potential for the world to be your audience. While some would say there is a huge risk regarding net safety, it is up to us to educate children and have the correct policies and procedures in place to ensure that children respect the web and are aware of the potential risks. However, a LMS is designed to ensure that children can experience an online environment in a safe and protected way. A LMS ensures that all students have the foundational skills along with the capability of operating successfully in an increasingly digital world. 'The ethic of the Web 2.0 world is create, connect, combine and collaborate. The underlying principle of doing things *with* people rather than to or for them will breed very different organisations, services and experiences in virtually every field' (Leadbeater, p. 5, 2009). The LMS environment can provide opportunities for children to engage in the world of the web in a secure environment creating content in Learning Journals, connecting with people in their groups or class, combining information through the class home page and collaborating through forum discussions. These are just a few examples of opportunities that are offered through the LMS environment.

As Quinton and Houghton (2006) report it is important that we recognise the need for new forms of literacy, this can be based on technological competence, information processing, research skills, networked collaborations and creative application of thinking. The challenge is the relationship between technology-rich environments and instruction and learning outcomes. This has been complicated by the changing emphasis of developments relating to learning theories, teaching methods, technologies and balancing this with meeting the needs of individual learners. It is necessary to understand which technologies under which conditions will most effectively enhance the learning environment to achieve improved student learning outcomes (MoE, 2000).

'People differ over how long and how big an impact it will have: historians of technology warn that it often takes much longer for a technology to change society than enthusiastic advocates assume' (Leadbeater, p. 4, 2009). However, the change is happening and there is a unique opportunity for NZ and individual schools to lead the way forward into this new paradigm, especially with the curriculum, we are held in high regard world-wide for our curriculum document so we can feel empowered to charge forward and change our traditional approaches and practices.

A book *The Third Teacher* commented on how to unleash learning – and stated that 'Electronic learning aids aren't fancy window dressing: They offer teachers and students new and diverse ways to engage with subjects and ideas'(OWP/P Architects, VS Furniture, & Bruce Mau Design, p. 235, 2010). It is a great analogy to make too many concepts that are expressed in this chapter but in particular the web as the third teacher perhaps. Arguably the first teacher is the child her/himself, the second is the actual teacher.

2.4.1 e-portfolios

A 'lack of research into the manner in which students learn in digitally-rich environments" (Falloon, 2006, p. 340) has enthused me to complete this study. A classroom teacher is the best person to implement and design a LMS with the assistance of a technological savvy support person. Through the use of a LMS it is also important to consider the use, possibility and potential of e-portfolios. An e-portfolio is centred around a child's learning. 'Cooke (2005) pointed out that all innovative approaches, no matter how simple or complex should be designed with the students in mind' (Chandra & Fisher, 2006, p. 462). It is the interaction between students, teachers and a wider audience that authenticates learning intentions and serves a purpose for the children. The feedback from peer assessment and a wider audience ensures there is learning potential for e-portfolios. 'The web has developed from an information publishing space to an interactive communication space' (Chard, 2006, p. 609). The e-portfolio as a part of a LMS is powerful because it allows administrators to have an overview of all participants at any one time.

The convenience and flexibility of the web is attractive to both students and teachers as it enables ready access to learning material and a means of communicating with other course participants, at any time, from

multiple locations as long as there is a connection to the web (Chard, 2006, p. 604).

While there are similar options to LMS e-portfolio concepts available on the web, it is important to keep in mind the management and accessibility to the teacher viewing and assessing a whole class' e-learning.

Portfolios have been common practice in many schools and classrooms, although Barrett notes that the 'primary difference of an electronic portfolio is that electronic portfolios organise portfolio artifacts in many media types (audio, video, graphics and text) and to use hypertext links to organise the material, connecting evidence to appropriate outcomes, goals or standards'. (Barrett, 2005, p. 1)

Some teachers and parents have been concerned about the extra workload that e-portfolios create. However:

ePortfolios do not add to workload but we need to change some of the ways we have traditionally: given FEEDBACK, facilitated REFLECTION, engaged learning in SELF & PEER ASSESSMENT and we need to: adapt teaching/learning/assessment practices so that the process and outcomes can be shared digitally in the portfolio platform (Rate, 2010).

It is appropriate for the pages that make up a St Mary's e-portfolio to be called learning Stories within Knowledge NET. Learning Stories are considered an assessment tool used to describe a child's learning process.

'If we are to help learners create portfolios that truly support assessment for learning, then we need to look at strategies that help the learner tell a story of their own learning'. (Barrett, 2005, p. 4)

It is important to identify the opportunity that an e-portfolio creates for the 'Assessment Capable Student', the responsibility and the potential that it creates for the learner to be active participants. Fox (2008) says that 'An ePortfolio can be the catalyst to stimulate and motivate students and to have them more highly engaged in their learning (p. 17). The use of an eportfolio as an assessment tool is also of importance:

ePortfolios achieve a goal that many other assessment methods cannot; they change the student role in assessment from passive research subject to active participant as students are called upon to select samples of their classroom and co-curricular work products for the ePortfolio and (perhaps most importantly) to reflect upon why these artefacts were elected and how they demonstrate learning (Knight, Hakel & Gromko, 2006, as cited in, MoE, 2011b).

Reflection is key in an e-portfolio and allows the student to create ownership of their learning. The ability to embed audio to support learning is invaluable as 'when words are infused by the human voice, they come alive' (Angelou as cited in Digital Narratives, 2010). 'Reflective portfolios support a deeper level of engagement and self-awareness, making it easier for student to understand their own learning and to provide teachers and parents with a richer picture' (Barrett, 2005, p. 1). The rich picture that is created also helps to develop the shared language for learning that is required for the participants (teacher, student and parent).

2.4.2 Learning Management Systems

The LMS has been previously discussed in Chapter 1 and also in the Technology Learning Environment and ePortfolio sections of this chapter. The use of a LMS is a software product that is being considered by many schools in New Zealand at present. LMS products that are available are Ultranet, First Class, KnowledgeNET, Moodle, My Classes, Scholaris and others (MoE, 2011a). These products are based on information given to the Ministry by LMS vendors and schools. The intended purpose of this product is to manage student learning. This can be considered through e-portfolios, resources, accessibility to activities, authentic audience, sustained engagement, interactive communication and feedback opportunities which are all features of a LMS. How these effectively influence learning is a key aspect. Further investigation into how existing tools can be taught through ICT and the perceptions of those involved will add to this action research.

"The enhanced accessibility, affordability and capability of the Internet has created enormous possibilities in terms of designing, developing and implementing innovative teaching methods in the classroom" (Chandra & Fisher, 2006, p. 461). A LMS would be considered to be one possibility of implementing an innovative teaching method. Knowledge Net as an example of a LMS costs St Mary's each year. The concept of LMS's has room for improvement especially considering

affordability and ease of use. It is not only technical competence in using the tools but most importantly how to integrate them with meaningful and relevant learning.

Liber (2005) argued that the design of e-learning environments should not be left to the technicians and programmers. There is a need for teachers to become more proactive in driving the technology. Through such an approach, teachers have a far greater control in terms of how the learning activities are designed, developed and sequenced (as cited in, Chandra & Fisher, 2006, p. 465).

The appropriateness of a LMS tool is important to consider and how the users will interact and manage the tool. The interface and pedagogy needs to reflect a culture that is suitable for certain types of educational instruction and institutions (Pagram & Pagram, 2008). A school must evaluate a LMS and consider if the tool is meeting the intended purpose and outcomes for learning. Barriers need to be identified and developments need to be put in place with the community and provider to ensure that the LMS is effective. 'Education is very local and specific and e-learning design must reflect this if it is to be both effective and appropriate' (Pagram & Pagram, 2008, p. 397).

Treadwell comments:

Not only should the LMS be an aggregator of Web 2.0 and other ICT tools, but it should also be able to draw down data from Student Management Systems and all other assessment and resource tools that educators use and bring these into the LMS so that each stakeholder can view, add and comment on the learning process securely (cited in, Ham & Wenmoth, 2010, p. 137).

It is important for teachers that there is no double- up of data input as this adds to an already busy workload. The interoperability between SMS and LMS providers is paramount and the relationships that the providers and vendor have proven to be critical during the implementation of a LMS. Paul Seilor has been a huge advocate for the SMS-LMS interoperability and has played a vital role with a team at the MoE that worked with Dataview to develop an interoperability schema.

Not only is it important to have interoperability between a SMS and LMS but it is also important for the interoperability between LMS providers. As reported in the MoE Guidelines for Beginners, the Ministry currently support the use of My Portfolio as an ePortfolio tool and 'believe it is eminently suitable for year levels 7—13' (p. 18). They predict that ongoing development will mean that it will be more commonly used for younger year levels. The Ministry are aware of products such as KnowledgeNET and Ultranet and their portfolio functionality. They say they endorse these products as Learning Management Systems although will only support My Portfolio as an e-portfolio tool. This is because the key considerations of an e-portfolio are the student ownership and transferability (MoE, 2011). Therefore LMS providers need to be able to synchronise data and transfer content.

As at January 2011 it was reported that 25% of New Zealand schools were using a LMS. Figure 2.1 below shows a breakdown of the market share of LMS providers that are used in the reported 25% of schools (MoE, 2011a).

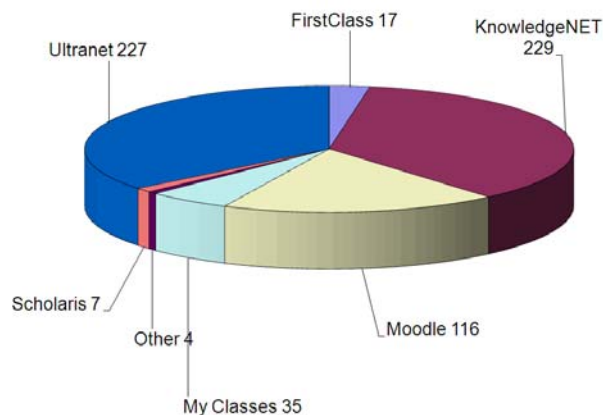


Figure 2.1. LMS products broken down in NZ as at January 2011. (MoE, 2011 a.)

Developments are continually being implemented and new versions are being updated and installed with all LMS products. Many schools have changed providers seeking smarter sleeker alternatives. It is important to consider the change process and the participants' commitment to change if a school is to contemplate a different LMS to what they are currently using.

2.5 COMMITMENT TO CHANGE / CHANGE PROCESS

Education is undergoing a paradigm shift on a scale not seen since the Renaissance and the invention of the printing press. We are in the midst of seeing education transform from a book based system to an internet-based system with profound implications for every aspect of teaching and learning (Treadwell, 2007).

Twenty first century learning and e-learning comes with implications, a shared vision and curriculum design is essential to the success of implementing such change. McCune (1991) suggests that 'Only those educational institutions willing to take advantage of the opportunity to overcome and lead the process of change will be prepared for the challenges of the future' (as cited in, Quinton & Houghton, 2006, p. 513). There is a new dynamic vision for the future of learning that Treadwell alluded to and educational institutes have the perfect opportunity to be the main drivers and to implement this change (Quinton & Houghton, 2006).

To be an innovator is to initiate change, innovators are at the cutting edge of change and pedagogical theory and responsiveness (Koudstaal & Pugh, 2006). Hattie (2009) suggests that the "innovation" can change during the implementation, this is perhaps a result of the ideas being a new approach towards learning and adapting the ideas while folding to the resistance of some.

New and revolutionary ideas in teaching will tend to be resisted rather than welcomed with open arms, because every successful teacher has a vested intellectual, social, and even financial interest in maintaining the status quo. If every revolutionary new idea were welcomed with open arms, utter chaos would be the result (Cohen, 1985, p. 35). We have an uphill task' (Hattie, 2009, p. 252).

Hattie (2009) also states that 'Adopting any innovation means discontinuing the use of familiar practice' (p. 252). At times there is a need to evaluate what can be 'left out' as we can't keep loading on top of an already full curriculum. We need to review the impact of new strategies and prioritise them within the overall strategic plan to enable key aspects to be embedded and sustained, school wide (ERO, 2010).

Resistance could be considered to be taking a guardian/conservative approach (Koudstaal & Pugh, 2006) although 'according to noted change expert, Michael Fullan, one of the most critical problems our schools face is "not resistance to innovation, but the fragmentation, overload, and incoherence resulting from the uncritical and uncoordinated acceptance of too many different innovations' (Fullan & Stiegelbauer, 1991, p. 197 cited in Hattie, 2009 p. 2). It requires a supportive culture, relationships and a shared philosophy with courageous leadership to manage the innovation and change. Leadership requires passion and not position.

The pace of change is an interesting dilemma that many schools would face however, teachers need to cope with the demands or we will not be meeting the needs of our students 'In order to manage the effects of change, it is likely that within the coming decade, the skills and thinking abilities currently taught to students will not meet their future career needs' (Quinton & Houghton, 2006, p. 14). If the implications of technology-directed change are ignored, especially in relation to learning, then the task of managing an exploding information and knowledge base will soon become unmanageable (Quinton & Houghton, 2006).

It is exciting to think that many schools are in the process of embracing creativity and removing the walls to the classroom so that education can allow for children to open their minds and forever expand them with no boundaries at all. Quinton & Houghton (2006) address removing the barriers to creative learning. They say that the recognition of indicators such as significant changes in work practices; an increasingly fragile environment, concerns about unexpected shifts and the proliferation of new technologies are signs that not all educational institutions are resisting change.

Jenkins (1999) states 'that in this world of change, teachers need a new approach to their job and a new vision of what it means to teach and what it means to learn' (cited in Rate, 2008, p. 22). There is the potential for ICT to improve learning outcomes for all 21st century learners if it is used effectively. What is being taught needs to be a deeply held belief combined with an understanding of effective teaching practice and ongoing access to high quality professional development (Ministry of Education, 2008).

'As Eric Hoffer (n.d.) puts it : 'In times of change, learners inherit the Earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists' (cited in Koudstaal & Pugh, 2006, p. 326).

2.6 PARTICIPANTS/ ROLES

To achieve the roles of the participants and for these to be effective in supporting the learning process it requires strong courageous leadership and direction from school leaders, Boards of Trustees and the Ministry of Education. Direction and support are essential in fostering effective partnerships that not only build a culture but sustain a culture for learning. Culture is about messages – What is the story of learning being told through the cultural forces?

2.6.1 Student Centered

Focusing on the 'Student at the Centre'- the critical learning conversation encourages both student and teacher to become responsive and respectful of the child's learning needs. Placing students at the centre of assessment practice "getting it right" begins with ensuring that students are placed at the heart of the assessment process and educated in ways that develop their capability to assess their own learning' (Absolum, et al., 2009, p. 6). Absolum, et al. (2009) also report that students with these capabilities can affirm or further learning through accessing, interpreting and using information from quality assessments.

The shared language for all stakeholders is significant when discussing learning.

Students need to acquire the language with which to discuss how they learn, and to gain insight into their own particular learning strengths and needs. Good assessment feedback is not only about the act of learning and its immediate results, it can also strengthen students' learning capabilities when used to develop appropriate new challenges. (Absolum, et al., 2009, p. 21)

Hattie (2009) recognized that powerful feedback was in fact when it was student directed -Student to teacher as discussed in section 2.2.2.2 about learning processes. Modeling and exposure to the language of learning is important in the classroom to educate children allowing them to experience the reflective processes.

'Learners need to reflect on new material, discuss their tentative understandings with others, actively search for additional information in ways that may further illuminate or strengthen their understanding and ultimately, build conceptual connections to their existing cognitive framework' (Brown & Thompson, 1997, p. 75 cited in Quinton & Houghton, 2006, p. 515). It is the connections that children make and their ability to 'reconstruct' learning that allows a child's educational Umwelt to develop. Koudstaal and Pugh (2006) suggest allowing the student to possess her or his educational Umwelt and experience the interconnected umwelten of a group of students may allow us more freely to practise hyperpedagogy (Koudstaal & Pugh, 2006). Students working with others and in a group build and link to the Key Competency 'Relating to Others'. Quinton and Houghton (2006) report that 'group dynamics produce an interactive synergy from which the whole becomes more than the sum of the parts' (p. 515). It is 'the art of learning with' others that helps students to develop learning skills, 'someone who learns with other people, rather than passively from them, is more likely to be able to learn by themselves (Leadbeater, p. 6, 2009).

The idea of 'student centered' learning is also linked to the Vision of the NZ Curriculum to develop children 'who will be confident, connected, actively involved, and lifelong learners' (MoE, 2007 a, p. 8). The awareness of learning and ability of learners to direct it for themselves is of increasing importance in the context of encouraging life-long learning (Rate, 2008, p.14).

2.6.2 Parental Engagement/Involvement

Parental engagement has been widely researched. Hattie (2008) reported that there are negative effects on student achievement if the parental involvement involves a surveillance approach and much higher effects if parents take a more active approach in learning. Hattie's (2008) research states that parental involvement has an effect size of 0.51 standard deviation.

'Many parents, however struggle to comprehend the language of learning and thus are disadvantaged in the methods they use to encourage their children to attain their expectations' (Hattie, 2009, p. 70). It is the language of learning that Lucas also refers to as being a key aspect of parental involvement. 'Whether or not parents choose to become involved in supporting their child's school depends on a number

of factors including the degree to which the school genuinely seeks to engage them in clear and accessible language' (Lucas, 2010, p. 5).

Implementing a Parent Portal module in Knowledge NET provided a secondary portal or 'view' of student information to caregivers that had been synchronized with the SMS (e-Tap). 'The synchronisation of the SMS with the LMS made visible what students do, understand, progression and achievement and the critical role teachers and students have in relation to feedback and feed forward' (McCarroll, Benson, & Vincent, 2010, p. 24). Parental understanding of the teacher/student roles and the learning process allows parents the opportunity to become engaged and involved in the learning journey. 'The benefits of using an electronic portfolio to support the learning process are realised in that the Learning Management System can serve the purpose of supporting both assessment *for* learning and assessment *of* learning while also demonstrating learning as a journey where the student and parent are active participants' (McCarroll, Benson, & Vincent, 2010. p. 24).

Too often we hear the famous question that a parent will pose to a child at the end of a school day, "What did you do today at school?" and a typical child's response, "Nothing". The LMS allows for rich conversations and dialogue between parent and child and fosters a shared language for all stakeholders where students, teachers and parents are partners in the learning process. The Learning Stories can provide a focus for conversations at home. In Lucas' research his most interesting finding is 'the fact that the more parents and children talk to each other about meaningful subjects, the better students achieve; home conversation really matters' (Lucas, 2010, p. 3).

2.6.3 Teacher as Facilitator/Supporter

'Until now, educators have acquired little more than a brief insight into the enormous potential of technology as an aid to learning' (Quinton & Houghton, 2006, p. 514). Teachers have a huge role to play in education however their role is changing with the paradigm shift that Treadwell (2007) has alluded to. Many researchers have referenced and documented the 'new' role of the teacher for 21st century learning. Chard and Fisher (2006) refer to the teachers and learners being equal partners in the learning process, the teacher as facilitator of student learning and teachers as resources to learners. Black (2004) cited in Rate (2008) identifies the role of a teacher as being a leader of an exploration and development of ideas. These roles

are different to the original role of a teacher where they were a knowledge provider/dispenser or presenter of content.

This shift has been aided and influenced with the ever increasing use of ICT in classroom practices. However as Chandra (2008) noted 'no matter how good the tools, unless teachers are convinced and willing to design, develop and implement appropriate pedagogies that use the new technologies, the new gizmos are unlikely to succeed in the classrooms' (p. 76).

It is required of teachers, however, that they re-invent their passion in their teaching; they must identify and accommodate the differences brought with each new cohort of students, react to the learning as it occurs (every moment of learning is different), and treat the current cohort of students as if it is the first time that the teacher has taught a class – as it is for the students with this teacher and this curricula. (Hattie, 2009, p. 1)

If teachers are true to this statement there is unquestionably the expectation that the teacher will implement and use ICT and web tools to enhance student learning as the curricula enables us to do so. "our digital immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely new language' (Prensky, 2001, cited in, MoE, 2011 b). The need for a shared language has been discussed, what is interesting is that Prensky has introduced us to the idea of the digital language. Koudstaal and Pugh (2006) also refer to this new language as hyperliteracy. They suggest that hypermedia with the associated technologies might be better placed in the student's educational Umwelt. And that the "value adding" by peers and educators is developed as the student's engagement in these learning processes without distinct outcomes promotes hyperpedagogy allowing us to think differently about assessment (Koudstaal & Pugh, 2006).

The art of teaching, and its major successes, relate to "what happens next" – the manner in which the teacher reacts to how the student interprets, accommodates, rejects, and/or reinvents the content and skills, how the student relates and applies the content to other tasks, and how the student reacts in light of success and failure apropos the content and methods that the teacher has taught. (Hattie, 2009, p. 2)

The teacher facilitating and supporting the learner in a creative learning context is considered effective teaching. The teacher needs to allow the students to access and use ICT in the classrooms. Teachers are not required to be technology experts but need to have the courage to allow the students to explore the potential of ICT. It is the role of the teacher to set up the framework and culture for the practices to take place.

2.7 SUMMARY

It is important to consider all learning environments that contribute to the learning of a child. In this chapter, these have been broken down into the school learning environment and its philosophy for learning, the class learning environment and how assessment and learning processes take place and the potential that the web learning environment has to offer with e-portfolios and LMSs.

Change is inevitable if schools are to shift from traditional models of teaching and meets the needs of 21st century learners – therefore the process of change and the requirement for participants commitment to change has been identified in this chapter for us to enter the ‘Internet-centric Paradigm’ - ‘The chasm that separates the text-paradigm and the internet-centric paradigm requires teachers to let go and share control of the learning with learners; it requires learners to take up greater ownership and responsibility for their learning (Ham & Wenmoth, 2010, p. 137).

A LMS and in particular the Learning Stories that can be created within a LMS create a place for a shared language for all participants – teacher, parent and child. The roles and responsibilities of each participant is important in the learning process and with clear expectations of how to support the learning process it will ensure an effective learning environment is fostered and implemented.

Despite all the previous research described in this chapter, the research described in this thesis is original and necessary especially as many schools are experiencing a change process and with 75% of schools still required to implement a LMS this case study attempts to provide rich data and findings that could be helpful during this process. This work is building on this literature to assess the perceptions of teachers, parents and children of the LMS implementation and relate this to student learning outcomes.

The next chapter describes the methodology involved in this thesis. The research title, questions and design are presented followed by the methods of qualitative and quantitative data and collection methods of data and analysis. Assumptions and ethical considerations are also addressed in Chapter 3.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the title of this research, significance of the study, research questions, the research design, sampling and distribution, the instruments that were used to gather data, procedures and administration. Any limitation and assumptions are then addressed followed by a section addressing the ethical considerations.

3.2 RESEARCH TITLE AND SIGNIFICANCE OF THE STUDY

The title for this research is 'An investigation into the use of an "IT" based Learning Management System to support education in a NZ Primary School'. Thus, this research sets out to investigate the use of a LMS through evaluating the effectiveness in relation to education by assessing the perceptions of teachers, students and parents. The NZ Curriculum was revised in 2006 and a new document has now been implemented. Education pedagogy has been scrutinized and it has changed especially in regard to Information Technology. Software and programs have been implemented throughout schools as a part of Managed Online Learning Environments (M-OLE). Schools are at different stages of implementing and managing M-OLE's and in particular Learning Management Systems (LMS).

Through the implementation of the new curriculum and a LMS, classroom practices and pedagogies have changed. Assessment requirements have been adapted and day-to-day opportunities for learners to become reflective active participants in their learning have been encouraged. Measuring these changes in classrooms can occur during walk throughs, professional friends, appraisals, attestations and the Education Review Office (ERO).

It is of interest to find out if the LMS has been implemented effectively and if the pedagogy has permeated into classroom practice. Interactions that take place between teachers, students and parents relating to learning, and attitudes towards the LMS would be evidence of this. It is also of interest to see if the LMS improves student learning outcomes (SLO's) in Education.

Using learning environment surveys to gather data and perceptions from the key stakeholders of a LMS has been vital for this research. As the school has varying stakeholders in relation to ability and pedagogy it was expected that participants embraced this initiative and research with different degrees of enthusiasm. Individuals cope and adjust to change differently, as this research has focused on what could be perceived to be one of the biggest changes in relation to ICT, apprehension towards the administration of the surveys may occur. By focusing on what is happening in one school, it is hoped to provide a thorough overview of what is to be expected and achieved; the MoE have consolidated a repository of good practices by looking across different schools as case studies, these findings hope to provide a more conceptualized approach relating to the implementation of a LMS. St Marys' practice has been guided by New Zealand educational experts such as John Hattie and Mark Treadwell and it is considered that the school is appropriate to be an integral part of this research.

3.3 RESEARCH QUESTIONS

The research questions as presented in Chapter 1 are as follows:

1. What are parents', teachers' and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?
2. How do teachers cope with the technological changes involved with a LMS?
3. How do parents cope with the changes regarding processes in relation to communication received through the LMS?
4. How do students cope with the technological changes involved with an LMS?
5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?
6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

3.4 RESEARCH DESIGN

The implementation of Knowledge NET into St Mary's happened in 2006, the same year that *The NZ Curriculum: Draft for Consultation 2006* was released. The initial planning and design of this research started during 2008. During 2008 – 2011 qualitative and quantitative data were collected through the use of specially designed surveys, this often served multi purposes including presentations to the Board of Trustees (BOT), to review targets and to inform strategic planning in an ongoing basis. Official data collection was scheduled to take place during 2011, this was planned to be quantitative data that could be gathered and analysed specifically for this research project. This consisted of surveys and in particular the Technology Rich Outcomes Focused Learning Environment Inventory (TROFLEI) for students.

3.4.1 Triangulation

Interpretations of the effects that the LMS is having on Learning Outcomes will vary between categories of participants (child, teacher, parent) and also within each of those categories. Therefore, a multiple methods of data collection is preferable and these processes will ensure triangulation. 'Triangulation refers to the use of more than one approach to the investigation of a research question in order to enhance confidence in the ensuing findings' (Bryman, p. 1)

This research will use triangulation in several different ways to enhance the credibility of findings. It is planned that both data triangulation and methodological triangulation will occur.

Data triangulation gathers data through several sampling strategies including different times, social situations and people (Bryman). This research uses data triangulation through the use of surveys being completed at different times and stages throughout the study and also different people, focusing on the participants of a LMS – teachers, parents and students.

Methodological triangulation involves the use of more than one method for gathering data. This research has used surveys, questionnaires, and interviews to gather data. Between-method triangulation uses contrasting research methods which may provide both quantitative and qualitative results and may provide convergent

findings, this is similar to multi-method research. Some surveys required a scale response and there was an opportunity to add a comment if the participant wished to do so. Gathering data from multiple sources and using mixed methods adds validity to the research design and ensures that the findings are supported by a variety of evidence.

Qualitative data were gathered through structured focus group interviews which provided students with an opportunity to talk more openly about their experiences. It gave the children an opportunity to voice their opinion and express themselves using personal voice, allowing them to reflect and further convey meaning. It gave me as the researcher the opportunity to clarify with students their opinions and talk to them using language that they have been accustomed to within the school such as being an 'Assessment Capable Student', and linking this to learning practices that had been developed throughout the school.

Within-method triangulation uses varieties of the same method to investigate a research issue - this could be through the use of two contrasting scales to measure, such as the preferred and actual scales that were used in the TROFLEI for the students. As the investigation sought to evaluate the effectiveness by assessing perceptions, questionnaires focused on the learning environment, in particular technology-rich learning environments. The TROFLEI was chosen as the most suitable questionnaire to gather quantitative data from the students. Actual and preferred Forms of the TROFLEI were administered to see if there was a difference in the actual and preferred level of use regarding the LMS.

3.4.2 Participants/Respondents

3.4.2.1 Students and the TROFLEI

Children from Years 5 and 6 at St Mary's School were selected to be a sample group in 2011. The population size of this cohort was 122 students, 66 Year 6's and 56 Year 5's. There are two classes in each year group ranging from 29 to 34 students. There is an average of 24 students enrolled in each class at St Mary's School during 2011. The Year 5 and 6 students were selected to be targeted respondents for the questionnaire (TROFLEI) as the questions pertained preferably to the senior children. These students had been enrolled in schooling since the

implementation of KnowledgeNET so had experienced the shifts that had taken place in education over previous years from when this research first begun.

To my knowledge, this is the first time the TROFLEI has been used in a primary school so the validity of the sample needed to be rigorous. The ideal cohort size which would give adequate representation was identified as 200 students. As the sample group available at St Mary's Primary School was only 122 students, 79 students from Tauranga Primary School also completed the TROFLEI to increase the cohort size and allow the reliability and validity of the TROFLEI to be checked. Tauranga Primary was selected as they also use KnowledgeNET as a Learning Management System. Tauranga Primary has a decile rating of seven and a school roll of 418 students contributing from Years 1-6. (ERO, 2010).

3.4.2.2 Students and the Focus Groups

Focus groups were chosen for the interview process as this allowed for groups of people to be involved and bounce ideas from each other creating a more natural conversation. Groups were also better to minimize disruption and interruption so timing worked better with the school timetable.

Interviews were designed so that there was a set of questions that were suitable for the children to respond to. There were four Focus Groups and each group consisted of four children who participated and responded to the questions. The groups and children who participated in the interviews were mixed gender (female and male), year group (year 5 and 6) and class (rooms 11, 13, 14 and 15).

3.4.2.3 Teachers

Focus groups of teachers were also established. There were four focus groups and three teachers in each group, a total of twelve teaching staff. These teachers were available for the interviews and were grouped according to their availability.

Surveys for teachers/staff were administered and most staff were involved and responded to the surveys used in this thesis as they were available online so they could be completed when it best suited the participant within a reasonable time frame. Further information on response rates is available in Chapter 5 of this thesis

3.4.2.4 Parents

Focus groups for parents consisted of four groups and ranged between 2-4 parents in each group, a total of 12 parents. These parents were also grouped and scheduled according to their availability. Most parents were of Year 5 and 6 children but there were also some parents from other areas of the school that participated. Parent surveys were administered where and when were necessary for data collection. The percentage of responses varied according to the surveys and further details on this are available in Chapter 6.

3.5 QUANTITATIVE METHODS

3.5.1 Student method –Technology Rich Outcomes Focused Learning Environment Inventory (TROFLEI)

3.5.1.1 - Development of the TROFLEI

The TROFLEI expands on an existing learning environment instrument for assessing learning environments named ‘What Is Happening In this Class? (WIHIC) questionnaire (WIHIC; Aldridge & Fraser, 2000). The TROFLEI has been adapted and refined using the WIHIC as a base focusing in on technology and outcomes as a part of the learning environment. ‘Another distinctive characteristic of the TROFLEI is that it employed multitrait-multimethod (MTMM) modeling within a confirmatory factor analysis (CFA) framework’ (Aldridge, Dorman, & Fraser, 2004, p. 111). Thus, the TROFLEI is a pre-validated instrument for use in assessing classroom environments. A more detailed validation of the TROFLEI and the use of CFA can be found in the paper by Aldridge, Dorman and Fraser (2004).

3.5.1.2 The TROFLEI for primary children

‘The TROFLEI assesses contemporary dimensions of classroom environments. This reflects the view that classroom environments are dynamic rather than static entities and that instrumentation needs to be continually reviewed. It is now customary to validate context-specific instruments rather than simply use an instrument “off the shelf” when conducting classroom environment research (Dorman, Aldridge, Fraser, 2006, p. 912).

The original TROFLEI was comprised of 81 actual and 81 preferred items grouped into 10 different classroom environment dimensions with an additional 24 statements grouped into three learning dimensions. As the TROFLEI is designed for secondary students, adaptations were made to the '81 item' long version to create a 'primary' version that was more suitable for use in a primary school context and more appropriate to the concepts of LMS's and in particular KnowledgeNET. The 'primary' TROFLEI had 64 actual and 64 preferred items that were grouped within eight different classroom environment dimensions - Student Cohesiveness, Teacher Support, Involvement, Task Orientation, Cooperation, Equity, Differentiation and Computer Usage. There were an additional 31 items that were grouped into four learning dimensions – Attitude to Subject, Attitude to Computer Use, Academic Efficacy and Processes. The TROFLEI was within the academic capability for children's reading and comprehension so they would be able to respond accordingly.

The original TROFLEI used a five-point Likert response scale. The response scale was altered, as used with the elementary version of the QTI with the four-point Likert response scale. The 'primary' TROFLEI used a four-point Likert response scale consisting of 'Never', 'Seldom', 'Sometimes' and 'Most of the time'. The four-point scale made it easier and more straight forward for the children to respond to the statements. Another advantage to the four-point scale is that it 'forced' the children to respond with a positive or negative effect, there was not a 'neutral' option as there would be in a three or five-point Likert scale. The children were upper primary so the four-point scale was suitable and appropriate for them.

Table 3.1 presents an example of an item within each section and a description.

Table 3.1

Scales, Descriptions and Sample Items for the TROFLEI

Classroom/Learning Environment Dimensions	Description	Sample item (actual)
Student Cohesiveness	‘The extent to which students know, help and are supportive of one another’.	I make friends in this class
Teacher Support	‘The extent to which the teacher helps, befriends, trusts and is interested in students.’	The teacher goes out of her way to help me
Involvement	‘The extent to which students have attentive interest, participate in discussions, to additional work and enjoy the class’.	I discuss my ideas in class
Task Orientation	‘The extent to which it is important to complete activities planned and stay on the subject matter’.	Getting a certain amount of work done is important to me
Cooperation	‘The extent to which students cooperate rather than compete with one another on learning tasks’.	I cooperate with other students in this class
Equity	‘The extent to which students are treated equally by the teacher’.	I am treated the same as other students in this class
Differentiation	‘The extent to which teachers cater for students differently on the basis of ability, rates of learning and interests’.	I am given a choice of tasks
Computer Usage	‘The extent to which students use their computers as a tool to communicate with others and to access information’.	I would use the computer to find out information about the class or our learning

Taken from (Aldridge, Dorman & Fraser, 2004)

Table 3.2

Scales, Descriptions and Sample Items for the Attitude Dimensions

Attitudinal Dimensions	Description	Sample item
Attitude to Subject	The degree of like/dislike towards KnowledgeNET.	Work on KnowledgeNET is fun
Attitude to Computer Use	‘The degree of like/dislike towards computers’.	I’m good with computers
Academic Efficacy	‘A self-perceived confidence in their ability to achieve’.	I am good at KnowledgeNET
Processes	Attitude towards learning processes throughout the implementation on KN	Schoolwork has changed now that we have KnowledgeNET

Taken from (Aldridge, Dorman & Fraser, 2004)

Two forms of the TROFLEI were used to gather students’ perceptions of the learning environment, the actual and the preferred forms. These versions were very similar in content although were worded slightly differently. A statement under the Student Cohesiveness section for the actual form was worded ‘I work well with other class members’ and on the preferred form it was worded ‘I would work well with other class members’. The word ‘would’ was added to most statements to illustrate what the child would like to happen in the class as their preferred option. ‘A feature of learning environment research has been the evidence that students’ achievement improves the closer their actual environment is to what they prefer’ (Fraser & Fisher, 1982 cited in Koul, Fisher & Shaw, 2010, p. 275) This is discussed in detail in Chapter 2, section 2.2, Learning Environments.

3.5.1.3 Validation of the TROFLEI

In keeping with the traditional methods of determining the reliability and validity of learning environment questionnaires, the following methods of analysis were used.

Although the TROFLEI has been a previously validated and reliable tool for assessing the impact of the integration of ICT on learning environments, it is the first time that the tool was adapted and used in a New Zealand primary school.

Within each classroom dimension of Student Cohesiveness, Teacher Support, Involvement, Task Orientation, Cooperation, Equity, Differentiation and Computer Use there were eight different items. It was important to determine the degree to which each item measured the same aspects according to the environment dimensions on the scale. To determine and measure the reliability and internal consistency within each scale the Cronbach alpha reliability coefficient was used. This created an index of scale internal consistency and was one form of scale reliability for both the actual and the preferred forms of the TROFLEI. It is noteworthy that the Cronbach alpha coefficient is used in most research with learning environment questionnaires.

Another form of validation was ensuring that the scales and different dimensions did in fact measure different aspects. Therefore the mean correlation with other scales was determined as a form of discriminant validity. Again, the use of mean correlation with other scales is a standard practice in learning environment research.

3.5.2 Surveys

School-designed surveys were administered to teachers and parents to gather quantitative data while some surveys also provided some qualitative data with optional comments. Some of the surveys were aligned to the school's strategic planning and requirements at the time and the opportunity was used to gather feedback and data for the use of this thesis. Most surveys were administered through the use of a tool named the Lime Survey Version 1.90+ Build 9642. The surveys were beneficial for making decisions at management level and provided justification for decisions that were made as a part of the process during implementation. While some survey responses were not as high as we would have hoped, it provided valuable base-line data so that we were able to measure our progress and target areas of concern and need with Professional Development, we were also able to create opportunities in relation to the outcomes of our surveys. Table 3.3 gives an overview of the surveys that have been administered during 2009 – 2011 to the parent and teaching community, the target group and response rate to help discriminate and determine the validity of results.

Table 3.3
Surveys and Submission Results from 2009 - 2011

Year	Target group	Name of Survey	No. of responses	Response rate.
2009	Parents	The New Role of ICT in St Mary's Catholic School (ID 39974) – Appendix I	149	60%
2009	Teachers	Teaching Staff Review of the On Line Writing Sample In KnowledgeNET (ID 84871) - Appendix J	11	55%
2009	Parents	Knowledge Net Survey (ID 63787) - Appendix K	33	13%
2010	Teachers	Teacher 2010 Learning Stories (ID 33198) - Appendix L	11	55%
2010	Parents	Learning Stories Parent Survey 2010 (ID 59256) - Appendix M	15	6%
2011	Teachers	Nick Rate (ID 23778) - Appendix N	21	100%
2011	Parents	Knowledge NET Questionnaire May 2011 - Appendix O	44	18%

3.6 QUALITATIVE METHODS

3.6.1 Interviews and Focus Groups

3.6.1.1 Interview Questions

The interview questions were taken directly from the relevant research questions in section 3.3. The questions were analysed and questions that were suitable for the response of the participants were grouped together and reworded so that they were appropriate for each focus group.

Table 3.4 shows how the parent focus group questions were adapted from Research Questions 1, 3 and 6. The processes were also identified so that the parents had a clear understanding of the intent of the question. Processes which involved and used features of the LMS such as communication, feedback, interaction, links, information, groups and being able to access, manage, use, create, and distribute information/content easily and efficiently.

Table 3.4
Research Questions Aligned with the Parent Focus Group Questions

Research Question	Parent Focus Group Question
What are parents, teachers and children’s perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?	What are your perceptions/thoughts of the ‘learning environment’ in St Mary’s as a result of implementing KnowledgeNET?
How do parents cope with the changes regarding processes in relation to communication received through the LMS?	How do you cope with the changes in relation to <u>processes</u> received through the LMS?
How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?	How can a class/school learning environment be adapted and improved in order to achieve... a). the required high quality student outcomes b). equal opportunities for all learners to be involved in a LMS?

Table 3.5 shows that the teachers’ focus group questions were adapted from Research Questions 1, 2 and 6.

Table 3.5
Research Questions Aligned with the Teacher Focus Group Questions

Research Question	Teacher Focus Group Question
What are parents, teachers and children’s perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?	What are your perceptions/thoughts of the ‘learning environment’ in St Mary’s as a result of implementing KnowledgeNET?
How do teachers cope with the technological changes involved with a LMS?	How do you cope with the technological changes involved with a LMS?
How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?	How can a class/school learning environment be adapted and improved in order to achieve... a). the required high quality student outcomes b). equal opportunities for all learners to be involved in a LMS?

The children's focus group questions were adapted from research questions 1, 4 and 6 and are shown in Table 3.6.

Table 3.6
Research Questions Aligned with the Children Focus Group Questions

Research Question	Children Focus Group Question
What are parents, teachers and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?	What are your ideas/thoughts of the 'learning environment' in St Mary's now that we have introduced KnowledgeNET?
How do students cope with the technological changes involved with an LMS?	How do you cope with the technological 'changes' involved with an LMS?
How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?	How can a class/school learning environment be adapted and improved in order to achieve... a). the required high quality student outcomes b). equal opportunities for all learners to be involved in a LMS?

3.6.1.2 Interview Responses.

Responses endeavoured to provide a greater perspective of the complexities surrounding the LMS. The process for the implementation and investigation of a LMS needed to be carefully considered for all the categories of participants. It is the participants who drive the success of the LMS through their positive experience of the tool. There were varied responses within each focus group and these are explored further in Chapter 4 – Results Analysis and Discussions.

3.6.1.3 Sample of Convenience

The participants for each of the focus groups were referred to in section 3.4.1 earlier, although it is important to note that all participants in the focus groups were a sample of convenience. The availability of the participants was the main reason for this to occur.

The interviews were recorded using a Talk Tracker which recorded in mp.3 format and were then transcribed so that they could be explored as a written document for evidence in this thesis.

3.6.2 Surveys

The surveys not only provided quantitative data but were also used to gather qualitative data. Some of the questions that had a scale response also had an optional comment box so that teachers and parents could elaborate on their ideas if they so wished to do. Some comments from these surveys are used in Chapter 5 and 6 as qualitative evidence – Results from Qualitative Data.

3.7 DATA COLLECTION AND ANALYSIS

3.7.1 Procedures

In order to best identify the perceptions of those involved in the use and implementation of a LMS it was important to use data collection methods such as observations, surveys, questionnaires and interviews. Interviews were recorded using a device 'talk-tracker' which recorded in mp3 format and were then able to be burned to a CD for transcribing. Surveys were created and responses were gathered through an e-survey tool, Lime Survey. The TROFLEI was completed using paper as availability and use of computers were limited at the time of administering the questionnaire. These data collection methods were selected and used to best identify the thoughts and ideas of those who were contributing and using the LMS being the parents, teachers and students.

3.7.2 Administration

3.7.2.1 TROFLEI Administration with students

Prior to completing any questionnaires, respondents were made aware of the purpose for the research, their rights, and an assurance that any key information would remain anonymous. All respondents had the right to withdraw from the research at any stage if they were uncomfortable. This was clearly defined in the

information attached with the TROFLEI (Appendix H) and consent forms (Appendix A). This is discussed further in section 3.9 Ethical Considerations.

The TROFLEI was administered to 122 Year 5 and 6 students (four classes). The classes selected were the oldest two year groups attending St Mary's. As the TROFLEI was originally designed for secondary students, the adapted questionnaire was most suitable for these older children. The researcher was scheduled to go into each of the classes for one period of 90 minutes. This coincided with when the actual class teacher was scheduled for release. The Deputy Principal or class teachers were present during the administration. Students were accustomed to classroom programs being taught by the qualified teachers, Deputy Principal and researcher. Scheduled follow-ups were scheduled over the proceeding days to work with/alongside the class teacher or to work with groups of students during their classroom group rotations while they finished off their questionnaire if necessary. The 'actual' part of the questionnaire was completed prior to the children moving on to the 'preferred' section of the questionnaire. An information letter (Appendix B) went home with children so that parents were aware that the questionnaire had taken place. Parental consent was not sought as management had decided the questionnaire was considered a part of normal class routine and practices.

An additional 79 children from Tauranga Primary also completed the TROFLEI. Time was scheduled with the school to go into the classrooms and complete the survey under similar circumstances to St Mary's. Participation consent was also signed by the children and an information letter (Appendix C) went home as agreed with management at Tauranga Primary as it was considered a part of normal class routine. Some class teachers were in the classroom while the TROFLEI was being administered, although they were not involved in the questionnaire and did not interact with the children.

The researcher was available at all times during the administration of the questionnaire to clarify meaning for the students however careful consideration was taken to refrain from influencing the opinions of the students. Identity was required for the questionnaires to align the children's actual and preferred responses. The children were made aware of the purpose of identifying their forms so that it would reduce the occurrence of 'reactivity' as much as possible. Reactivity occurs when people change their responses, behavior or performance as they are aware that they are being 'observed'. As the results were not going to be analysed by the

classroom teacher, assurance was given to the children that any specific data that was reported back to the classroom teacher would remain anonymous.

3.7.2.2 Interview administration

Interviews were held with the twelve different focus groups of teachers, students and parents. Each participant was required to complete a consent form (Appendix E) and given an information sheet (Appendix F). Each participant was given a copy of the questions (Appendix G) and had a chance to read through them, there was then an opportunity for the participants to ask questions and clarify any information prior to the interviews starting. The interviews ranged between 15 and 44 minutes although most interviews were on average 27 minutes long. The interviews took place in a Board room which is often used for extra meetings, classroom release time for teachers and as a general office space for staff and in particular the Assistant Principal. All participants were familiar with the room as it is directly off the main foyer as you enter the administration block of the school.

3.7.2.3 Survey administration

Using Lime Survey the questions are set up using differing label sets/scales appropriate to the question although where possible the questions were adapted to suit a standard five-point Likert scale. A link can then be generated and sent via email to the intended participants of the survey. Notification is sent back to the administrator of the survey when participants have contributed and completed it. Results are then generated showing statistics from the responses and graphs, using html, PDF, or Excel format as a selected output for the data.

3.7.3 Data analysis

Data analysis was organized into qualitative and quantitative data. Qualitative data were comments from the Focus Group interviews and some were taken from written comments in the surveys and questionnaires. The comments were transformed into quotes from the relative focus groups of participants and categorised into common themes that related to the research questions. These are presented in Chapters 4, 5 and 6 grouped as results from the students, teachers and parents. Quantitative data were analysed using two different methods, for the teachers and parents data were analysed using Lime Survey and statistics were generated to show a summary of all available fields and graphs were produced to align with the results. The

student TROFLEI results were coded and analysed using the Statistical Package for the Social Sciences (SPSS) (Norusis, 1993) as previously mentioned in Section 1.6 of the overview of this thesis. The statistical package was able to analyse and provide information and values on the Cronbach alpha for internal consistency, mean correlation for discriminant validity, attitude scales, mean values, standard deviations, t-values used for exploring each variable in a set of data, significant levels, gender differences, Year level differences, associations of learning environment scales with attitudes and associations of achievement and learning environment scales. These are explained further in Section 4.2: Quantitative Results.

3.8 ASSUMPTIONS

3.8.1 Assumptions during the study

The assumptions that were made during the conduct of this study are broken down in the following sections.

3.8.1.1 Exposure to KnowledgeNET

All the students who were involved in the TROFLEI, despite coming from different classes, had been exposed to Knowledge NET. A limitation could be the number of responses and the different levels of engagement in using this tool. However, with the TROFLEI, a measure of reliability and internal consistency referred to as Cronbach's alpha coefficient, was used in the results analysis.

3.8.1.2 Competency in answering the TROFLEI

The TROFLEI was redesigned to cater for the use of primary students. As with any class the students range in academic abilities. The children were encouraged to ask questions to further clarify meaning if they were unsure of the intent of the statement for each item. Several questions were asked in each class but most children were capable of completing the TROFLEI independently.

3.8.1.3 Responses to Questionnaires

Anonymity was assured to the participants prior to starting or getting involved in the questionnaire. It was clearly explained to the children that there were no 'right' or 'wrong' answers, that their responses would be confidential and that they would not be identified in the study. It was therefore assumed that the answers/responses would be honest and a true indication of what was actually happening in the class or what their preferred opinions were.

3.9 ETHICAL CONSIDERATIONS

Research requires a high level of ethical consideration at many stages of the research process. 'As a researcher you are both ethically and legally bound to protect the participant in your research. The role of the researcher is to minimize the potential risk' (Howitt, 2008, p. 4). The ethical considerations that had to be taken into consideration are set out according to the different stages of this research.

3.9.1 Ethical Issues Before Data Collection

Before data collection, permission had to be obtained through Curtin University so the research had support and met acceptable standards. A candidacy proposal was submitted and attached to an ethics form which was reviewed, approved and given an approval number (SMEC-26-11).

The school also had to give permission and support the research being undertaken. As there had been ongoing interest within the school and professional learning was highly valued the principal and management were cooperative and agreed for the research to take place. As the research was focusing on a system that was used within the school, maintaining access and administrative rights was essential during the study. The school maintained a close working relationship with the researcher.

The Ministry of Education (MoE) supported the research by selecting and approving a study leave award during 2011 so that data collection could happen within an appropriate time frame allowing analysis and reporting to coincide with the research schedule.

The Board of Trustees (BoT) was notified of the research and had to sign to demonstrate their support for the application of the MoE study leave award. When you are granted a study award, leave is given by the BoT.

The school teachers were aware of the study and were supportive of the research taking place, especially while I was working within the school as a full time teacher. Accessing resources within the school proved to be more challenging at times while being removed from the working environment on a day to day basis.

For any surveys that were administered there was a description of the survey and a statement that read 'The information obtained through this survey will be used for self-review of our reporting practices at both BoT and Management levels, to help inform and refine our future school reporting processes and for publications regarding educational research'. This thesis is regarded as educational research.

Oliver (2003) referred to 'vulnerable groups of people' and identified those groups to be teachers and students within a school structure. As the principal had given consent for the research to take place, it put the teachers and/or children in a position where they were obliged to participate even if it was against their desire to do so. Understanding that some people may have felt vulnerable in situations regarding this research was necessary and required the researcher to ensure that any data that were gathered would not be identified or impact on them professionally. Teachers were still given the choice to partake and students were allowed the choice to be involved. All teachers and students who were requested to participate were willing to help, perhaps this was because they were 'vulnerable groups', hopefully it was that all ethical considerations had been put in place and that they were fully informed of the research.

3.9.2 Ethical Issues During Data Collection

The data-collection phase required careful consideration ethics. The values and principles for ethical research including respect for participants, research merit and integrity, beneficence and justice as outlined in Howitt (2008), were important to abide by so that a relationship of trust, mutual responsibility and ethical equality were established.

Students completed the TROFLEI questionnaire and this required class time for completion, the researcher negotiated a time for each class that would suit their timetable. The TROFLEI took approximately 45-60 minutes of curriculum instruction time to complete. Students who were involved in focus groups were interviewed when it was convenient for the teacher. These often took place while there were other children from the class out at other extra-curricular activities.

All participants involved in focus groups for interviews and any children who took part in the TROFLEI were required to complete consent forms. Information sheets were made available with the consent forms so that the participants were fully informed about the research and any ethical issues around this research.

3.9.3 Ethical Issues After Data Collection

The main focus of ethical consideration after the data collection was when the researcher had to analyse the data, interpret the results, and prepare them for publication for this research.

As the researcher had not been exposed or qualified in the area of statistics it was important to be careful when interpreting data and using statistical techniques. Extra expertise was sought so that data validity was not impacted throughout the results analysis stage of this research.

Robinson (1989) refers to a term 'ecological fallacy' where the mistake can be made that results and analyses of a certain year level can be generalized across year levels. This research involved students who were Year 5 and 6, generalizations should not be made that reflect upon the entire primary school population. Key issues could be interpreting data and this data being used as a general interpretation or representation of a larger group associated with the research. It will also be necessary to carefully define teaching in the class and the impact/use that some of the activities may have within my research and how this can safely be incorporated. As it is an action research my involvement, monitoring and intervention will need to be carefully considered alongside my primary role as classroom teacher.

In the consent forms, information was disclosed about the storage of data and files. All participants were happy with the intended use of the data for this research. Extra

care was needed where the data was requested to be used for other purposes that involved the school and or future research. In some cases it may be necessary to gain consent again for the data to be used in the future for another study, or as an extension for this research.

With writing and publishing material one ethical issue that is often linked to research is 'plagiarism' – using someone else's words and ideas as though they are your own. With materials and notes that had been referred to over several years of conducting this research it was important to be extra careful with citing and referencing material correctly and being aware of the different types of academic and professional contexts associated with plagiarism.

Within this research publication it was important to clearly document and outline all the processes and procedures such as research design, instruments used, data collection and the results and analysis. This is important so that the reader can interpret the full context of this study and use it to validate the reliability of the results and findings. Clear details also enable further research to be undertaken and/or replicated.

An interesting aspect with any research is the personal account and the perspective of the researcher. This is an ethical consideration when writing the document to continually reflect upon one's own work to ensure you are maintaining a balanced and true account. To reflect upon your work and continually refine the document, methodologies, research design and analysis is not unusual as unexpected outcomes and situations influence your thinking. Ethically it was important to be aware of one's own experiences and beliefs throughout the research.

Reading through this thesis as though you are a researcher and/or reader it is important to gain clarity of the purpose and intent of the research. Stating your rationale, aim and research questions in a clear, concise and comprehensible format was important.

Respect for participants as a 'value' for ethical research (Howitt, 2008, p. 4) arose again after the data collection. The availability of data and access that had been made open through opportunities and Administrative rights was significant in this research. Courtesy of those that made the research possible including key participants such as teachers needed careful consideration after the research and

writing had been completed. Attempts were made to present findings to the school management, BoT and teachers before the final document was available for a general audience. Also prior to the editing final proofreading stage an email was sent to the Principal and Chairman advising them of the completion of the thesis. The email informed them that the thesis is very much a case study on St Mary's School and that the thesis would become a published and public document. The offer was made for them to read the document before it was 'finalised'/published. The email also said that I had been very honest in this research and reported findings as they were presented to me. It ensured that anonymity had been given to all participants, however it also stressed that the results of this study proved to be realistic, comprising a mixture of heartening findings and that it may have also exposed the grim revelations of our struggle to implement the LMS.

The completed questionnaires were kept safely in a secure private school office or in my home. All electronic files were secure through password protection during the writing stage of the research and hard copy data and electronic data will be stored and password protected in my supervisor's office at SMEC, Curtin University for a five year period at which point the data will be destroyed.

3.10 SUMMARY

This chapter discusses the methodologies pertaining to this research in detail outlining the research title, significance of the study and research questions again. The research design including detail of those who participated in the research are discussed along with the instruments that were used to collect and gather data. The procedures, administration and data analysis were discussed as a part of the data collection and analysis section of this chapter. Assumptions, limitations and ethical considerations were also clearly outlined.

Described in the next chapter are the results from students presented as quantitative data gathered through the TROFLEI and qualitative data which was collected during focus group interviews.

Figure 3.1 is a diagrammatic representation of the research design illustrating key components in this research, such as the Implementation of the LMS as the tree trunk, a foundation of the school vision and curriculum, the roots feeding the tree

being the participants and the data that were gathered. The management, BoT and MoE as the rain clouds and the sun illustrated as the ultimate outcome, learning.

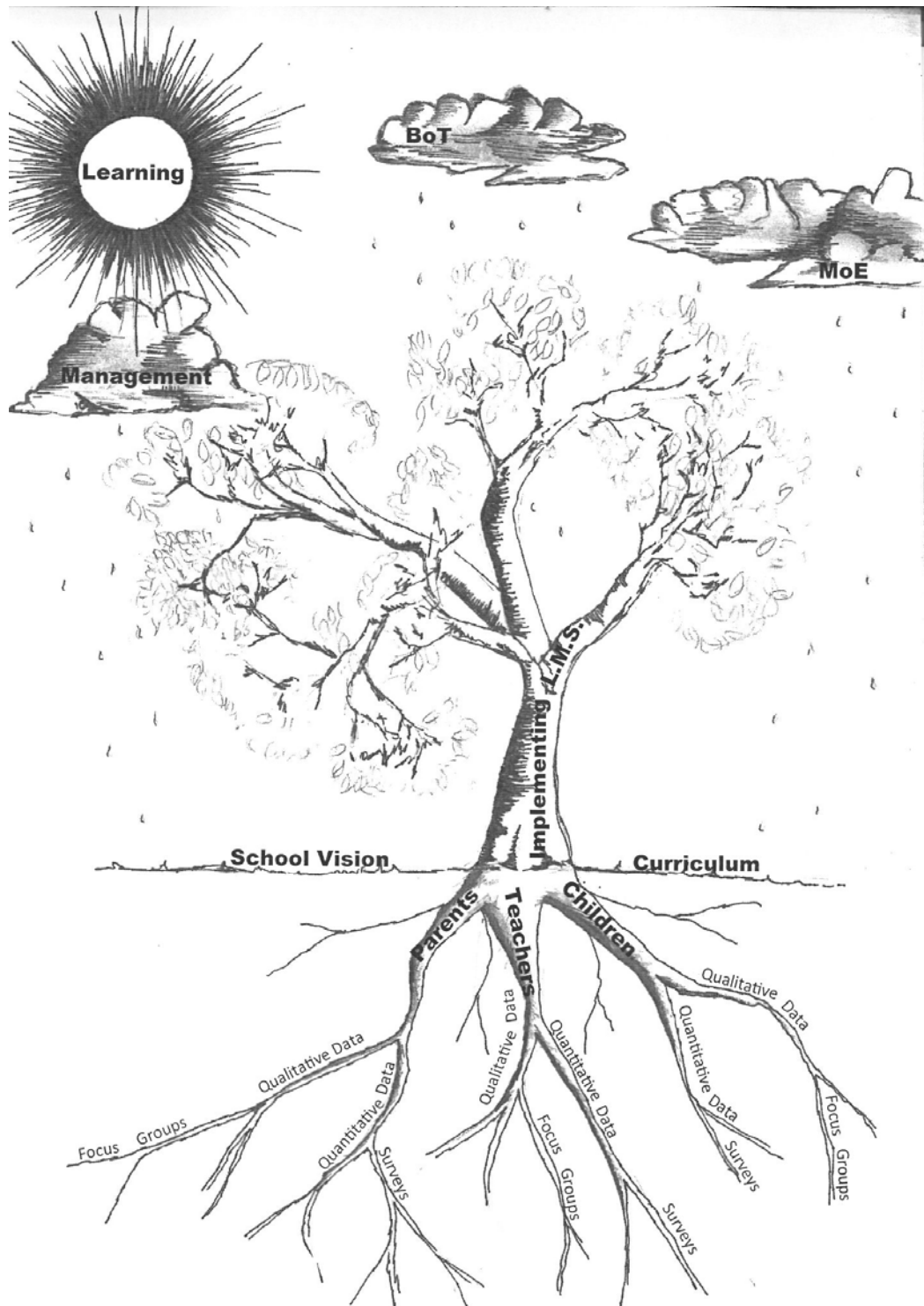


Figure 3.1. Diagrammatic representation of research design.

CHAPTER 4

RESULTS FROM STUDENTS

4.1 INTRODUCTION

This section presents the research results pertaining to the students involved in this study. The first part of this chapter presents quantitative findings from the TROFLEI after the collected data had been processed using SPSS. The results are presented in tables with an explanation of what they mean within each of the relevant sections. The focus groups provided qualitative results which are presented within this chapter also. This chapter has been set out with the quantitative and qualitative findings as the main structure as the TROFLEI was an important part of this research and was a different method for gathering quantitative data than using surveys which was the chosen method for teachers and parents. The implications and limitations are covered in Chapter 7.

4.2 QUANTITATIVE RESULTS

First, the reliability and internal consistency of the TROFLEI is presented for validation purposes. Secondly, comparisons and findings are presented relating to gender differences, year level, actual and preferred perceptions of the learning environment and associations with attitudinal and cognitive outcomes using correlations. It is important to note that for the validation and internal consistency purposes of this research student data from both St Mary's and Tauranga Primary were used. For the purpose of drawing findings and making comparisons and associations the St Mary's data were extracted to provide information and specific results relating to that cohort of particular children.

4.2.1 Reliability

The TROFLEI was used to provide this research with quantitative data on the students' perception of their learning environments. This section looks at the validity and reliability of the TROFLEI in a New Zealand primary school context. To make sure that each scale is internally consistent, measurements of the eight items within each of the eight scales of learning dimensions were calculated to provide the Cronbach alpha coefficients. The measurement of reliability and internal

consistency relating to any learning environment survey must be established within the particular setting that it is used. This must be established first so that the other results can be trusted. There has been a lot of research around the use of the TROFLEI and how it is a reliable instrument as reported in Koul, Fisher, and Shaw (2011). This research presents a confirmation of results that support the use of the TROFLEI and how it has been applied to a New Zealand primary setting.

4.2.1.1 Cronbach Alpha – Internal Consistency

The Cronbach alpha score is one measure of reliability. The Cronbach alpha scores in this research for Student Cohesiveness, Teacher Support, Involvement, Task Orientation, Cooperation, Equity, and Computer Use ranged from 0.60 to 0.82 on the actual form and from 0.72 to 0.88 on the preferred form. All these are acceptable levels in both the actual and preferred versions showing that the TROFLEI is reliable for use in primary classrooms in New Zealand. These results compare favorably with those obtained by Koul, Fisher, and Shaw (2011) who reported ranges of 0.75 to 0.93 for the actual form and from 0.82 to 0.95 for the preferred form. Nunnally (1978) reports that the Cronbach alpha score should be greater than 0.60. However the actual Differentiation scale score was not reliable although the preferred version was acceptable. Item number two was removed from the actual Differentiation scale as it lowered the reliability and it was left out of any other analysis. In Table 4.1, the Cronbach alpha coefficient scores are presented and assure the reliability of the TROFLEI for use in in primary level classes in New Zealand.

4.2.1.2 Mean Correlation – Discriminant Validity

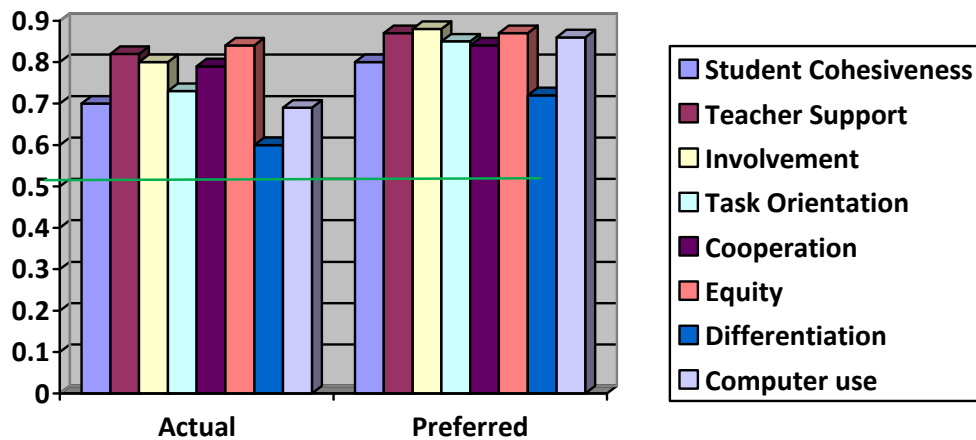
The mean correlation score has traditionally been used in learning environment research and the discriminant validity indicates whether the different scales in the learning environment questionnaires are measuring different aspects of the learning environment as Koul, Fisher, and Shaw (2011) also reported. These correlations for the eight different scales are presented in Table 4.1 and have been calculated to determine the discriminant validity. All eight scales have an acceptable mean correlation. The scales of the TROFLEI measure distinct although somewhat overlapping aspects of the learning environment. This indicates and adds validity that the TROFLEI has performed satisfactorily in a primary NZ setting and in particular for this group of 200 students (*n*).

Table 4.1

Cronbach Alpha Reliability and Mean Correlation with Other Scales for Each Learning Environment Dimension with the Student as the Unit of Analysis

Scale	Cronbach Alpha Coefficient		Mean Correlation with other scales	
	Actual	Preferred	Actual	Preferred
Student Cohesiveness	0.70	0.80	0.45	0.48
Teacher Support	0.82	0.87	0.39	0.50
Involvement	0.80	0.88	0.46	0.55
Task Orientation	0.73	0.85	0.41	0.51
Cooperation	0.79	0.84	0.43	0.54
Equity	0.84	0.87	0.40	0.52
Differentiation	0.60	0.72	0.21	0.29
Computer Usage	0.69	0.86	0.15	0.35

n = 200



Indicates 0.6 as an acceptable level

Figure 4.1. Cronbach alpha scores for each scale of the TROFLEI in actual and preferred forms.

4.2.1.3 Attitude Scales

In addition to the TROFLEI the students were asked to respond to four attitudinal scales, these included Attitude to Subject, Attitude to Computer Use, Academic Efficacy and Learning Processes. These scales were analysed and were used to

perform simple correlations and multiple correlations with the learning environment dimension scales. These are well trusted scales and sets of items and should have very good Cronbach alpha scores. However, the Attitude to Computer Use scale did not work as it provided a low Cronbach alpha coefficient score, as the reliability was too low it was removed from the study. This low score could be due to the lack of use of computers in classroom practice or the varying perceptions of computer use. These results are presented in Table 4.2. It was decided to use the three scales of Attitude to Subject, Academic Efficacy and Processes.

Table 4.2
Cronbach Alpha Scores on Attitude Scales

Scale	<i>Cronbach Alpha Coefficient</i>
Attitude to Subject	0.91
Academic Efficacy	0.68
Attitude to Computer Use	0.26
Processes	0.73

n = 200

4.2.1.4 Mean Value

Table 4.3 presents the average score of the items within each scale of the actual and preferred forms. This score is used to make comparisons and interpretations of results to the perceptions for the actual and preferred learning environment as shown in Table 4.3 for the eight scales the mean actual score was lower than the mean preferred score.

4.2.1.5 Standard Deviation

The standard deviation for each scale is also presented in Table 4.3. This measures the spread of how far the responses to each item spread around the mean score. This is a measure of how much the students' perceptions varied in relation to the actual and preferred learning environment.

4.2.1.6 *t* value

'Univariate analysis explores each variable in a data set, separately. It looks at the range of values, as well as the central tendency of the values. It describes the pattern of response to the variable' (California State University Long Beach, 2011). The *t* test provides a univariate value for each of the TROFLEI scales and reveals that the difference between the actual and the preferred scores are statistically significantly different on all scales. As students responded to both actual and preferred forms of the TROFLEI, a paired-samples *t* test was able to be used.

4.2.1.7 *Actual Preferred Difference*

A calculation was computed to determine the significance of each scale. The probability level and statistical value is represented in the data by the following * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$. This means that a value of $p > 0.05$ is statistically insignificant. A significant value of * $p < 0.05$ means that there is 5/100 that the result is by chance alone and proves its statistical significance. This is presented in Table 4.3 below.

The mean values for the actual and preferred form differences are all highly significant. Students would all prefer a learning environment conducive to the different dimensions than what they actually perceive to be happening in the class.

Table 4.3

Mean Value, Standard Deviation for Actual and Preferred Difference for Each Learning Environment Dimension and a Paired-Sample t Test

Scale	Mean Value		Standard Deviation		t
	Actual	Preferred	Actual	Preferred	
Student Cohesiveness	3.35	3.62	0.37	0.36	7.85***
Teacher Support	3.08	3.37	0.51	0.53	5.42***
Involvement	2.97	3.38	0.49	0.51	8.45***
Task Orientation	3.47	3.69	0.39	0.44	6.83***
Cooperation	3.22	3.56	0.47	0.44	7.99***
Differentiation	3.04	3.36	0.43	0.49	7.12***
Equity	3.18	3.59	0.53	0.47	7.73***
Computer Usage	2.56	3.16	0.53	0.63	10.73***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n = 200

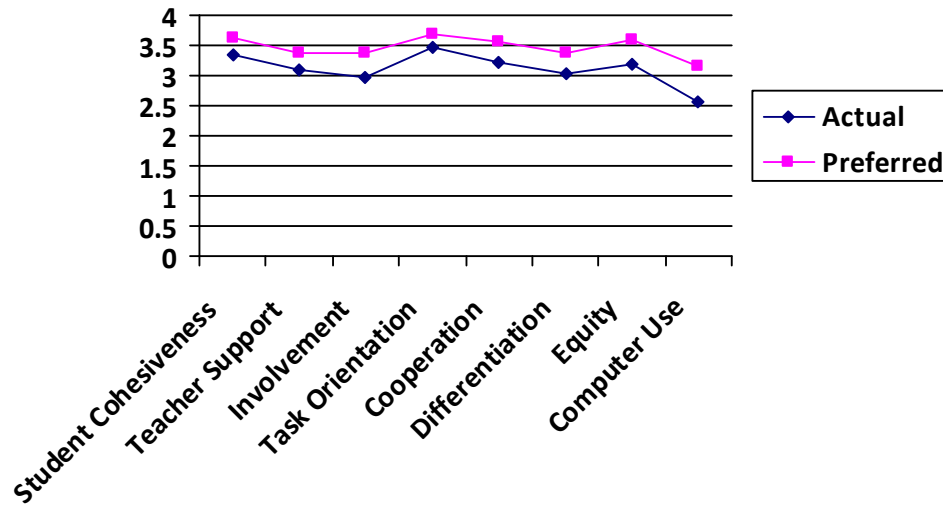


Figure 4.2. Actual and preferred differences according to the learning environment dimensions.

4.2.1.8 Gender difference

An ANOVA with gender as main effect was used to investigate differences between the students' gender and their perceptions relating to the scales of TROFLEI were analysed. The total number of students who were involved in the study were split into 62 male and 58 female students. The gender mean was the chosen as the unit of analysis to examine differences in student's actual and preferred perceptions in relation to the eight scales of the learning environment. Table 4.4 provides the results of the eight TROFLEI scales. These results show that the females perceive that their learning environment in relation to involvement and task orientation is significantly higher and more positive than do the boys.

Table 4.4

Item Mean, Standard Deviation and F Value for the Actual Gender Difference for Each Learning Environment dimension

Scale	Unit of Analysis	Item Mean Actual	Standard Deviation Actual	F value
Student Cohesiveness	Female	3.50	0.31	1.24
	Male	3.21	0.37	
Teacher Support	Female	3.19	0.49	0.80
	Male	2.98	0.52	
Involvement	Female	3.09	0.44	4.56*
	Male	2.86	0.52	
Task Orientation	Female	3.56	0.33	5.12*
	Male	3.39	0.42	
Cooperation	Female	3.32	0.43	1.50
	Male	3.12	0.49	
Differentiation	Female	3.08	0.43	0.24
	Male	3.00	0.42	
Equity	Female	3.30	0.57	0.87
	Male	3.08	0.47	
Computer Usage	Female	2.60	0.46	1.73
	Male	2.52	0.58	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n = 58 female students and 62 male students

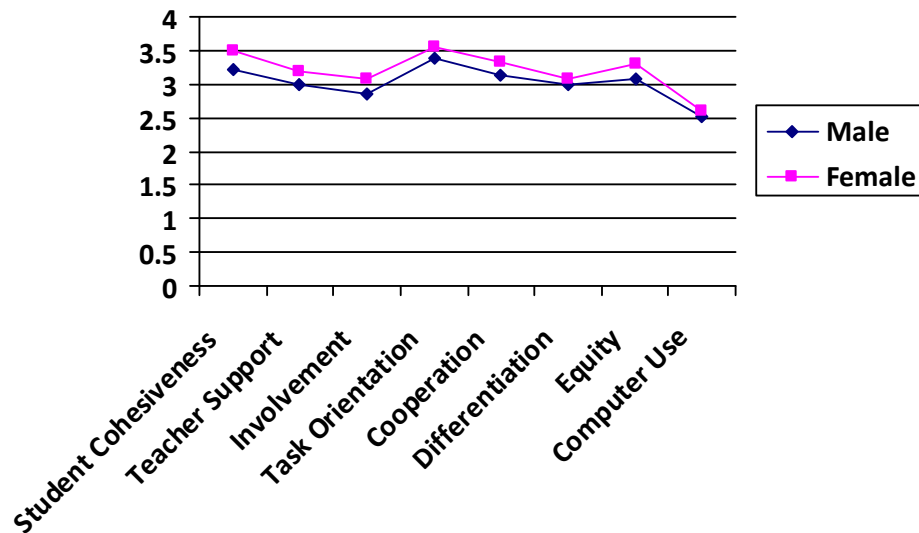


Figure 4.3. Differences in the actual learning environment as perceived by the gender of students.

The differences in preferred environment according to gender differences are presented in Table 4.5 and Figure 4.4. Significantly, female students would prefer more student cohesiveness and involvement in their learning environment. Of even greater value, preferred by the girls, are the positive preferences for task orientation, cooperation and equity in the class according to these results. It is of interest that the only preferred scale where the boys had a higher preference than the girls was relating to differentiation.

Table 4.5

Item Mean, Standard Deviation and F Value for the Preferred Gender difference for each Learning Environment dimension

Scale	Unit of Analysis	Item Mean Preferred	Standard Deviation Preferred	<i>F value</i>
Student Cohesiveness	Female	3.70	0.30	6.16*
	Male	3.53	0.39	
Teacher Support	Female	3.52	0.45	1.88
	Male	3.23	0.57	
Involvement	Female	3.51	0.41	4.88*
	Male	3.26	0.57	
Task Orientation	Female	3.82	0.24	22.33***
	Male	3.56	0.53	
Cooperation	Female	3.69	0.34	11.19***
	Male	3.43	0.49	
Differentiation	Female	3.28	0.49	0.43
	Male	3.44	0.49	
Equity	Female	3.68	0.37	12.89***
	Male	3.51	0.54	
Computer Usage	Female	3.13	0.55	2.48
	Male	3.19	0.71	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n = 58 female students and 62 male students

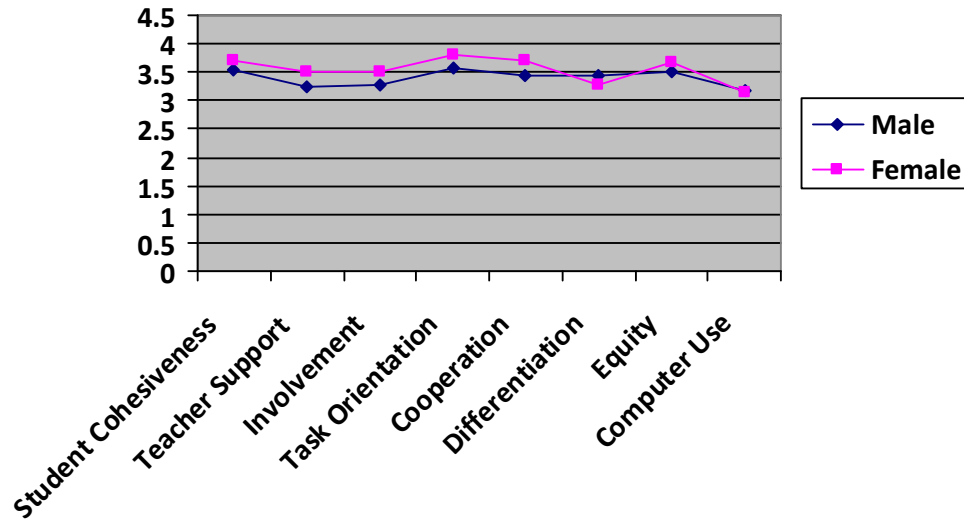


Figure 4.4. Differences in the preferred learning environment as perceived by the gender of students.

The Attitude scales and their significance in relation to gender are presented in Table 4.6 and Figure 4.5. Attitudinal measures of subject, efficacy and processes for females and males were found to be the same across the three attitude scales and there were no significant differences.

Table 4.6

Item Mean, Standard Deviation and F Value for the Gender Difference for Each Attitude Scale

Scale	Unit of Analysis	Item Mean	Standard Deviation	F value
Attitude to Subject	Female	3.17	0.68	0.42
	Male	2.91	0.75	
Academic Efficacy	Female	2.49	0.50	0.08
	Male	2.71	0.55	
Processes	Female	2.58	0.57	0.06
	Male	2.73	0.64	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n = 58 female students and 62 male students

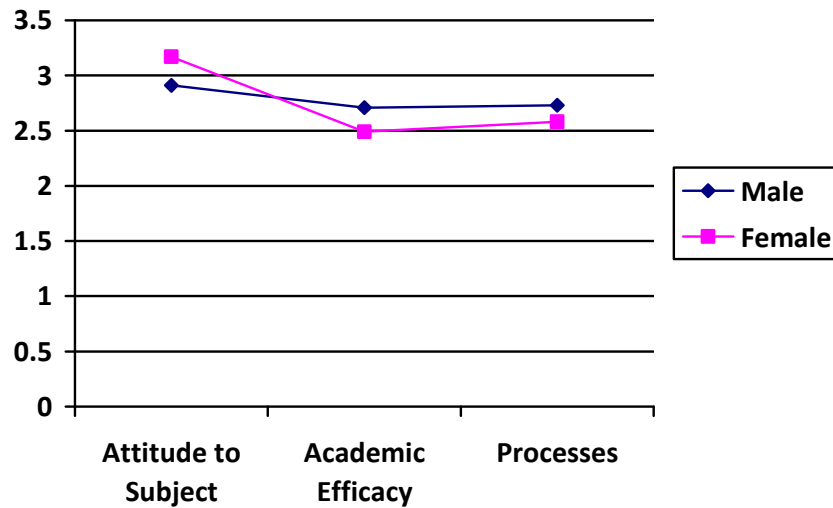


Figure 4.5. Differences in attitudinal outcomes as perceived by the gender of students.

4.2.1.9 Year-level difference

It is of interest to look at the perceptions across year levels as this research focused on both Year 5 and 6 students. Splitting children into their year groups (Year 5 = 56 students, Year 6 = 64 students) allowed for these analyses to happen, the mean score, standard deviation and significant differences for each year group within the eight scales for the actual and preferred versions of the TROFLEI and the four attitude scales were calculated.

Table 4.7 presents the results for the actual learning environment as perceived by the children according to their Year level. Year 6 students perceive teacher support more positively than do the Year 5 students according to these results. However, Table 4.8 and Figure 4.7 present the preferred perceptions. It is noteworthy that the Year 6 students prefer more teacher support as opposed to the Year 5s. Year 6 students also would prefer a more cohesive learning environment.

Table 4.7

Item Mean, Standard Deviation and F Value for the Actual Year Level Difference

Scale	Unit of Analysis	Item Mean Actual	Standard Deviation Actual	F value
Student Cohesiveness	5	3.26	0.37	0.21
Teacher Support	6	3.43	0.36	4.39*
Involvement	5	2.93	0.46	0.06
	6	3.21	0.42	
Task Orientation	5	2.93	0.46	2.54
	6	3.02	0.52	
Cooperation	5	3.40	0.41	0.62
	6	3.54	0.36	
Differentiation	5	3.12	0.48	1.08
	6	3.30	0.45	
Equity	5	3.05	0.40	1.57
	6	3.02	0.46	
Computer Usage	5	3.04	0.50	0.03
	6	3.31	0.53	
	5	2.55	0.51	
	6	2.57	0.54	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n= 56 Year 5 students and 64 Year 6 students in 4 classes.

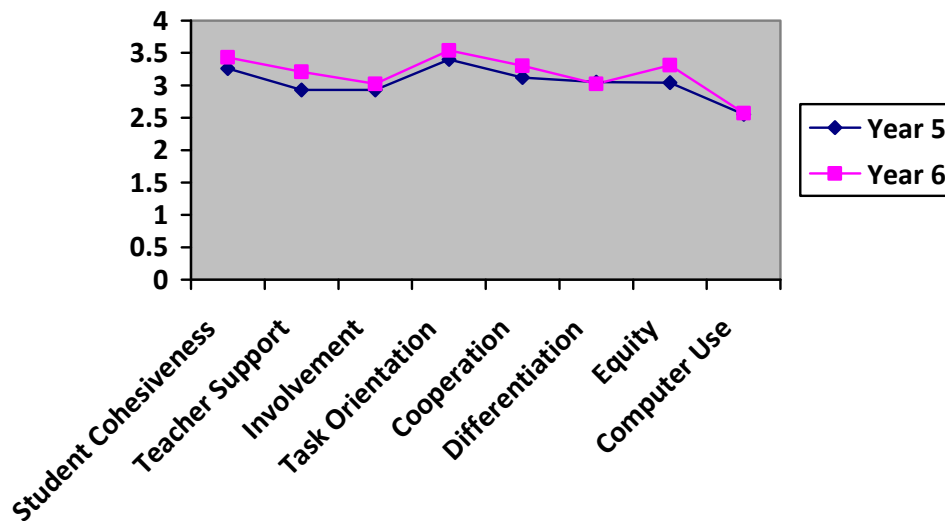


Figure 4.6. Differences in the actual learning environment as perceived by the year level of students.

Table 4.8

Item Mean, Standard Deviation and F Value for the Preferred Year Level Difference

Scale	Unit of Analysis	Item Mean Preferred	Standard Deviation Preferred	F value
Student Cohesiveness	5	3.51	0.40	6.12*
	6	3.71	0.29	
Teacher Support	5	3.30	0.66	7.84**
	6	3.43	0.38	
Involvement	5	3.36	0.58	2.10
	6	3.39	0.45	
Task Orientation	5	3.65	0.49	2.49
	6	3.72	0.38	
Cooperation	5	3.47	0.43	0.28
	6	3.63	0.44	
Differentiation	5	3.38	0.49	0.03
	6	3.35	0.50	
Equity	5	3.54	0.51	0.98
	6	3.63	0.43	
Computer Usage	5	3.14	0.57	0.88
	6	3.17	0.69	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n= 56 Year 5 students and 64 Year 6 students in 4 classes.

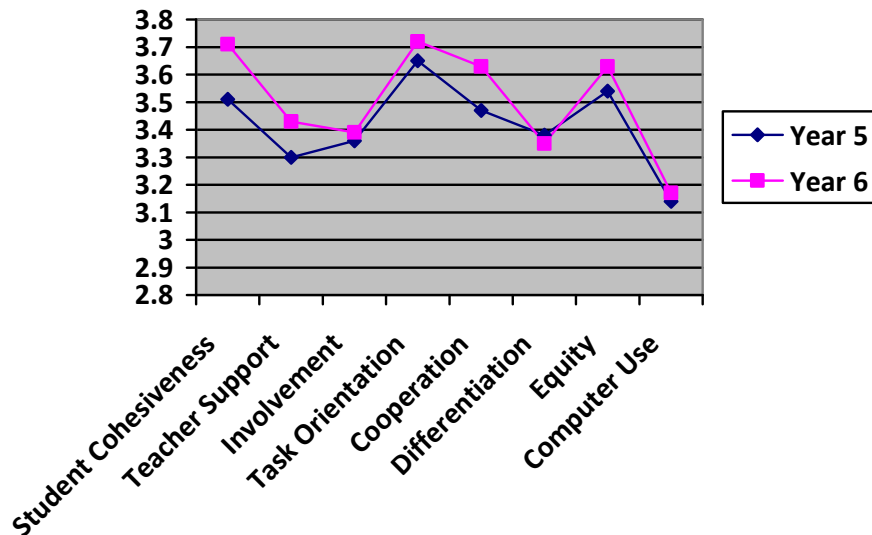


Figure 4.7. Differences in the preferred learning environment as perceived by the year level of students.

Table 4.9 and Figure 4.8 present the attitudinal outcomes as perceived by the students in Year 5 and 6. There are no significant differences between years across the three attitude scales.

Table 4.9

Item Mean, Standard Deviation and F Value for the Attitude Year Level Difference

Scale	Unit of Analysis	Item Mean	Standard Deviation	F value
Attitude to Subject	5	2.99	0.72	0.24
	6	3.08	0.74	
Academic Efficacy	5	2.53	0.46	3.59
	6	2.67	0.59	
Processes	5	2.65	0.62	0.00
	6	2.66	0.61	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n = 56 Year 5 students and 64 Year 6 students in 4 classes

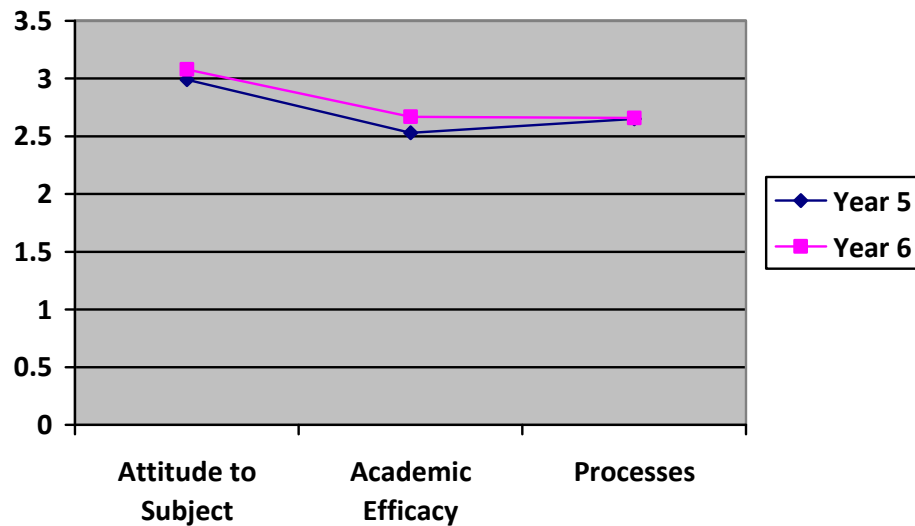


Figure 4.8. Differences in the attitudinal outcomes as perceived by the gender of students.

4.2.1.10 Associations of Learning Environment Scales with Attitudes

Associations between the TROFLEI learning environment dimension scales and the three attitude scales were calculated. These are presented as simple correlations (r), the measure of the association between each individual learning environment

scale and each of the three attitudinal outcomes. Multiple correlations (R) were also calculated, this is the measure of all learning environment scales and how they impact on each of the attitudinal scales. The variance in each attitude scale, the percentage of which can be attributed to the students' perceptions of the learning environment are calculated and presented as the value (R^2). The weighting of which particular scales have the most significance of this R^2 value is calculated and also presented in Table 4.10. This value is represented as β .

Simple correlations showed that there were two significant learning environment dimensions that had a positive impact on the attitudinal outcomes for students. The three attitude scales all showed that teacher support and computer usage were significant. It is important to note that for all three attitudinal scales the same learning dimensions are recurring as significantly impacting on the outcomes.

The multiple correlations show that the learning environment has an impact on the three attitudinal outcomes. The learning environment has most significance on academic efficacy and processes. The R^2 values show that 18% percent of the students' attitude to the subject can be attributed towards the learning environment dimensions –the Beta weight indicates this value is significantly attributed towards teacher support and computer use. Twenty-nine percent of the students' attitude towards academic efficacy can be attributed towards the learning environment, the most significant scales impacting this result are made up of teacher support and computer use as the Beta weight shows. The processes scale is influenced by 36% of the learning environment, the significant dimensions and attributed impact are teacher support and computer use.

Table 4.10

Associations Between TROFLEI Scales and Three Attitude Scales in Terms of Simple Correlations(r), Multiple Correlation(R) and Standardised Regression Coefficient Beta

TROFLEI Scales (Independent Variables)	Attitudinal Outcomes (Dependent Variables)					
	Attitude to Subject		Academic Efficacy		<i>Processes</i>	
	Simple correlation r	β	Simple correlation r	β	Simple correlation r	β
Student Cohesiveness	0.11		0.17		0.06	
Teacher Support	0.31***	0.33**	0.35***	0.30**	0.27**	0.21*
Involvement	0.06		0.03		-0.02	
Task Orientation	0.10		0.20*		0.13	
Cooperation	0.11		0.17		0.24**	
Differentiation	-0.01		0.08		0.10	
Equity	0.10		0.17		0.17	
Computer Usage	0.32***	0.29**	0.45***	0.41***	0.52***	0.49***
Multiple Correlation	0.43**		0.54***		0.60***	
R^2	0.18		0.29		0.36	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n = 120

4.2.1.11 Association of Achievement and Learning Environment Scales

Associations between the TROFLEI learning environment scales and three achievement outcomes were calculated and are presented in Table 4.11. These are presented similarly to the associations with the attitudinal outcomes with simple correlations (r) as the measure of the association between each individual learning environment scale and the three achievement outcomes. Furthermore as with the attitudinal outcomes, the multiple correlations (R) were calculated. These are the measure of each of the achievement outcomes and the impact of all the learning environment scales. The variance is calculated for each achievement scale, presenting a (R^2) value, this indicates the percentage in achievement that can be attributed to the students' perceptions of the learning environment. The weighting of which particular scales have the most are also presented in Table 4.11, again this value is represented as β .

The simple correlations show that for maths achievement outcomes there are two significant learning environment scales. Differentiation and Computer Use are both statistically significant with maths achievement. These results show that the less differentiation and computer use the better students achieve in maths. This is an interesting association as it is the only achievement scale with a negative impact. For reading vocabulary achievement the involvement of students is proven to be significantly important. Listening achievement has two scales that show statistically that there is significance between the achievement and the learning environment dimension, these are task orientation and most significantly involvement.

The significance of the *R* value indicates that all of the learning environment scales have a significant impact on the achievement outcomes, in particular Reading Vocabulary. The results in Table 4.11 indicate that involvement has the most positive effect on Reading Vocabulary. For listening outcomes the learning environment dimensions of Equity, Task Orientation and most significantly Involvement have an impact. It is of interest that differentiation and Computer Use have a significant negative impact on maths achievement, although 15% of the achievement in maths can be attributed towards the learning environment dimensions. The learning environment dimensions attribute 16% of the Reading Vocabulary achievement and in particular Involvement is of significance. Listening achievement has a 15% result that can be attributed towards the Learning Environment. The most significant dimensions are task orientation and involvement that have an impact on this weighting.

Table 4.11

*Associations Between TROFLEI Scales and Three Achievement Scales in Terms of Simple Correlations(*r*), Multiple Correlations (*R*) and Standardised Regression Coefficient Beta*

TROFLEI Scales (Independent Variables)	Attitudinal Outcomes (Dependent Variables)					
	Maths PAT		Reading Vocabulary PAT		<i>Listening PAT</i>	
	Simple correlation <i>r</i>	β	Simple correlation <i>r</i>	β	Simple correlation <i>r</i>	β
Student Cohesiveness	0.07		0.04		0.11	
Teacher Support	0.11		0.06		0.05	
Involvement	0.14		0.27**	0.32**	0.29***	0.27**
Task Orientation	0.01		0.17		0.25**	0.24*
Cooperation	0.03		0.01		0.09	
Equity	0.09		0.17		0.24**	
Differentiation	-0.20*	-0.19*	-0.02		0.02	
Computer Usage	-0.22*	-0.22*	-0.02		0.02	
Multiple Correlation <i>R</i>	0.39*		0.40*		0.39*	
<i>R</i> ²	0.15		0.16		0.15	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

n= 120

4.3 QUALITATIVE RESULTS

The previous section highlighted findings from the student quantitative data. This section shares the qualitative findings of the students. The qualitative data provides possible explanations and deeper thoughts about some of the quantitative findings.

The qualitative results provided an insight into the first, fourth, fifth and sixth research questions in this thesis and are discussed under the headings Perceptions, Technological Changes, Change of Existing Processes and Adapted and Improved Learning Environment which are the identified themes for the questions.

1. What are parents, teachers and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?

4. How do students cope with the technological changes involved with an LMS?
5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?
6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

4.3.1 Perceptions

When asked about their perceptions of the learning environment as a result of introducing KN the students commented about sharing their learning, ownership and ICT change.

4.3.1.1 Sharing

A key factor of children's perception around the learning environment and implementation of a LMS is around the concept of sharing. The children thought it would be an easier and more efficient way to share their learning if it was available on line. Children commented:

It might be easier for your parents to know exactly where you are and how you feel about it. If you're comfortable or if you don't really want to be involved in it at all. Something like that. – Child from CFG4

It's sort of quite a good way of showing your learning and you can have a little fun too, and it's easy access. – Child from CFG2

I just think it's a faster, more efficient way of doing it. It's just better than having to write it down and you can share it with everyone. Even with the class so they can see how you've done or how your classmates have done. – Child from CFG4

I remember last year we had to write a story. It was 'persuasive writing'. On the teacher's computer she brought up Jing and she could interview us one by one and ask us what we thought about writing the story and it was like an online interview. – you could again show your parents what you said and how you answered the questions. – Child from CFG4

I think it's good because you can share our learning at school with your parents, and your parents can interact with what you're doing in class. – Child from CFG4

I just reckon its great how everybody can interact and share their learning. It's just helping people get more into using the internet in a safe way. – Child from CFG2

The children also perceived that sharing their learning using a LMS gave their parents a rich picture of their learning journey, where they are at and what their next learning steps are. The children also thought that the LMS provided evidence of their assessment capabilities. A sample of comments acknowledges this:

Yeah because they know then where you're at and what you're doing and how you're doing it. – Child from CFG4

Yeah because then they know where you're at and where then they could push you further. – Child from CFG4

I think I'd rather have the parent-teacher interview. I like showing them on a big book, but I think it's cool how in the middle of things you can show your little things on KnowledgeNet. – Child from CFG2

It's kind of helpful sharing your learning online with your parents or with your family or with your friends...just saying 'oh, here's my reading and I'm at the moment on level 31. And your parents get to say, 'you need to try harder to get to level 32'... so they can set goals for you. – Child from CFG1

The children also perceived that sharing their learning online allowed their parents to 'understand' their learning by explaining:

My mum usually would ask me what I did at school and I've got no idea how to answer that. It'd probably take me about an hour to list all the things I did at school. But maybe the week after, if I said that I did this and this and this, she'll be able to look at it and understand. – Child from CFG2

You could talk to her for two hours and she wouldn't understand. Show her and she'll understand in a few minutes. – Child from CFG2

4.3.1.2 Ownership

The idea of student ownership was raised, the comments reflect this concept. It is important to note that students would like the opportunity to take ownership of part of their portfolio. Two students commented:

It's like...you're recording it and your parents are going to look at it but the teacher usually picked which Story they wanted and it wasn't the Story that I wanted sometimes. We should be able to choose what we want and what we don't want. - Child from CFG3

It's our homepage, our learning, our space. – Child from CFG1

4.3.1.3 ICT change

The perception that the LMS is a useful way of integrating the use of ICT and learning processes was identified. Some students referred to the idea that the LMS has involved change as ICT wasn't necessarily such an integral part of learning programs previously and that that the modes of learning incorporating ICT across generations has changed. This was highlighted by the following statements:

It actually does help people be a bit more interactive with ICT learning. – Child from CFG2

It isn't much of a change for me because I wasn't here when KnowledgeNet wasn't being used. – Child from CFG2

I guess it is a change for me because I didn't use this website when I was in England or Korea. It's kind of a new thing for me but it's great; I love it. – Child from CFG2

You know in the older days you had the cell phones...I went to my dad's work friends' house and she... was her name, and she had kept her first mobile phone and it looked so different to the mobile phones that we see*

now because now they're touch but that one was pretty much like a home phone. It's like we're moving into the new generation, like the technology generation. So now it's computers. – Child from CFG2

It's really great because I can access it on my iPad because I got one for my birthday. I can look at my scores. – Child from CFG2

It's about how people kind of adapt. Before, it was just textbooks and maths books but now we can do learning on KnowledgeNet. – Child from CFG2

You could see this as a new step. Like cavemen developing into modern humans. – Child from CFG2

4.3.2 Technological Changes

When children were asked how they cope with the technological changes involved with a LMS, their comments were about frustration, how they teach and learn and time or the lack of it.

4.3.2.1 Frustration

There was a strong viewpoint that the LMS - KnowledgeNET that these students were using caused frustrations. The children may not be familiar with working in a web environment as opposed to using computer software and programs. Some comments are not directly related to KN as it could be the internet, file size or computer specifications that are causing the frustration, however the children perceive this to be 'KnowledgeNET' as it is the environment that they are working in at the time. Students said:

I think it's quite hard because there's so many links that you don't really know where you want to go. You can get very simple steps but you need to be shown on the computer how to do it. – Child from CFG4

With normal things on the computer, they'd probably be quite good at it, but with KnowledgeNet it is completely different. – Child from CFG2

I find it pretty easy most of the time but it's pretty annoying when sometimes a computer mucks up and you don't save things or it goes off straightaway...like we were trying to put our IKANs up on the pages and it wouldn't load and it was taking forever. – Child from CFG1

They (the juniors) should have their own KnowledgeNET, a child friendly KnowledgeNET, because our one is a more of an advanced KnowledgeNet...‘Junior KnowledgeNET’. – Child from CFG1

4.3.2.2 Teach/Learn

Students have been known to easily adapt to new learning environments, they teach and learn from each other as a way of coping with technological changes involved with the LMS. Children are intrinsically motivated if something is ‘fun’ and of benefit to their learning needs. The children explained:

Just find a way to figure it out and if I can't then... I ask the class ‘techies’ - Child from CFG3

Yes, last year you (researcher) said that it wasn't you teaching us, but it was us teaching you and everyone else. – Child from CFG1

We learn from each other. – Child from CFG1

I reckon we should learn in pairs rather than in one group because then you can learn at your own pace. If you don't get something you can just...– Child from CFG1

The quantitative data showed us that teacher support was significant in the learning environment. These comments support those findings:

Is it important for the teachers to know... otherwise you can't really do it. It's important that they get the point of what you're doing. – Child from CFG1

And the teachers could see what you want to learn instead of what you have to learn. I like learning different things in a fun way instead of a boring way. – Child from CFG1

4.3.2.3 Time

It takes time to make changes as addressed in Section 2.4 Commitment to change—the change process. Students identified that they need more time to practice and engage in the LMS learning environment. Computer use was another area that was of significance in the findings from the TROFLEI quantitative data. Students reported:

I reckon we have half a block a week or something like a block of a week dedicated to KnowledgeNet. The teacher could show us first on the classroom projector and we could go away... we don't have enough computers but maybe we could go to a few around the senior classes and learn up. – Child from CFG4

For a block a week we could have computers on and change our KnowledgeNet pages and the teacher can help us and show us new sites. – Child from CFG4

I actually love working on computers and I would really like to see more computers in the school. Not more computers but more time on the computers. – Child from CFG2

Yes, I think we should be given a bit more time to look at our learning, upload our learning. Or you don't get anything from there (KN)— Child from CFG1

4.3.3 Change of Existing Processes

Reflection was identified as an existing process that has changed as a result of the implementation of a LMS.

4.3.3.1 Reflection

Children identified that reflection was one process that has changed as a result of implementing a LMS. The children recognize that the audio reflection was more authentic and enhanced the focus of 'student voice' in the learning process. Some

students recognized the value of pair feedback and feed-forward as a reflection strategy. Evidence of this feedback was:

You actually hear it from the student and not the teacher. You have the students' point of view. – Child from CFG1

I'd rather have a Jing than have the teacher write what she thought. I would rather have a Jing so that I get to share my opinion. – Child from CFG1

Yeah, if you write it down, sometimes your teacher can give you ideas and you say 'yes', like you think it's good but inside you really don't want to have it put in. - Child from CFG3

Text isn't quite as valuable as just talking to each other sometimes. – Child from CFG2

I think it's pretty important because instead of having to tell them you can show them. Or if you're using Jing you can hear them. – Child from CFG1

I think Jing's better than your teacher writing it all down because you can say whatever in your own words— Child from CFG1

Yeah, sometimes you only get to Jing if we have a test. But if we do a big term of science we should have a review of what we did and how it helped us. – Child from CFG1

*Sometimes when the teacher asks questions, you go shy or blank. When you're talking with your friends you just talk. *, you know how much of a talker I am, but when I go next to a teacher I just go blank. I just go quiet but when I'm with * I'm talking all the time. – Child from CFG1*

Sometimes if you're talking to your teachers you get a little bit nervous but when you're with a friend you just let it out and say what you want to say. I say a lot of things when I'm with my friends. – Child from CFG1

4.3.4 Adapted and Improved Learning Environment

A class or school learning environment can be adapted and improved through ensuring there is equitable time on computers, developing experts in particular students and making them available, effective questioning and practice at using the equipment. The students perceive that this would support achieving both the high quality student outcomes and equal opportunities for all learners to be involved in a LMS.

4.3.4.1 Equity

As computer use was identified as being very significant in the learning environment students identified that equity of computer use was important especially for children without a computer at home. Equity is a way of achieving high quality student outcomes and equal opportunities to be involved in a LMS. Students acknowledged this through these comments:

I think the classroom should have a bit more of computers because we've got the bare minimum in most classes and it's harder for people to get turns.

- Child from CFG3

Some people haven't really got a homepage. I know some people who haven't got anything on their homepage. They probably won't have a computer at home so they should have more of an opportunity than other people who actually have a computer. They should have more of an opportunity to go on a computer at school. – Child from CFG1

If you don't have a computer at home, then how can you get onto KnowledgeNet? If they don't have a computer they can only use it at school.

– Child from CFG1

4.3.4.2 Experts

Developing and growing experts was a suggested outcome for improving and adapting the learning environment. In particular the senior students were identified as potential experts who could help both younger students and teachers. Buddy classes were also referred to, this is a structure that is already set up in the school

where two classes (an older and younger class) are clustered together to support different learning outcomes and processes. Students shared this point of view:

We could get the older students to talk to the little students who kind of know how to do it but don't really know how to do it and teach them a little bit about it so they know how to do it. – Child from CFG4

There are some people, 'techies', who know lots about KnowledgeNet and they can possibly help you as well. – Child from CFG4

Another thing you could do is you could have a day for every person where they could help the teacher on the computer. They could help get onto everything that the teacher wants to do. So instead of just being good on KnowledgeNet they could be good on the whole computer thing. – Child from CFG2

I think we should take someone who's already quite good on computers to teach other people. Like teach other people how to do it so everyone could be equal. – Child from CFG2

You can go to your buddy class and they can teach you the way and help you make it. – Child from CFG1

4.3.4.3 Questions

Although only one comment referenced the power that questioning has in the learning process it is important to note as the teachers also identified this as a strategy for improving and adapting the learning environment and ensuring that there are equal opportunities for all learners. Explicit teaching incorporates questioning and has been a focus and a deliberate act of teaching that children have experienced. The child said:

If you use Jing, they would have to ask questions that are deep into the topic, not ones that are 'yes-and-no'. They have to be questions that have an open answer. – Child from CFG1

4.3.4.4 Using equipment – practice

Section 4.3.2.3 on time addressed the computer use that was raised as a significant outcome in the TROFLEI results and presented in the quantitative data. Using the equipment and the opportunity to practice was a suggested improvement and adaptation that could be made to the learning environment as perceived by the children. Their comments were:

We could go on KnowledgeNet a bit more often so we know a bit more about it- Child from CFG1

Yeah. I'm not very good at computers but if we did it in class more often, we'd be able to take it home and it wouldn't be hard to show our parents. – Child from CFG4

(It's important as a learner how to learn how to upload, scan a document, upload an image) because in the future, even if we have iPad 25s or iPhone 25s, we still need to know how to upload things because kids will probably be having their own laptops at the age of five or seven. – Child from CFG2

What's the use of a flash toy if you don't know how to play with it? It's pretty much throwing money down the drain, because if as a happy birthday gift for a two year old you buy a flash iPad, it'd probably collect something, get a bad virus on it...– He'd probably chew it. – Child from CFG2

It's getting sensible things at sensible ages. – Child from CFG2

I also think it's important that to be able to do something, you need to be able to practice doing it. Like with setting a goal– Child from CFG2

Like for 'science week', we could have 'KnowledgeNet week' or something. – Child from CFG2

We weren't good on the computers beforehand. It's just that we're good now because we've searched deeper into what technology can give us. – Child from CFG2

On KnowledgeNet when we had to upload files, I was sort of doing it for them I wasn't showing them how to do it...well, I was showing them how to do it but I was not letting them do it so they wouldn't learn anything, so they wouldn't profit from it. – Child from CFG2

Yeah, to learn you don't necessarily do, but you need to be focused with the task. – Child from CFG2

4.5 SUMMARY

This chapter has presented both quantitative and qualitative results based on the students' perception.

Across all learning environment scales the results showed that the preferred learning environment was significantly greater than the perceived actual learning environment in the class.

The TROFLEI data made comparisons across year levels and gender according to the actual, preferred and attitude scales. The data showed that females had a more positive perception of their actual learning environment, on the involvement and task orientation scales; they had a significant stronger preference for an environment conducive to student cohesiveness, involvement, task orientation, cooperation and equity. The year level data showed that Year 6 students preferred more teacher support than the Year 5 students and perceived that they actually received more teacher support than the year 5's. Year 6 students also had a significantly greater preference for student cohesiveness than the Year 5's.

Correlations were also calculated between the learning environment scales and the attitudinal outcomes; these results highlighted that teacher support and computer use, were of most significance in relation to the learning environment dimensions and scales, these had a significant impact on the attitudinal outcomes of students. Associations with achievement and the learning environment highlighted that maths was the only scale with a negative association, the less differentiation and computer use the better students achieve in maths. For reading vocabulary, involvement was a significant scale and for listening task orientation and involvement were statistically significant.

From the focus group interviews it was clear that the students thought that the LMS enhanced the possibility of sharing their learning, they liked the ownership it gave them of their learning and were open as to how it could enhance and facilitate the use of ICT in classroom practices. However, students identified some frustrations when working in a web environment they referred to how they can teach and learn about the system but identified that time can sometimes be a barrier. Reflection was an existing process that has been changed now that we have a LMS as identified by the children. Ensuring that equitable time, experts are developed and available, explicit questioning and practice at using the tool were key factors where the learning environment could be adapted and improved.

The next chapter presents the qualitative and quantitative data as perceived by the teachers.

CHAPTER 5

RESULTS FROM TEACHERS

5.1 INTRODUCTION

As described in the methodology chapter, data from the teachers were gathered through the use of surveys and focus groups. This chapter presents the findings of both qualitative and quantitative data as perceived by the teachers. Three different teacher surveys were administered during 2009, 2010 and 2011 with some overlapping questions so that trends and shifts in thinking could be identified. The relevant results from each year are presented in this chapter. The four focus groups for the interviews consisting of three teachers each. These data provide further insight to the first, second, fifth and sixth research questions in this thesis and are presented under four headings Perceptions, Technological changes, Change of existing processes and Adapted and improved learning environment. These headings have been named according to the theme of the research questions:

1. What are parents', teachers' and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?
2. How do teachers cope with the technological changes involved with a LMS?
5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?
6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

Table 5.1

Teacher Surveys and Submission Results from 2009 - 2011

Year	Target group	Name of Survey	No. of responses	Response rate
2009	Teachers	Teaching Staff Review of the On Line Writing Sample In KnowledgeNET (ID 84871) Appendix J	11	55%
2010	Teachers	Teacher 2010 Learning Stories (ID 33198) Appendix L	11	55%
2011	Teachers	Nick Rate (ID 23778) Appendix N	21	100%

5.2 PERCEPTIONS

5.2.1 Quantitative Results

5.2.1.1 Are we ready?

As a school community is made up of so many different people who each have different roles in the learning journey, it is interesting to ask teachers for their perceptions of whether they think we are ready for a digital learning environment. This question attempts to identify if the school community and in particular the parents, teachers and school leaders are ready as perceived by the teachers. It is of interest that a common dilemma that arose was that the teachers were not updating the web environment because the parents were not looking at it. Parents reported that they were not looking because the teachers were not updating the web environment.

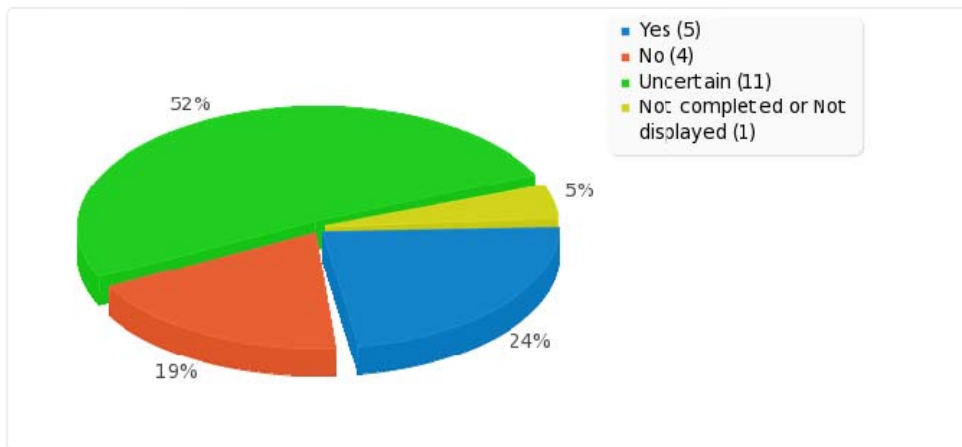


Figure 5.1. Are your parents ready? Teachers' thoughts... (2011 Survey)

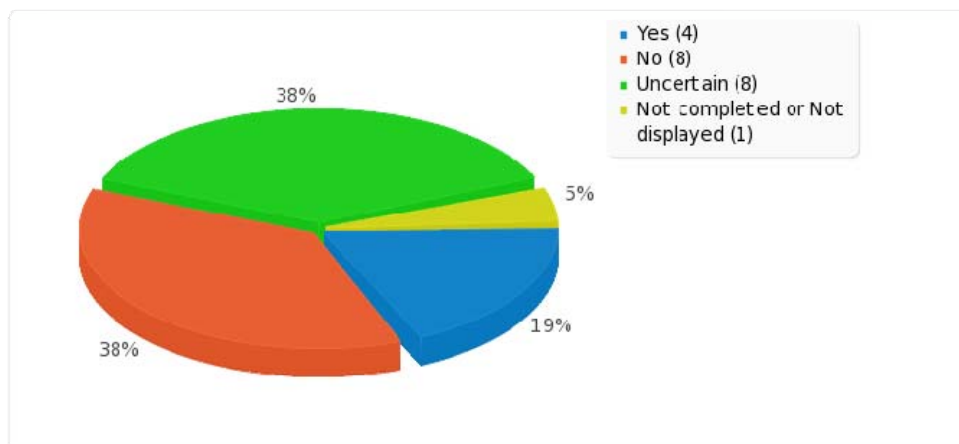


Figure 5.2. Are your teachers ready? Teachers' thoughts... (2011 Survey)

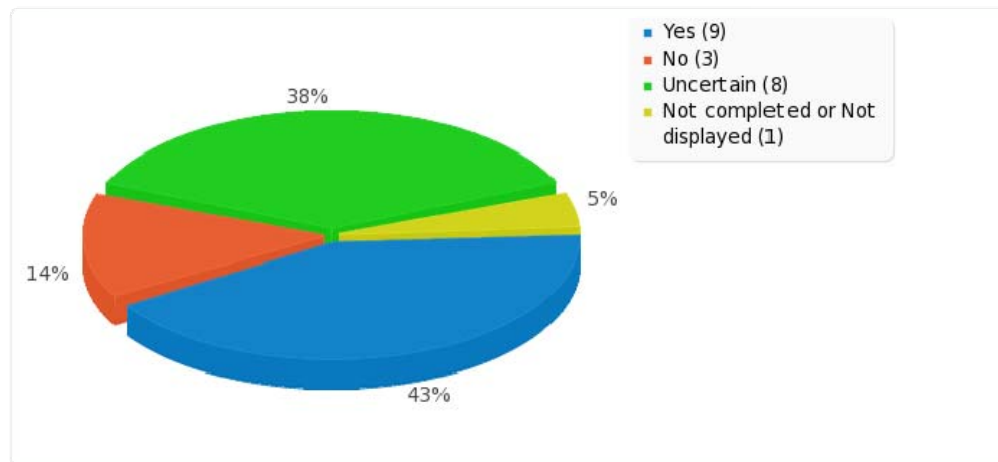


Figure 5.3. Are your school leaders ready? Teachers' thoughts... (2011 Survey)

It is interesting to see that 24% of the teachers think that the parents are ready as presented in Figure 5.1. Figure 5.2 shows that 38% of the teachers perceive the teachers to be ready while 43% of teachers think that the school leaders are ready for the ICT change (see Figure 5.3). However, 19% of teachers feel that the parents are not ready (see Figure 5.1), 38% of teachers feel that the teachers are not ready (see Figure 5.2) and 14% of the teachers feel that school leaders are not ready for the change (see Figure 5.3). If these results and teacher perceptions are accurate, it provides information on where professional development can be focused and who are the potential barriers to the change process.

5.2.1.2 Improved learning?

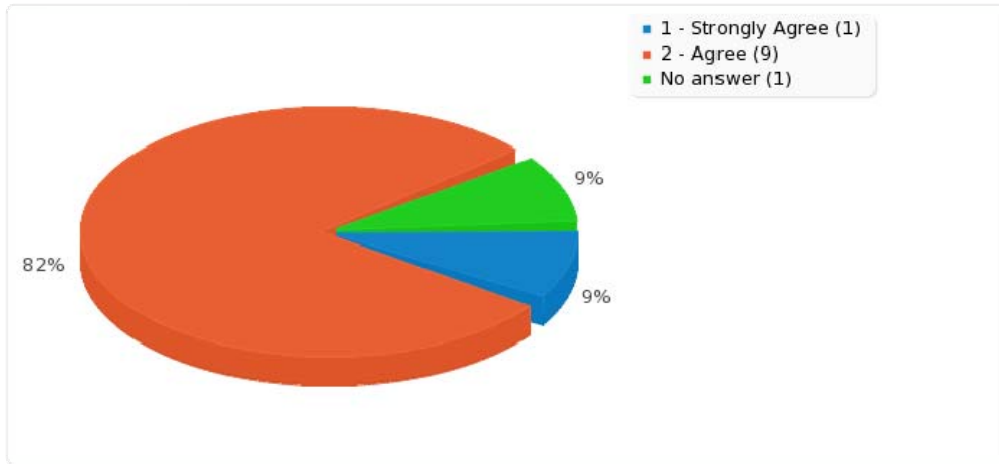


Figure 5.4. Throughout this process my children are aware of where they are at, where they are going and how to get there? (2010 Survey)

As part of the school learning philosophy and learning vision we need to develop assessment capable children. In order for children to be assessment capable, the children need to have an awareness of where they are at, where they are going, and how to get there in relation to their learning. Figure 5.4 shows throughout the process of rolling out the learning story 91% of teachers agreed that the students were assessment capable.

5.2.1.3 Connecting Parents

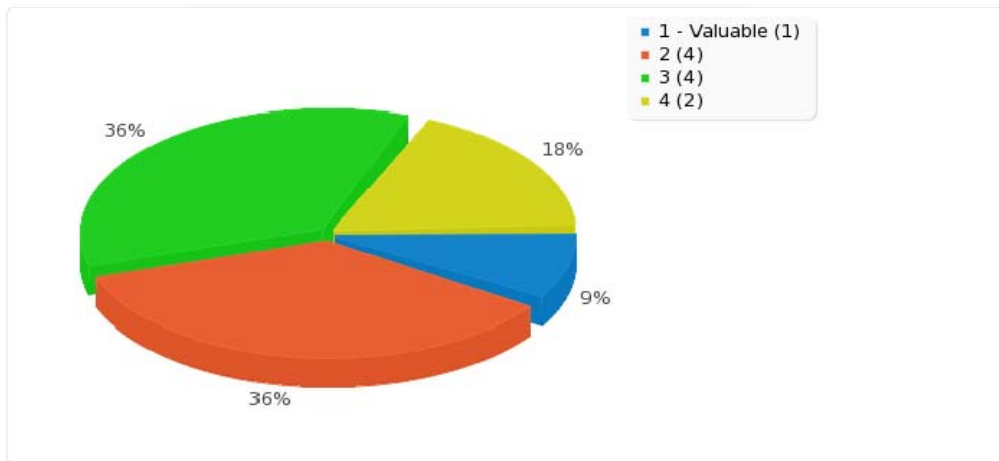


Figure 5.5. How valuable do you see KnowledgeNET in connecting parents with their child's learning journey? (2009 Survey) – Rating: 1 valuable - 5 not valuable

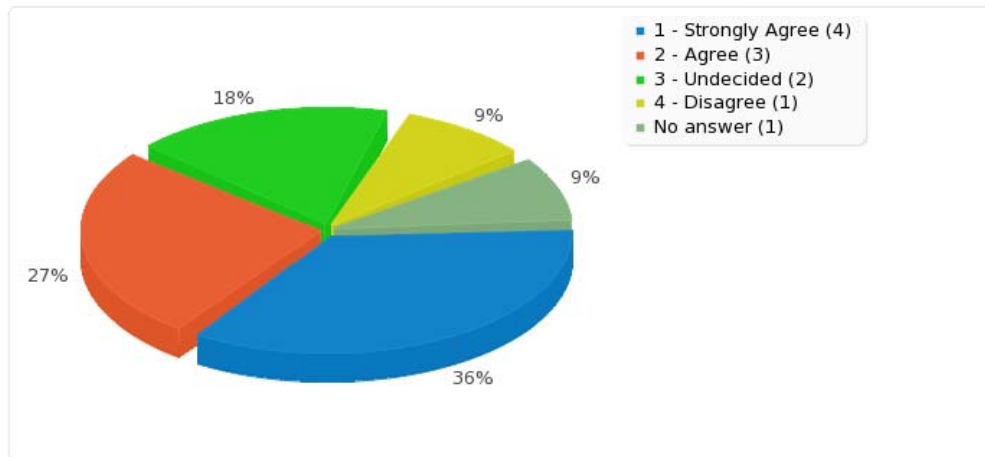


Figure 5.6. A Connecting parent with their Child's learning journey through using a Learning Management System (KnowledgeNET) is very important? (2010 Survey)

The quantitative data presented in Figures 5.5 and 5.6 show that teachers feel it is important for parents to be connected to their child's learning journey through the use of a LMS, these data were gathered in 2009 and 2010. Figure 5.5 shows that in 2009, 45% of the teachers saw the value in connecting with parents through the use of a LMS and 18% of the teachers did not feel that the connection was valuable. In Figure 5.6, during 2010, 63% of teachers agreed that it was important while 9% disagreed. The qualitative data provide further clarification and evidence of the teachers' thoughts regarding parental involvement. These data show that the teachers' perception relating to the value and importance of connecting parents in the learning journey with KN has increased by 18% from 2009 to 2010.

5.2.2 Qualitative Results

The focus groups and survey comments provided qualitative findings that supported the quantitative results. The results showed the teachers' perception of the learning environment in a school where a LMS was being implemented. The comments were about the tool being an add-on, workload, buy-in, teacher driven and the potential of the system.

5.2.2.1 Add on

The perception of KN was not always perceived positively, some teachers felt that the LMS was an add-on and a 'task' that had to be done'. Two comments alluded to this feeling stating:

I think at the moment it's like an 'add-on.' That's what the perception is at the moment isn't it? A lot of us don't know how to do things quickly and we're not using it all the time. So at the moment we're not using it as part of what we're doing. So it seems like an extra thing. – Teacher from TFG2

Yes, I think it'd be labeled a task that we have to do. – Teacher from TFG2

5.2.2.2 Workload

The concept of the LMS being an-add on as described previously was also further supported with the thought of the LMS contributing to the workload of teachers. Some teachers thought that the processes were heavily dependent on teacher involvement, caused too much stress and had a large time requirement. Teachers commented:

For the purpose of reporting to parents, they were active in reflecting on their learning. Early days, so not au fait with the process, so a lot of work for teachers. – Teacher Survey

Prompted a requirement for deeper thinking and involvement but this was heavily dependent on teacher involvement - Teacher from 2009 Survey

Caused too much stress on staff who were not ready for this much lct in one go. - Teacher from 2009 Survey

Large time requirement for teachers workload on top of the daily planning workload the intensity and frustration of technical errors experienced working in Knowledge NET - Teacher from 2009 Survey

5.2.2.3 Buy-in

The teachers' perceived that buy-in into the concept of the LMS was important. Teachers identified the need for teacher, parent and student buy-in. Most comments related to the need for parental buy-in:

Professional development. I think it's got to be well scaffolded and then you've got buy-in. Hands-on PD? – Teacher from TFG3

Deadlines needs to be discussed with the teachers before making decisions management need to discuss ideas, dates etc. with teachers. Work smart. Teachers need buy in. - Teacher from 2010 Survey

I believe it (Connecting parents with their child's learning journey through using a Learning Management System) is important , but the LMS needs to be user friendly and the information to connect them with their child's learning journey should be easily accessible. It takes time to build up the parents' awareness of how knowledge net is used. - Teacher from 2010 Survey

I still don't think the parents have enough buy-in. – Teacher from TFG3

I agree that it is a good thing. I just would like it to have more of a buy-in from children, but especially the parents– Teacher from TFG3

5.2.2.4 Teacher Driven

There is a perception that the LMS is teacher driven but has the potential for more student ownership. As the implementation of the LMS initially involved the rolling out of individual learning stories that met the requirements for reporting it can be assumed that the process was heavily reliant on teacher involvement and contributed to the perceived workload for teachers. It is empowering to see that teachers have acknowledged the need and ideal of the LMS becoming student driven. Teachers said:

It feels like it's designed just for us. The ideal of course is to have the children doing it which of course requires lots of coaching of the children as to how they implement and put the data in and reflect and do all the bits and

pieces on there. With the idea of it being a Learning Journal, we haven't done that as yet. It's been teacher driven. – Teacher from TFG2

As this is the beginning of our journey it was very teacher led, but I can see how this can build up to being more driven by the student. . - Teacher from 2010 Survey

5.2.2.5 Potential

The potential of the system and concerns relating to consistency were raised by several teachers. One teacher referred to prioritizing and one teacher referred to the process. These comments all incorporated the possibilities and potential for the system and addressed ideas that should be considered if we are to reach its potential. Some teachers explained:

*For me there's a bit of a worry where it comes to consistency across the school as to what people are doing. What's happening in *s classroom may be completely different to what's happening in *s or mine or *s. – Teacher from TFG4*

We've got so much potential from hereon in but I suppose we're in that transition So, we could move forward definitely. – Teacher from TFG4

Working out what to prioritise. – Teacher from TFG4

I think you can see the potential of the system– Teacher from TFG4

This is a slow process of development. Let people do it at their own pace. - Teacher from 2010 Survey

5.3 TECHNOLOGICAL CHANGES

5.3.1 Quantitative Results

5.3.1.1 Competency

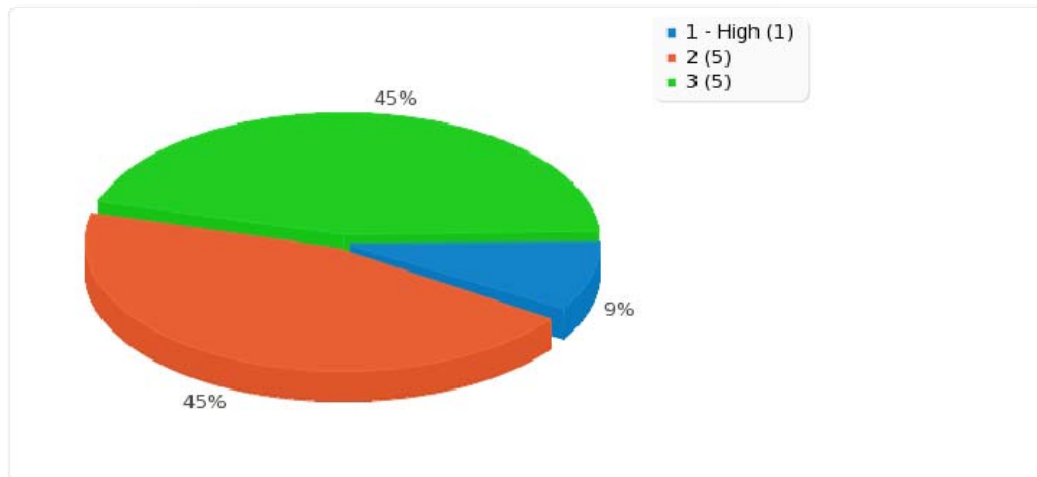


Figure 5.7. As a whole staff we have navigated new learning territory. Rate your level of competency using KnowledgeNET. (2009 Survey), Scale: 1 High – 5 Low

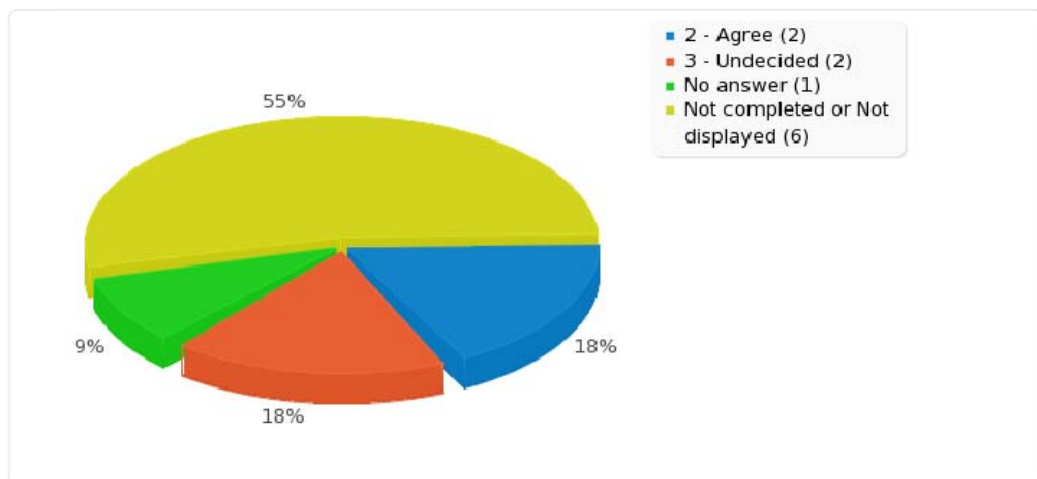


Figure 5.8. As a whole staff we have navigated new learning territory. My level of competency using KnowledgeNET is of a high standard. (2010 Survey), Scale: 1 Strongly Agree – 5 Strongly Disagree

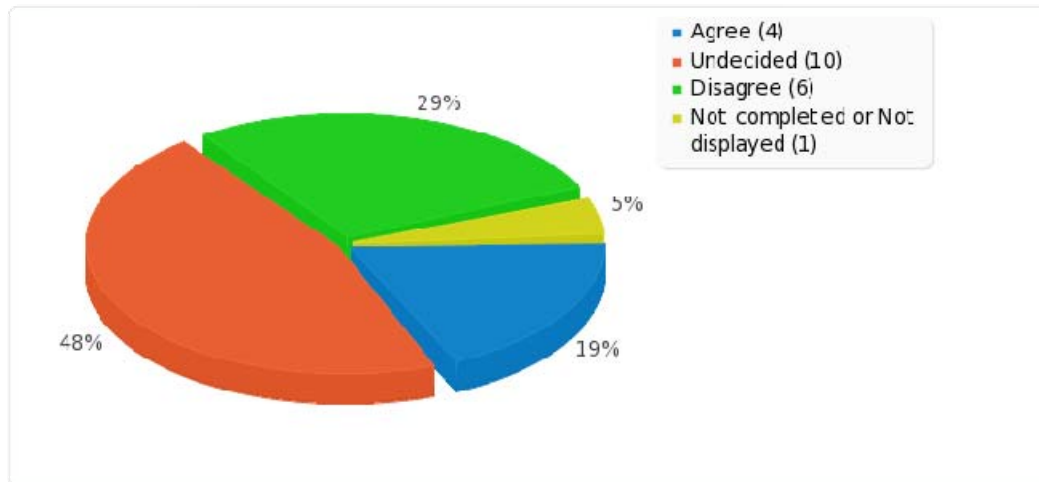


Figure 5.9. As a whole staff we have navigated new learning territory. My level of competency using KnowledgeNET is of a high standard. (2011Survey) Scale: 1 Strongly Agree – 5 Strongly Disagree

Competency in using the tool has an impact on the way one would cope with the technological changes involved with the LMS. During 2009, 2010 and 2011, the staff were required to rate their competency level of using Knowledge NET. Figure 5.7 presents the 2009 competency results and shows that 9% of teachers thought they were highly competent, 45% felt they were okay and comfortable with the tool and 45% had a neutral/ undecided response. Figure 5.8 shows that during 2010, 18% of the staff strongly agreed that their competency in using KN is high; however 82% of the staff were either undecided, had no answer to this question or their response was not complete. Figure 5.9 shows that during 2011, 19% of the staff agreed that their competency was high, 53% were undecided or did not complete their response and 29% of staff disagreed that they had a high competency result indicating that their perceived skill level was lower than average.

These results have a huge impact on other data findings. In the qualitative and quantitative data from the students and also presented in the teacher qualitative results there has been an emphasis on building experts and competency levels of participants. This is an area that could become a focus to ensure that experts and competency levels are developed and raised.

The student TROFLEI results also highlighted that teacher support was of significant importance in the learning environment and had an impact on the attitudinal outcomes of students. If the teachers' competency levels increase teachers will feel more capable of playing a supportive role with KN in the learning environment.

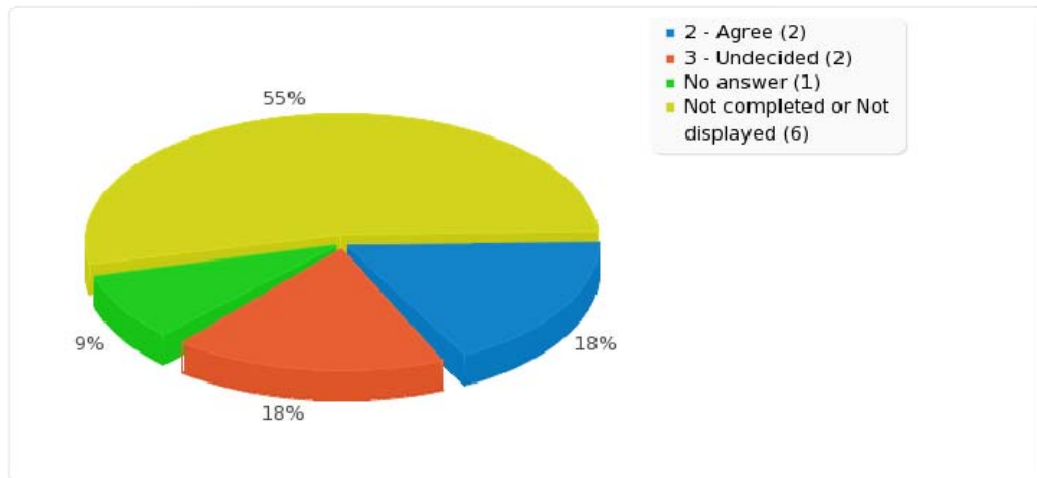


Figure 5.10. I have coped with the technological changes involved with a Learning Management System.
(2010 Survey) Scale: 1 Strongly Agree – 5 Strongly Disagree

During 2010, the survey asked a question directly relating to the research question regarding how teachers perceived they had coped with the technological changes involved with a LMS this data is presented in Figure 5.10. Eighteen percent of teachers agreed that they had coped with changes; however 82% were undecided, had no answer or an incomplete response. It is interesting to note that the 2010 data in relation to the competency levels and coping with technological changes are statistically aligned.

It is of interest to see development over the years regarding teachers' perceived competency in using KnowledgeNET. Perhaps due to more exposure to the tool some teachers may have realized what they don't know and perhaps others are feeling more comfortable with basic navigation.

5.3.2 Qualitative Results

The teacher's focus groups and survey comments addressed the technological changes involved with the LMS and how they coped with the changes. The comments were about functionality, skills, professional development and time.

5.3.2.1 Functionality

The functionality of the LMS is important when considering competency and the ease of use for the participants involved. Teachers felt that KnowledgeNET is

labored, clunky, not user friendly and frustrating. The teachers expressed these views by commenting:

The tool itself is a bit too labored. It's causing a lot of hassles for children. But I like the idea of it. – Teacher from TFG3

When you hear someone talking about it, you think 'oh, wow!' and it sounds exciting and you want to get into it. Using the tool, I do find the navigation a bit... Clunky? Maybe not friendly. – Teacher from TFG4

Like the concept but are frustrated with the functionality of the tool that we're using. –

Not sure if this is an issue for BOT?? Maybe it should support more time for professional development on this and they could possible look into why it is not so user friendly. - Teacher from 2009 Survey

Oral communication is more important. I think it is valuable, but it needs to become more user friendly. - Teacher from 2009 Survey
(The school/class environment could be adapted and improved by) making it more user-friendly for the students, teachers and parents. - Teacher from 2010 Survey

5.3.2.2 Skills

The skills required to navigate the LMS are important to consider when we are looking at the competency levels of our users and also developing experts. One teacher expressed the desire for practical support indicating the need for skill development to raise competency levels. Teachers said:

It's learning the skills first that causes the problem. Once they've got the skills they've caught onto it. It's easier – Teacher from TFG3

Absolutely. Practical, sitting with laptops, learning as we go and leaving with something achieved. – Teacher from TFG3

5.3.2.3 Professional Development (PD)

As previously noted, there is a connection between the competency levels, skill requirements, expert development and now professional development. Teachers commented on the scaffolding of professional development and the benefits and potential that this can offer:

Each time we have PD on the Learning Narrative we improve and strength our skills and develop our thinking further. Teacher from 2011 Survey

Professional development needs to be slowly scaffolded for the staff just like the scaffolding that we provide for the students rather that fast tracked as it has been in the past with a wide variety of new professional development topics - Teacher from 2009 Survey

Providing for professional development of teachers - visiting other schools using similar LMS. - Teacher from 2009 Survey

5.3.2.4 Time

Time is an interesting concept when considering the notion of change and in particular the focus of technological change as this research question indicates. Teachers feel strongly that the time involved with the LMS and in particular the roll out of the Learning Stories was concerning. The student data highlighted that time is an important consideration and the TROFLEI data results showed that computer use (time on the computers) was of significance in the learning environment and was directly related to their attitudinal outcomes. Teachers also identified the dimension of time and supported these findings through stating:

It's learning the skills or processes of how to upload your files...That's the time consuming part. – Teacher from TFG3

Obviously with this experience behind us we will be a lot more efficient. - Teacher from 2009 Survey

Time problems with ICT caused bad vibes in the staffroom. People in management might have forgotten how long it takes for the children to do this type of thinking effectively. - Teacher from 2010 Survey

Less time pressured, so maybe not specific date to have everything ready, but a sample of work a term from the core subjects. - Teacher from 2010 Survey

To date e-portfolios have been time consuming to establish. - Teacher from 2011 Survey

We've got to get into the habit of using it haven't we? Until we get into that and we're not familiar with everything that's on it so it's not the first place we go to. So it's a time thing as well isn't it? – Teacher from TFG2

It's time isn't it? It's time to play, for lack of a better word. It's time to fiddle around and make mistakes and I suppose children at home have that, rather than children at school. - Teacher from TFG1

It seems difficult to get back sometimes. It is a matter of 'having a go' and 'learning from mistakes' - Teacher from 2009 Survey

Still to see full value to parents when weighed up against time/effort on part of staff to implement online learning stories - Teacher Comment from 2011 Survey

It is also important to note that teachers commented about building experts and it takes time to establish the structures and contact time with people. Building up the competency and skills of participants may be considered to be time consuming but it is important for the learning environment.

5.4 CHANGE OF EXISTING PROCESSES

5.4.1 Quantitative Results

5.4.1.1 Key processes

The theme for each of the process questions in Figures 5.11 to 5.18 was: The following processes used for teaching and learning have changed positively as a result of implementing KnowledgeNET (our Learning Management System).

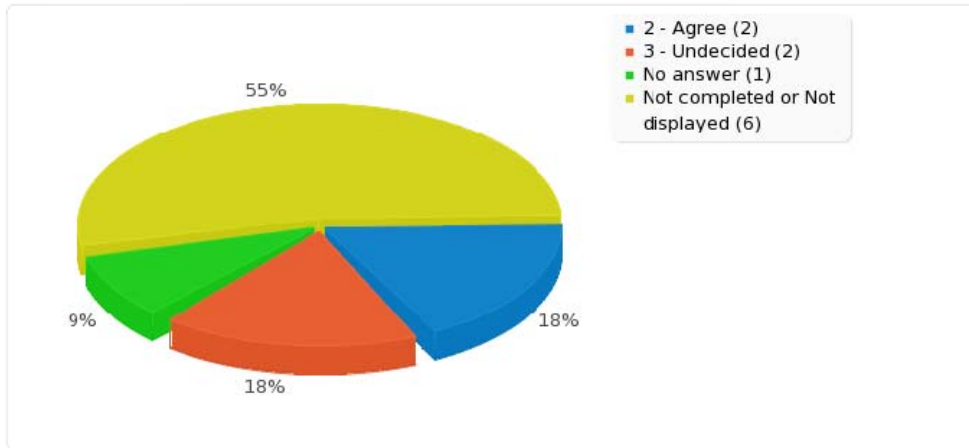


Figure 5.11. [Reporting]
(2010 Survey)

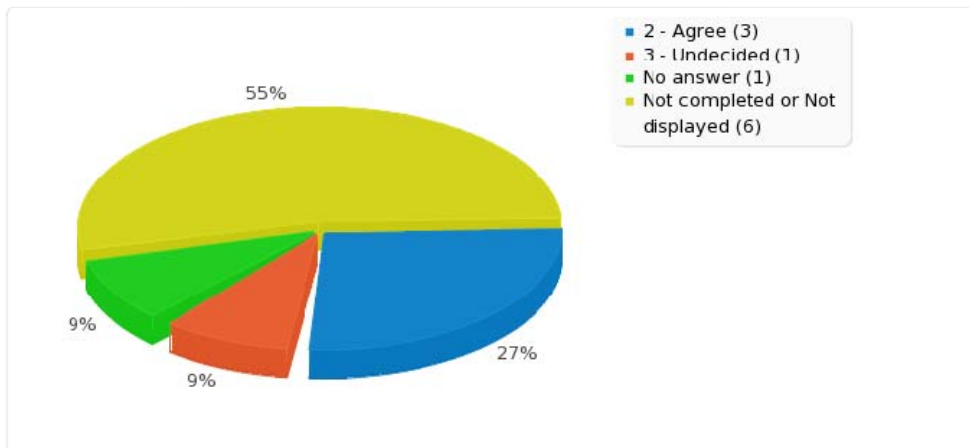


Figure 5.12. [E-portfolios]
(2010 Survey)

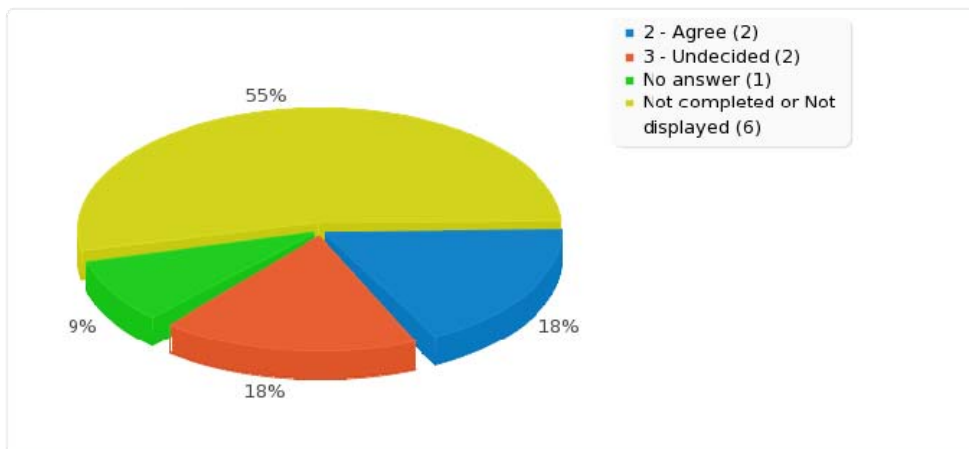


Figure 5.13. [Accessibility to resources and activities]
(2010 Survey)

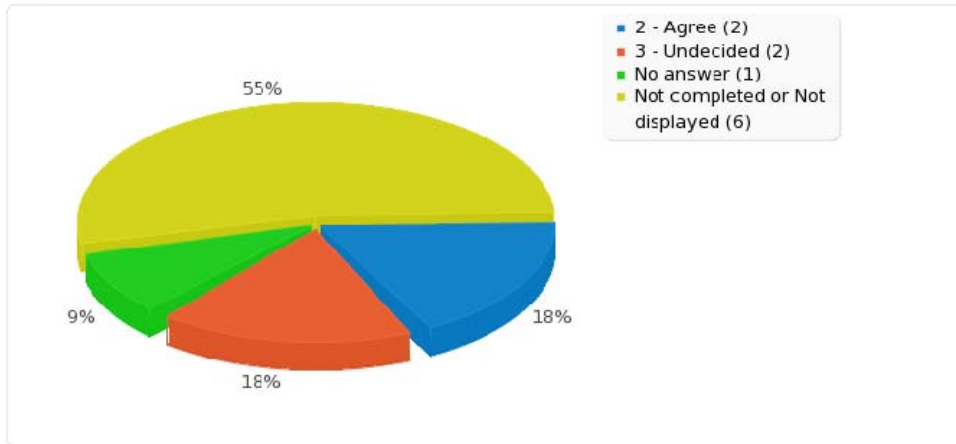


Figure 5.14. [Audience]
(2010 survey)

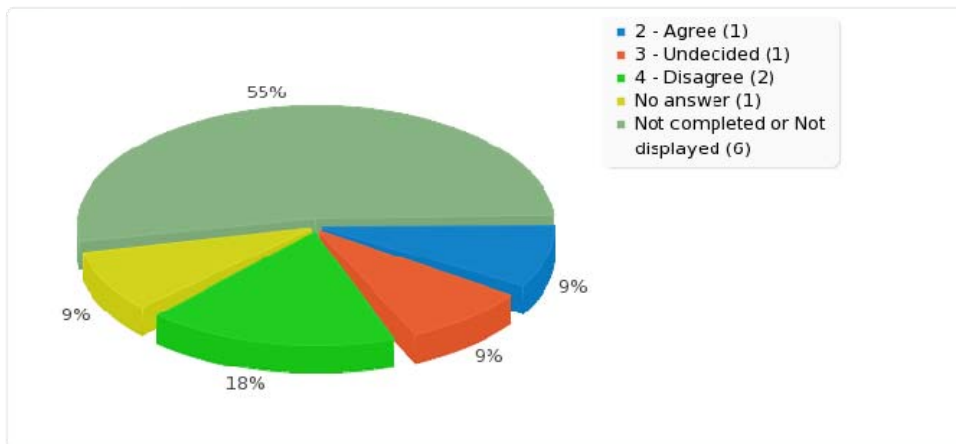


Figure 5.15. Engagement
(2010 survey)

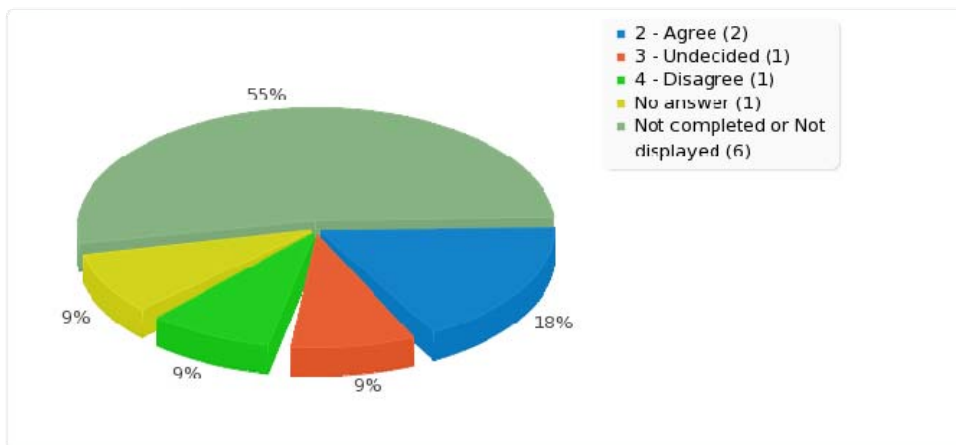


Figure 5.16. [Communication]
(2010 Survey)

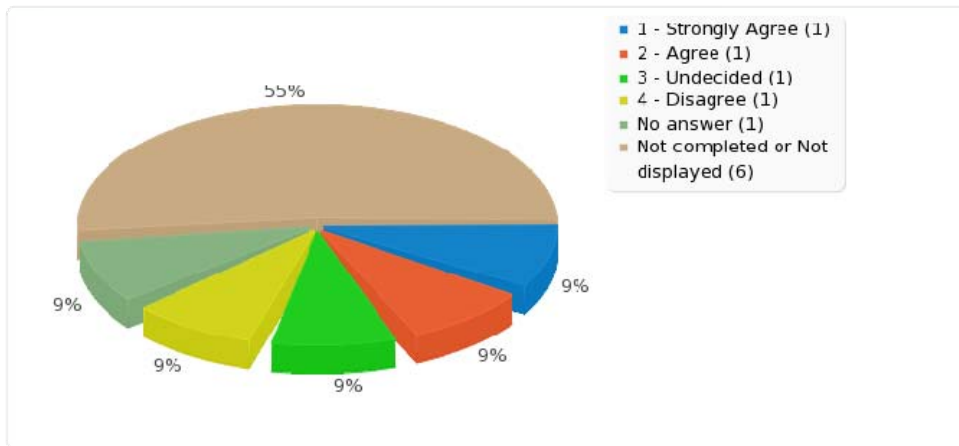


Figure 5.17. [Feedback opportunities] (2010 survey)

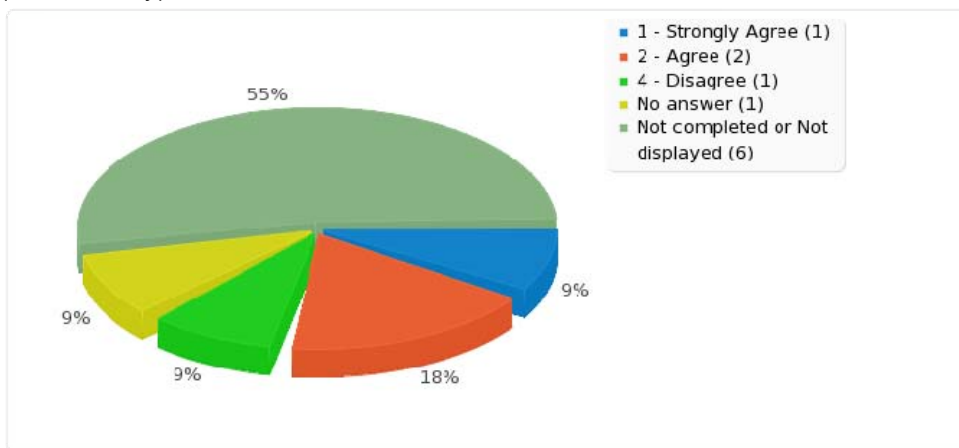


Figure 5.18. [Student reflection] (2010 survey)

Key processes were identified and teachers were asked if they agreed that the processes had changed positively as a result of implementing KnowledgeNET. The processes included reporting, e-portfolios, audience, accessibility to resources and activities, engagement, communication, feedback opportunities and student reflection. For these items, the scale ranged from 1, strongly agree to 5, strongly disagree. It is also reported that if there was no answer, an incomplete response or if the teacher was undecided.

For these findings the positive and negative scales will be reported (agree/disagree). Eighteen percent of teachers agreed that the processes of reporting (see Figure 5.11), audience (see Figure 5.14); and accessibility to resources and activities (see Figure 5.13) had a positive change. Twenty-seven percent of teachers felt that e-portfolio processes had a positive change (see Figure 5.12). The findings for these processes did not report that any teachers disagreed or felt that there was a

negative result. Figure 5.15 shows that 9% of teachers agreed that the engagement of students was positive, however 18% of teachers felt that the engagement of children had a negative impact as a result of implementing KN. This is the only process where there were more teachers who felt there was a negative impact than a positive result. There were 18% of teachers who felt that the change in feedback opportunities was positive and 9% who disagreed (see Figure 5.16). Twenty-seven percent of teachers felt that student self-reflection had changed positively with 9% of teaching staff expressing that they disagreed that there was a positive outcome (see Figure 5.18).

These findings and the percentage of responses that were not completed, had no response or were undecided, indicate that it is important for teachers to see the value in the LMS as perceived by the students and the other outcomes that it has on student learning. Professional development and support is perhaps one way of enhancing and shifting the teachers' perceptions especially if it is directly related to the School Learning Vision.

5.4.1.2 Assessment Capabilities

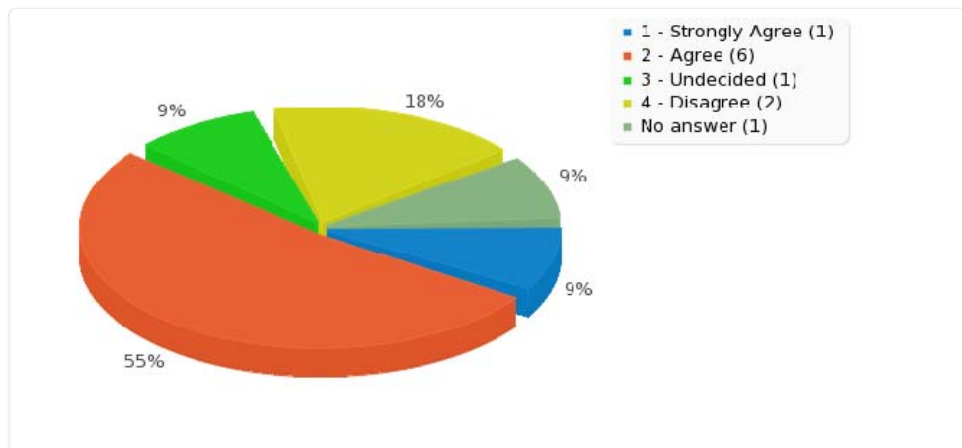


Figure 5.19. My students were able to participate as fully in assessment as in learning. (2010 survey)

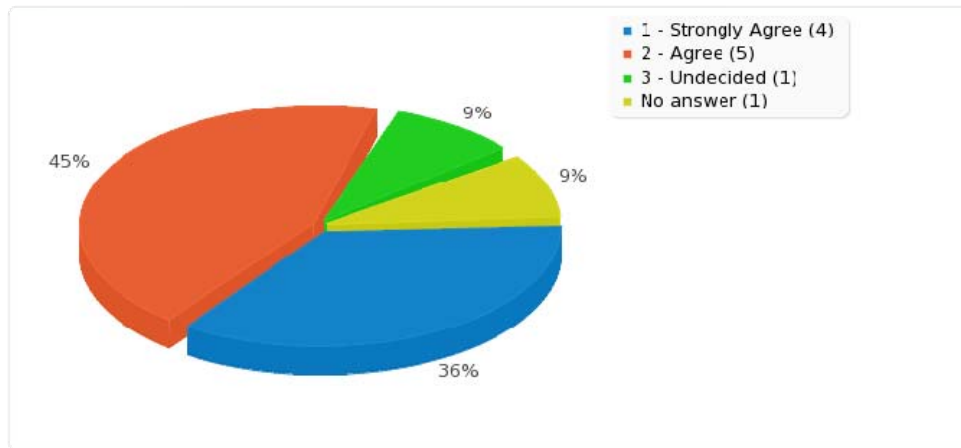


Figure 5.20. A Learning Story /e-portfolio enables students to access, interpret and use quality info to support their assessment and learning. (2010 survey)

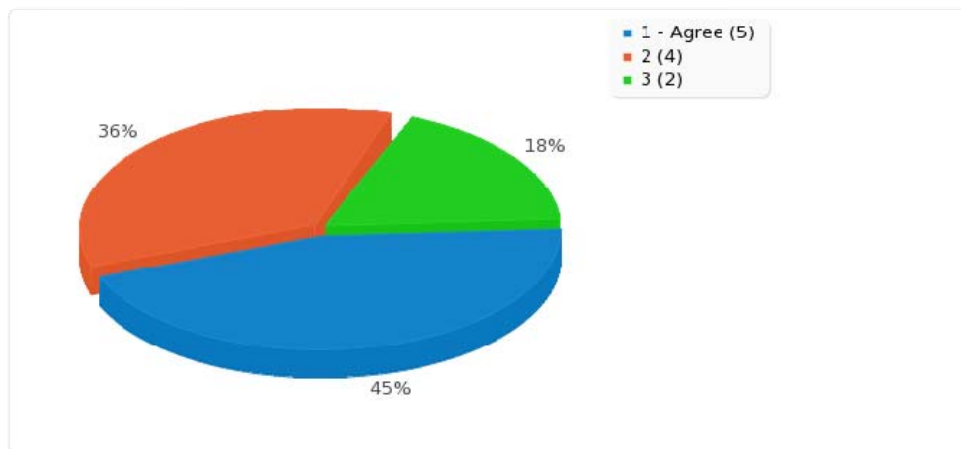


Figure 5.21. Do you think that the writing sample met the need for student self-reflection and involvement in their own learning? (2009 survey)

As the school learning vision is to develop assessment capable students the following results report the impact that the LMS has in relation to this vision. 64% of teachers agreed that students were able to participate as fully in assessment as in learning, 18% disagreed (see Figure 5.19). Eighty-one percent agreed that learning stories and e-portfolio enables students to access, interpret and use quality info to support their assessment and learning (see Figure 5.20). Eighty-one percent of teachers agreed that the learning stories met the needs for student self-reflection and involvement in their learning (see Figure 5.21). These results show that there has been a positive change of existing processes since the implementation of a LMS.

5.4.2 Qualitative Results

The teacher focus groups supported the idea that existing processes had changed with comments about ownership, student voice, reflection, language, and paper technology.

5.4.2.1 Ownership

Teachers felt that developing ownership could be achieved by letting the children have more say, letting go, making mistakes, articulating their goals and their thinking. Through developing ownership some teachers identified that students would be more engaged and responsible for their learning. Teachers explained:

It's a tool to put across. Today's a perfect example of great learning even though as a teacher I really felt like I'd failed. But the children probably got a heap out of today by making a mistake and finding the answer. -Teacher from TFG1

You've got to put faith in them (the students)– Teacher from TFG4

It's about letting go and letting the children have more say.

(I agree that the impact of using an e-portfolio will change teaching and learning to improve learning outcomes)...In that the students will need to clearly know where they are going and what they are learning. They will need to articulate their goals and thinking. - Teacher from 2011 Survey

Back to the learning environment with our progressions and our goal setting and I guess because of that now the children can hopefully say 'I've achieved that goal. How about I go and load my story up now?' or 'How can I show that I've achieved this goal?' In the learning environments, if the progressions and all that are working, the children can take responsibility and go on and say 'I need to go and put that on my homepage because that's an achievement for me'. As and when it happens. or at the same time because it's more manageable. - Teacher from TFG3

As long as teachers and children alike take ownership of their portfolio it should make a difference and engage both teacher and learner. - Teacher from 2011 Survey

Using the e-portfolio shifts the ownership of learning more towards the student. As research suggests this is where we should be moving in our everyday practice. - Teacher from 2011 Survey

I'm growing really positive because the kids are taking more ownership, more responsibility of KnowledgeNET, and becoming more powerful and more sharing. – Teacher from TFG4

5.4.2.2 Student voice

Student voice is also identified by the teachers as a key process that has changed since the implementation of a LMS. Students also recognized this as reported in Chapter 4. Comments that supported these findings were:

And it's their own voice too. It's them talking. It's not the teacher saying it. It's actually from the child and if it is from them then they've learnt something. And I think that's quite precious really. Because if they can communicate they obviously understand what's being asked of them. - Teacher from TFG1

The writing sample allowed for the student voice to be heard. - Teacher from 2009 Survey

Well, it certainly gives the students a voice doesn't it? -Teacher from Teacher Focus Group 1 (TFG1)

5.4.2.3 Reflection

Another way of incorporating student voice is through the process of reflection. Students, parents and teachers all identified that the process of reflection had changed. Teachers felt that the reflections were more dynamic, sincere, honest and powerful, they also said that the reflections showed process, articulation of the students' thinking and helped with assessment capabilities:

Yeah I like the reflection part because it's more dynamic than the static thing. – Teacher from TFG3

In terms of the learning environment, because of the reflection, it's helping with the assessment and it's really pushing that through our school which is good. – Teacher from TFG3

I think the level of sincerity is also identified in an oral response rather than a written one where you can often get a copy of the person next door! – Teacher from TFG2

I think using the Jing was lovely. You could capture straightaway their honesty, especially with the little ones– Teacher from TFG2

I guess the reflection is the only way to show the process because it's the only way you can really hear their thinking. They can articulate their thinking. Sometimes they can draw that process I guess but there's nothing like the student's voice. When you hear them...it is very powerful- Teacher from TFG3

The learning was captured and it was so nice to hear that.

Using e-portfolios will give our assessment capable students another means of sharing and reflecting on their learning. - Teacher from 2011 Survey

5.4.2.4 Language

As discussed in Chapter 3 the importance of a shared language for learners to discuss and be involved in the learning journey is important. The teachers felt that the LMS exposed the parents to the dialogue and language of learning; they felt that it allowed parents to discuss the learning at home and to see what is happening in the classroom. Teachers described how:

It allows for discussion with parents during home viewing. - Teacher from 2009 Survey

I think they did show the parents to the parents though some of what's happening in the classroom. Like the language that we spoke, the dialogue we would have. Or if we were individually conferencing. That side really showed them that process. – Teacher from TFG 3

It's exposing parents to the language in the classroom and I think it's taking them closer to the learning that's happening in the classroom. – Teacher from TFG4

I think we're speaking the children's language when we put it onto the web or on the computer. It hooks them in - Teacher from TFG1

5.4.2.5 Paper Technology

The change from paper technology to a web-based environment is a huge paradigm shift. Teachers had mixed feelings about this shift. Some teachers realized the potential of the web environment in capturing the audio reflections. Other teachers felt that the workbooks were adequate to share the learning process. Teachers said:

I made the mistake of too much written reflection which students did not enjoy. Easier to capture via voice thread or video, but requires release time out of the classroom. - Teacher from 2010 Survey

We had evidence, and we went to all the trouble of putting it on KnowledgeNet where it would have been quicker and more effective to have sent it straight home. The way we did it was quite incorrect. It should have been captured on a video or a Jing – the paper thing is what we're trying to move away from. – Teacher from TFG2

So what you're alluding to is that we didn't use the web technologies and their potential against paper technology because there's no point in using a web environment to do something paper technology can do.

They could utilise the information in their workbooks as well to do this (access, interpret and use quality info to support their assessment and learning.) - Teacher from 2010 Survey

It does not have to be online for the student to be actively involved in his /her learning journey. - Teacher from 2010 survey

5.5 ADAPTED AND IMPROVED LEARNING ENVIRONMENT

5.5.1 Quantitative Results

5.5.1.1 Further professional development

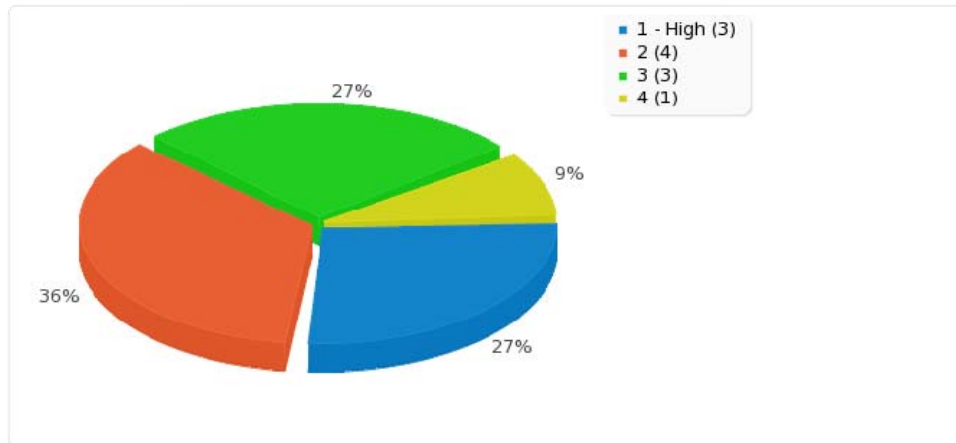


Figure 5.22. How important is further Professional Development necessary to build your understanding of the value of Learning Narratives/Stories as a key element in the Teaching/Learning/Assessment cycle? (2009 survey)

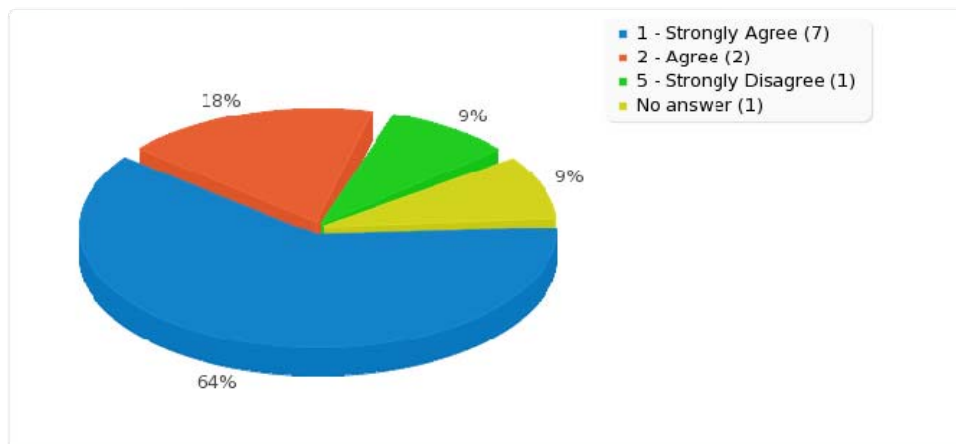


Figure 5.23. Further Professional Learning and Development is necessary to build my understanding of the value of Learning Narratives/Stories as a key element in the Teaching, Learning and Assessment capabilities/cycle. (2010 survey)

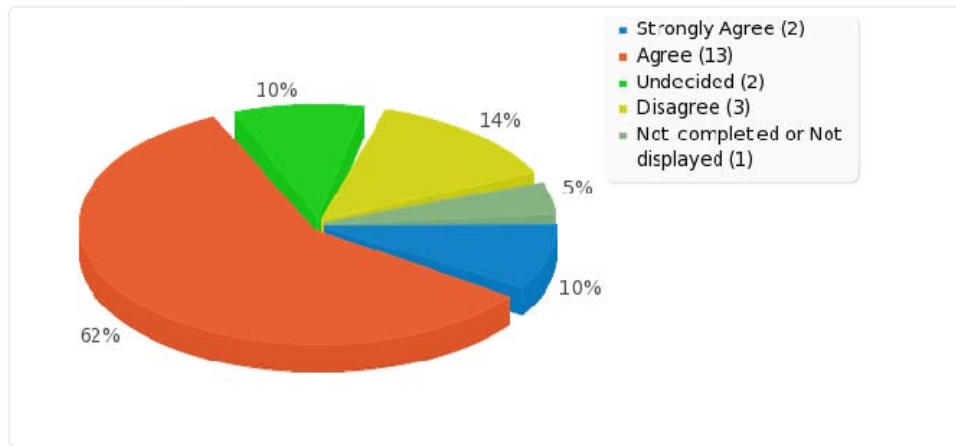


Figure 5.24. Further Professional Learning and Development is necessary to build my understanding of the value of Learning Narratives/Stories as a key element in the Teaching, Learning and Assessment capabilities/cycle. (2011 survey)

During 2009, 2010 and 2011, data were collected about the importance and necessity of professional development in building the understanding of the LMS and in particular the learning stories which were being implemented at the time. In 2009 the results showed that 63% of teachers felt it was important to receive further professional development (see Figure 5.22), 82% agreed that further professional development was necessary during 2010 (see Figure 5.23) and during 2011 72% of staff were in favour of further professional development (see Figure 5.24).

Over the three years there have been professional development opportunities for staff focusing on learning stories, skill competency and pedagogy. The majority of staff believes there is still a need for further professional development and this could be influenced by the ever-changing landscape of e learning pedagogies, continual program developments and the competency of staff learning new skills and through their learning becoming increasingly aware of what they do not know.

5.5.1.2 Improved learning outcomes

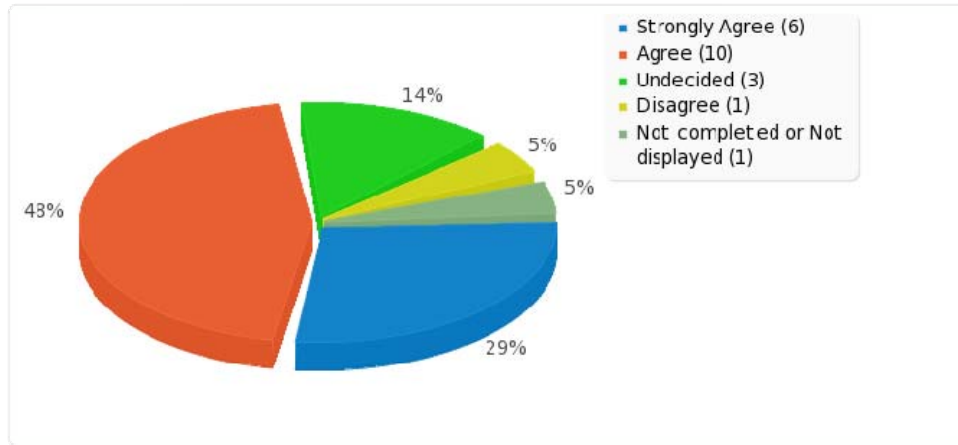


Figure 5.25. I agree that the impact of using an e-portfolio will change teaching and learning to improve learning outcomes. (2011 survey)

Teachers were asked about their perceptions of using an e-portfolio and whether it will change teaching and learning to improve student outcomes. The results show that 77% of the teachers agreed and only 5% disagreed (see Figure 5.25).

5.5.1.3 Teacher portfolio

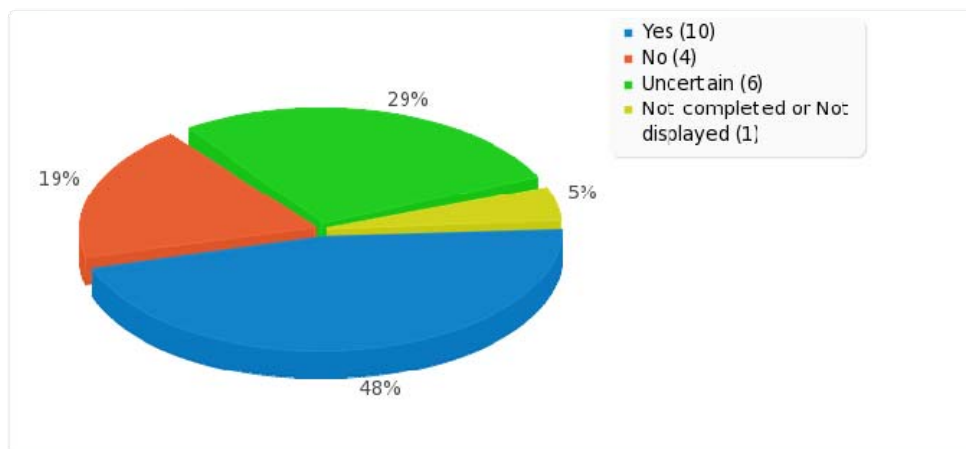


Figure 5.26. Should your school expect the teachers to have a reflective e-portfolio just as the students do? (2011 survey)

It is interesting to note that 48% of teachers felt that the school should expect teachers to have a reflective portfolio similar to the students; only 19% disagreed with this expectation (see Figure 5.26).

5.5.2 Qualitative Results

Qualitative data were gathered from the teachers during focus group interviews and also through the use of optional comments in the surveys. These data provided the results on how the learning environment could be adapted and improved to achieve both the high quality student outcomes and equal opportunities for all learners to be involved in a LMS. Teachers' comments related to every day practice, questioning, equity, awareness, experts and support.

5.5.2.1 Every day practice

Teachers recognized that in order for the LMS to improve student learning outcomes and provide equal opportunities for all learners that the LMS would need to become a part of every-day classroom practice. Some teachers recognized that they needed to persevere with the tool and that it was about redesigning classroom programs. It was also identified that through making the LMS a part of every-day practice it would become more meaningful; some teachers wanted further professional development focusing on how to incorporate KN as a part of their class program so they were building onto their knowledge so that it was becoming more of a natural process in the learning environment. Teachers indicated this by saying:

I know what I've done in the past – when I hit the first hitch I say 'right, I'm not doing it anymore.' And then the idea that we had to get them loaded in the week - I realised that we've just got to keep going even though it's not that easy. -Teacher from TFG1

And that's the thing that would keep me going; I knew that what they were learning they were going to use again, it wasn't a 'one-off'. And then I realised that that makes it more meaningful for you and the children...especially for the children. - Teacher from TFG1

You've got to keep doing it every day. It's not a one off thing. That's how I feel. And it's generally good, but it's time. – Teacher from TFG4

As a Lead learner, I can recognise in reflection that further PLD around Learning Stories to show the 'Process' of learning and passing this 'process over to students/teachers to be incorporated as part of everyday classroom practice is very necessary. - Teacher from 2011 Survey

I think we need further professional development in terms of the practicalities and how we make learning stories part of our everyday practice. - Teacher Comment from 2011 Survey

So it's about redesigning our classroom program so that we're integrating things a little bit better. So when you're reading and writing, there are people who can always go on a computer with their buddy and show them something related to their learning, whatever it may be. - Teacher from TFG1

I think we need to keep using it. If we don't use it we lose it. If we leave it and come back, it'll be 'Oh, I've forgotten again.' So it's always back to the start instead of building on. – Teacher from TFG3

As a teacher we have to be doing it every day, asking the same questions, talk about it. Lots of reflection, lots of hearing people's opinions. Practice it every day until it becomes natural. Using the right words, the right language and respecting other people's opinion, respecting people's goals and encouraging it. We all have different goals. – Teacher from TFG4

5.5.2.2 Questioning

As a part of previous professional development the process of explicit teaching and the powerful use of questioning had been a focus within the school. Teachers related this to the LMS learning environment and perhaps rather than an adaptation or improvement to be made they recognized the need for continuing this effective teaching process and practice. Teachers stated:

I think the children need to understand what they're aiming for and what the success criteria are so that the questions mean more to them. – Teacher from TFG4

They have to be really focused and guided as to what sorts of things are either possible or either sensible for that type of question. - Teacher from TFG3

The way you question. The way you set them up. If they're assessment capable they know their goals and they talk to those goals. Which means they're scaffolded a little bit. I mean, last year, I had the questions and the answers. I was learning as it was going on. And then I just spoke to them. And those interviews that I had with them – the spoken ones – were much better than the reading or the question on top. I feel that's more valuable than the- Teacher from TFG3

5.5.2.3 Equity

In order to improve or adapt the learning environment to provide equal opportunities and high quality student outcomes teachers commented about equity and the need for children to have this concept. The student results show that the students are aware of equity and the need for it in classroom programs. Teachers also recognised the value in every child having a learning story and in the school choosing not to use a pilot group of students, classes or teachers. The concept of equity and access was raised by teachers and evidence of these thoughts included:

Equity really... that they've got the concept of equity. - Teacher from TFG1

Equal opportunity as well, our children with special needs often have a teacher aid with them. Teacher aids would need to be up to speed as well. Teacher from TFG3

Equity and more so that, as you know, some kids are way ahead with KnowledgeNet and the content and things...what has been really great is that every child has a Learning Story - Teacher from TFG1

We've got quite a huge range...so the question is around access and equity. - Teacher survey

5.5.2.4 Awareness

Teachers commented that an awareness of children from the teacher and student perspective is important in the classroom learning environment. They said:

I guess in a classroom situation, it's just being aware of those children

Making the children themselves aware that some of them are more expert than others and sharing what they know - giving them opportunities in the classroom to actually buddy up and make sure an expert buddies up with someone who's not.. - Teacher from TFG1

Obviously we've got children who'd jump at a computer any chance they'd get...an awareness of those children who would often stand back. So it's about getting that sharing time. - Teacher from TFG1

5.5.2.5 Experts

The concept of developing experts is an obvious way that the learning environment can be adapted and improved in order to achieve both high quality student outcomes and provide equal opportunities for all learners. However, although it is an obvious concept it is of importance, especially as teachers and students have both identified this need and potential opportunity. Teachers felt that both teacher and student experts should be developed in order to support others especially with technical issues. Teachers' comments provided examples of this:

And I would like to see KnowledgeNet made even more creative because I just find it very...the kids want to do more. They do wonderful web tools stuff but some won't work on KnowledgeNet to upload on and share. Sometimes they make wonderful things but when it comes to upload it, it's not compatible and it's just finding what is. It's just technique stuff. I am not at that stage where I have the technique to solve the problem. That's my opinion. Just having an expert there to show why it's not working. – Teacher from TFG4

I believe in building experts– Teacher from TFG2

Building experts. – Teachers and students, so that we know there's a group of people who really know— Teacher from TFG2

Upskill more people who can support others. Maybe one or two people from each syndicate who can be the 'go to' person for rest of the syndicate. - Teacher from 2010 Survey

(The school/class environment could be adapted and improved by) older students helping younger students upload onto knowledge net so the younger children feel a sense of ownership. This would also encourage parents to view it more often. - Teacher from 2010 Survey

An amazing link between the classroom and home. Totally brilliant but the implementation of it...it's just understanding it and getting used to how to do it and how to do it quicker and faster and to almost having a guru, a go to person. Sometimes things can seem a bit big on top of the workload. – Teacher from TFG2

'guide-on-the-side' and actually having some children and adults who can support the staff and the students through this whole process

Also the technical issues. If the thing's not working...– someone to go to and we have to have reliable hardware in order for this to be smooth. Teacher from TFG3

I'm a bit scared of it...or I was...I still am a wee bit. That's really great; that I've learnt alongside. And now after a week of the children learning how to do them I've got four or five experts and now they're going out helping others. I didn't foresee that happening so fast. It is happening rapidly and that just shows you how quickly the children pick up on it.-Teacher from TFG1

But that's where the tech-savvy kids can assist the teacher. Because if they've forgotten a step or two, the child might remember and say 'Okay, we forgot that step so we have to do that.' So hand in hand would be good because they will pick it up easier than we will basically. – Teacher from TFG3

I think if we could use the skills, particularly with the senior students more, it would be good. Because it's benefitting them as well. It's solidifying their learning and they're feeling like teachers and they've got things to share. And I think the junior students probably respond quite well to having seniors

coming in. But again it's all about time and managing that. – Teacher from TFG4

5.5.2.6 Support

An additional aspect of developing experts is having the support of others and the time available or allocated for the supportive roles to take place. The idea of budgeting for the development of school-wide concepts and support personnel to be able to create pathways and problem solve for the teachers is essential. Some staff felt there was a need to create more of a focus around KnowledgeNET in order to generate the support that the teachers need. Teachers gave insight in their views expressed as:

Money for templates/concepts to be designed that the whole school can benefit from. - Teacher from 2009 Survey

Providing support time for staff. Allocated time for developments and ideas to be achieved. - Teacher from 2009 Survey

The idea (learning stories) was sound and interesting but the implementing was harder than expected. - Teacher from 2010 Survey

(Management could support in) Ways to get the students involved in uploading and deciding what pieces of work should go onto knowledge net. - Teacher from 2010 Survey

(Management could support in) Ensuring the staff know what things look like well in advance. - Teacher from 2010 Survey

(Management could support) To give adequate time and resource personnel to assist with the inputting of the data. - Teacher from 2010 Survey

(The school/class environment could be adapted and improved by) giving more adult support in the classroom to guide the students through the process. - Teacher from 2010 Survey

There's a need for us to still be scaffolded at this early stage, not just to let us go. I don't know if we're at that stage that we can...I think we still need the

support. Well, I still require the support. Also, because it is a tool that the parents are seeing and you want the children's voices to be good for it to sound good because it's being published 'out there', you still want that good quality. – Teacher from TFG4

I would build a little more commitment around KnowledgeNet by, say, a management unit put into it or something like that. Because I think it's a great tool and when we went to Beach School we saw it being used really, really well to support the teachers– Teacher from TFG4

Not just thinking about using it as a publishing tool but as a tool that supports the community of teachers and what they were doing was releasing teachers to go in and work there and they were creating pathways and problem solving and just sending it back to the teachers and it was so easy to teach because they were so well supported. If that's the way we're going to go, if we're going to go with KnowledgeNet and run with it, I don't know why we don't have a bigger focus around it. – Teacher from TFG4

5.6 SUMMARY

This chapter presents the quantitative and qualitative results from the teachers' perspective. Teachers gave their perceptions on whether they think the school community is ready for the change associated with the LMS and a web-based learning environment and if the LMS provided improved learning outcomes and connected the parents in the learning journey. The results and findings also showed that teachers' perceptions were that the LMS was an add-on and created an additional workload. Teachers perceived that the buy-in of parents, students and teachers was important and they could also see the potential value in the LMS.

The teachers gave insight on how they coped with the technological changes and their competency in using the LMS. There were high percentages of teachers who did not complete the question, had no response or were undecided in relation to their competency. Teachers also explained that the functionality, skills, professional development and time also had an impact on the way they coped with the technological changes involved with a LMS.

The change of key existing processes such as reporting, e-Portfolios, audience, accessibility to resources and activities, engagement, communication, feedback opportunities and student reflection were all identified and analysed. There were a higher percentage of teachers that agreed that these processes had a positive effect as a result of the LMS than teachers who disagreed on seven of the eight processes. Other processes that were identified by the teachers were around assessment capabilities, ownership, student voice, reflection, language and paper technology. Suggestions for improving and adapting the learning environment as perceived by the teachers were around further professional development with a range of 63% - 82% from 2009 to 2011.

The staff identified the need for further professional development to build their understanding of the assessment and learning story process and make an impact on learning outcomes. Teachers also were in favour of developing a teacher portfolio. Qualitative data suggested that the teachers felt the need to make sure the LMS was a part of every-day practice, questioning was of importance, and that equity and awareness of students was important to provide equal opportunities for all learners and achieve high quality student outcomes. Developing student and teacher experts and providing support for teachers was also significant as perceived by the teachers.

This chapter has presented the qualitative and quantitative results from the teachers' perspective, the next chapter presents the quantitative and qualitative results and perceptions of the parents categorised to answer the research questions pertaining to the parents.

CHAPTER 6

RESULTS FROM PARENTS

6.1 INTRODUCTION

The methodology chapter described how the parent data were gathered through the use of surveys and focus groups similarly to that of the teachers. This chapter presents qualitative and quantitative data as perceived by the parents. Table 6.1 shows the surveys that had been administered to parents between 2009 and 2011. Relevant results from each of these surveys are presented. The response rate for each survey has also been calculated as this could have an impact on the validity of the results that are presented, further explanation for the response rate is discussed in the Limitations section in the final chapter. Survey results are presented as quantitative data and survey comments and the focus groups contributed to the qualitative data which highlight the parental perceptions.

Table 6.1

Parent Surveys and Submission Results from 2009 - 2011

Year	Target group	Name of Survey	No. of responses	Response rate
2009	Parents	The New Role of ICT in St Mary's Catholic School (ID 39974) Appendix I	149	60%
2009	Parents	Knowledge Net Survey (ID 63787) Appendix K	33	13%
2010	Parents	Learning Stories Parent Survey 2010 (ID 59256) Appendix M	15	6%
2011	Parents	Knowledge NET Questionnaire May 2011 Appendix O	44	18%

There were four focus groups consisting of three to five parents each organised for the interviews. The results as presented provide evidence and findings for the first, third, fifth and sixth research questions in this thesis. As for the teachers, the results are present under the four headings Perceptions, Technological Changes, Change of Existing Processes and Adapted and Improved Learning Environment. These headings have been identified as themes to enable the following research questions to be answered.

1. What are parents', teachers' and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?
3. How do parents cope with the changes regarding processes in relation to communication received through the LMS?
5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?
6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

6.2 PERCEPTIONS

6.2.1 Quantitative Data

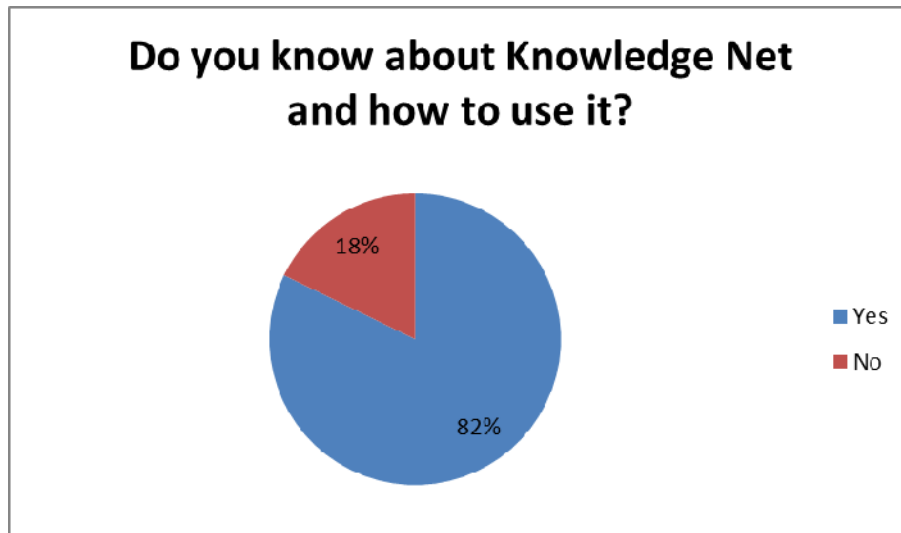


Figure 6.1. KnowledgeNET use. (2011)

Knowledge NET had been implemented and used withing the school since 2006, however, during 2010 a parent portal was officially launched which gave parents their own username and password. Figure 6.1 shows that during 2011, 82% of parents knew about KnowledgeNET and how to use it. This information is valuable in interpreting further results on the parental perceptions of the learning environment.

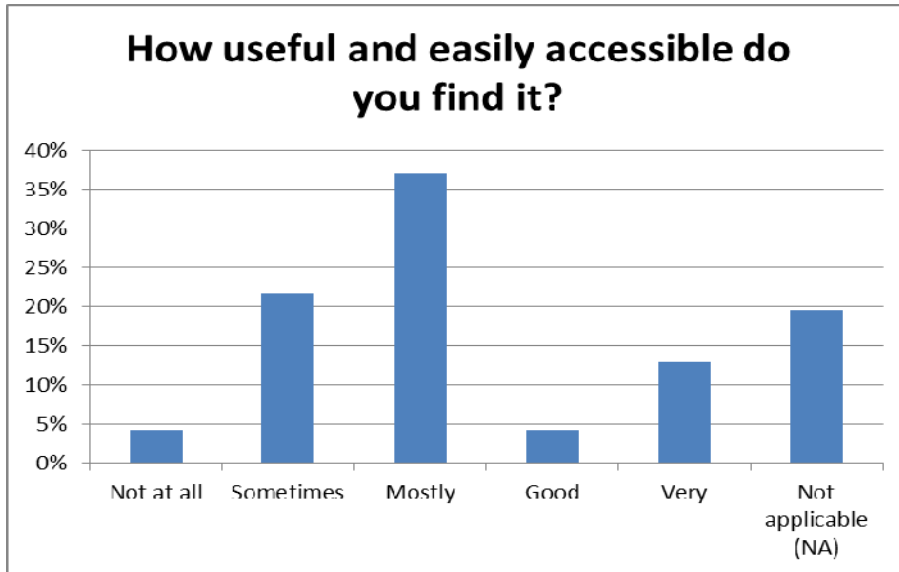


Figure 6.2. Useful and easy access. (2011)

The parents' perception as presented in Figure 6.2 shows that the majority of parents mostly find KN useful and easy to access. The other results are varied, around 22% of parents find that it is sometimes useful and easily accessible, 4% not at all, 19% thought this question was not applicable, 4% found it was good and 13% found it very useful and easily accessible.

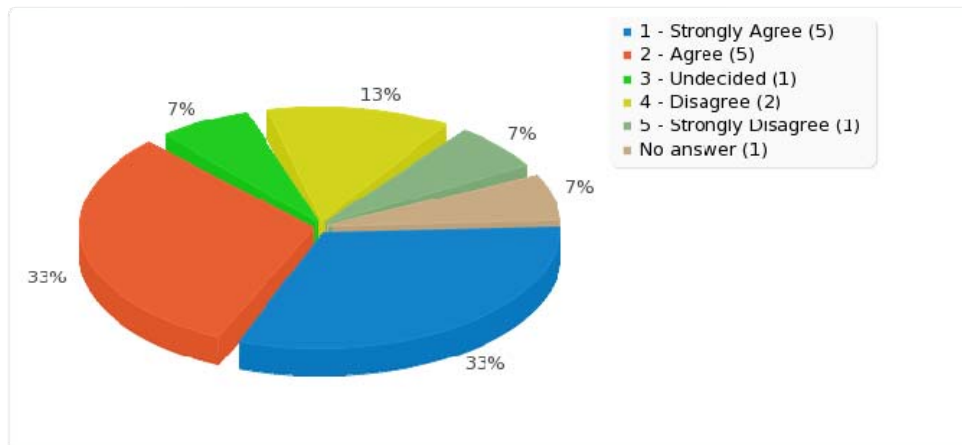


Figure 6.3. Overall, I am in favour of the shift towards on-line student reporting (eportfolios) as a part of the reporting process. (2010)

During 2010 learning stories were rolled out for each of the core curriculum areas and met the requirements for National Standard Interim reporting to parents. It is

interesting to see that in 2010, 66% of parents were in favour of the shift towards online student reporting. However, 20% of parents disagreed with the online reporting process (see Figure 6.3).

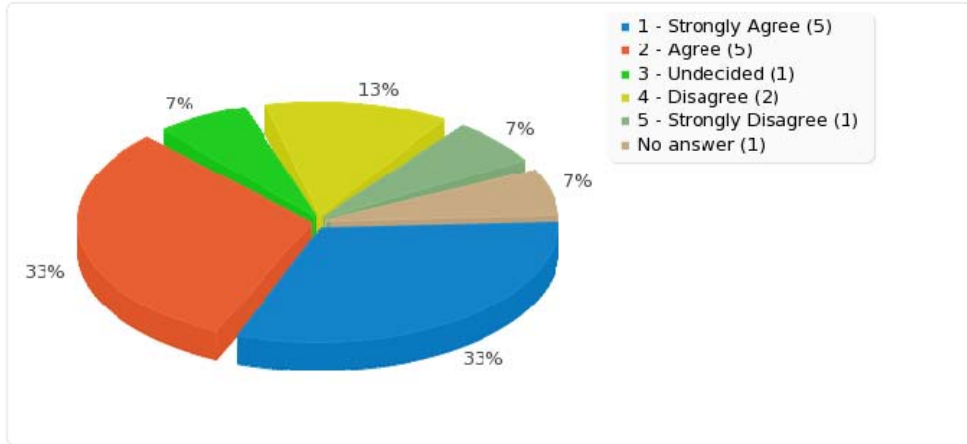


Figure 6.4. Overall, I am in favour of the shift towards on-line communication with parents/caregivers. (2010)

Figure 6.4 presents the parent perceptions regarding the shift towards online communication with parents/caregivers, 66% of parents are in favour of the shift while 20% of parents disagree with the shift. These statistics are perfectly aligned to those presented previously regarding the shift to online reporting. It could be assumed that these statistics represent the perceptions of online processes in general, not specifically reporting and communication.

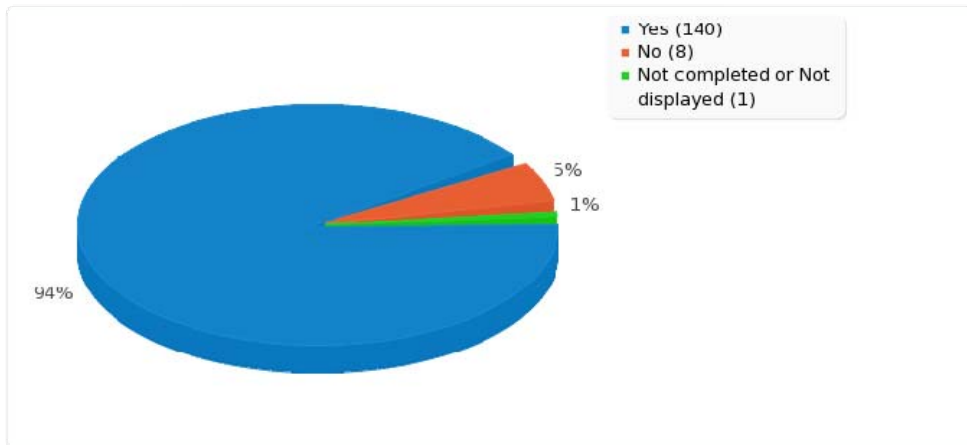


Figure 6.5. I believe that access to computers at home has a positive effect on learning. (2009b)

Figure 6.5 presents the perception of parents and their belief that access to computers at home has a positive effect on learning. Chapter 4 presents some results regarding computer use and the association with cognitive outcomes. Ninety-four percent of parents agree and only 5% disagree that computers have a positive effect on learning.

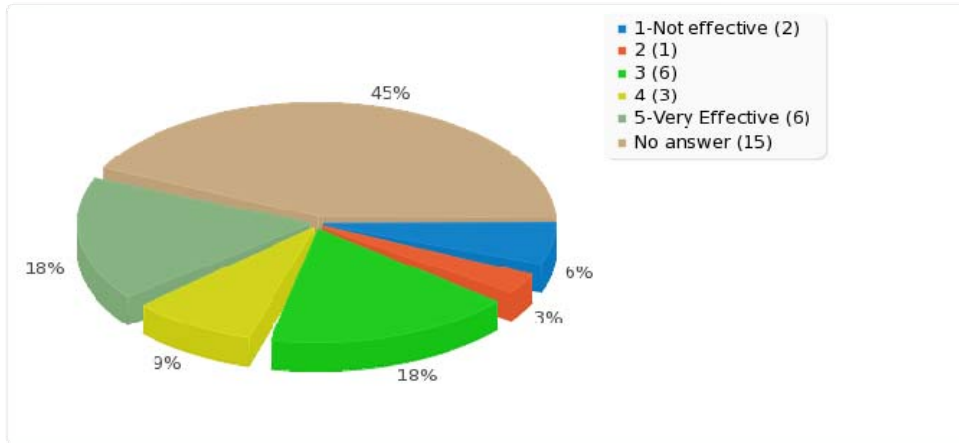


Figure 6.6. How effective do you see your child's class homepage as a means of being connected with the learning journey of your child? (2009a)

Figure 6.6 presents how effective parents see their child homepage as a means of being connected with the learning journey. There were 27% of parents during 2009 who felt the connection through the child homepage was effective, only 9% of parents felt the connection was not effective.

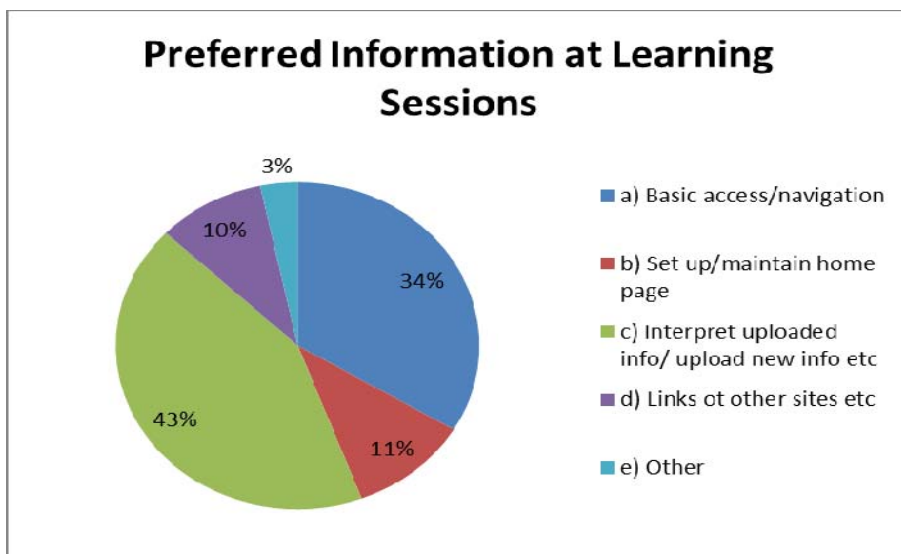


Figure 6.7. Learning sessions. (2011)

As building up the parents' competency and awareness is important to create buy-in, the 2011 survey asked parents what their preferred information at learning sessions would consist of. Thirty-four percent of parents reported that they would prefer basic access and navigation, 11% would like the sessions to focus on setting up and maintaining a homepage, 43% would like to interpret uploaded information and upload new information and 10% would like support linking off to other sites. St Mary's has offered different types of learning sessions over the years. As all learning needs are different it is important that we meet the needs of all our learners and these results show that flexible varied learning sessions are required.

6.2.2 Qualitative Data

The survey and focus group comments provided qualitative findings that support the quantitative results. Results showed that the parents' perception of the learning environment in a school where an LMS is being implemented, resulted in comments about children's involvement, different learning styles, connecting, face-to-face reporting balance, process, potential and buy-in.

6.2.2.1 Child's Involvement

The perceptions of the parents were mixed regarding the children's involvement in their learning and the use of KnowledgeNET. Specifically, in regard to the learning stories, as they had been rolled out for each child and were the main functionality of KN that was used at the time. One parent felt that children had understood their learning intention and were excited to talk about it. However, another parent commented that they felt KN sits outside the framework of the children's involvement.

The children understood what they had previously done with their teachers. They recognised their work on the computer and were excited to talk about it with us. - Parent from 2010 survey

My perception is that KnowledgeNet sits outside the framework of the children's involvement. It's more a tool for managing the learning in terms of the teacher portraying the information to the parent, to the external factor, and less hands-on for the child. That's my perception. Like a reporting tool

for reporting information to parents in terms of where children are at. – Parent from PFG1

6.2.2.2 Different learning styles

All learners have different learning needs and there has been a lot of research in the area of learning models and different learning types. It is therefore interesting to note the perception of one parent, commenting:

I think it's probably valid for a child of any academic capability because you can always see something positive in it. You have the tools to interpret it; 'I did this because', 'here I am on here' and 'if I do "this, this and this" I'll be here'. It's for all different learning types. – Parent from PFG3

6.2.2.3 Connect

Connecting with parents is another aspect associated with communicating with parents. As the quantitative data presented the perceptions of parents regarding the shift to online communication and connection this comment is in favour of the shift as they feel more connected to what is happening in the class. A parent said:

An excellent tool for keeping in touch and up-to-date with what is happening with our child in the classroom. Parent from 2009a Survey

6.2.2.4 Face-to-face- reporting balance

Parents were also skeptical about the shift to online processes and referred to their preference for face-to-face communication and reporting. Parents did not want the online processes to replace previous processes necessarily especially reporting processes and felt that a balance was necessary.

Possibly I'm a bit old fashioned but I still want to speak to my child's teacher. I think that is the most valuable. But I understand that they're extremely busy and it's a different world of teaching. You have so much paperwork to do that I think this is a really great extra bit so that we see a diverse side of our children's learning – Parent from PFG3

Must not replace written (can be in email format if you must) or PTI - Parent from 2010 survey

We also feel there is still the need for face to face communication between parent/teacher but not as a replacement for face to face parent teacher contact - Parent from 2010 survey

Need to have a good balance of reporting to parents. - Parent from 2010 survey.

6.2.2.5 Process

While some parents were in favour of face-to-face processes, as previously presented, some parents understood the processes of learning as a result of the LMS. Another parent believed that the processes involved with KN were part of a learning journey and a progressive process. The change to existing processes are identified later in this chapter, however, these comments also support parental perceptions as identified in this section. Parents stated:

It's fantastic for parents to understand the processes of learning...but I guess the point you've just made...What I was saying was that you want to give us something different from what is traditionally given to us, but that understanding is that we're not actually trying to replace the report, but we're trying to ...Supplement and slowly grow our understanding towards the processes of learning...– Parent from PFG4

What's really clicked for me today is the difference between a report and the processes of learning. – Parent from PFG4

Just in terms of another perception, from a parents' perspective, I think 'hey, we're in the 21st century' and I see it as another step along an evolutionary cycle of indication of whether children are going to become more computer literate than when we were at school. And I just see that as part of a journey, a progressive process that things will go through. And I probably see this as one step in that ladder. And obviously I imagine things will evolve and change over time. – Parent from PFG1

6.2.2.6 Potential

It is exciting that parents recognise and see the potential that the LMS has to offer the learning environment. Parents identified that in order to reach the potential, it requires parents getting what they need out of the system. Another parent recognized that we are not currently using the LMS to its full potential or intended purpose.

I do see a lot of potential and I think that it will be the way that it goes if we make it so that the parents get what they need out of it. – Parent from PFG1

But my perception is that we haven't used it to its potential or what it has been intended for. – Parent from PFG2

6.2.2.7 Buy In

A parent commented that teacher buy-in is essential and also recognized that this depends on how comfortable a teacher is working in a web-based environment. This perception is of interest as the teacher results identified and made reference that parent buy-in was necessary. The buy-in of all participants and appropriate school-wide direction would ensure the success of the system. A parent said:

(Success of the system)...I think that can be a hard one because you need buy-in by teachers at an initial and that depends on how comfortable they are in an IT environment. That's my perception of it. – Parent from PFG1

6.3 TECHNOLOGICAL CHANGES

6.3.1 Quantitative Data

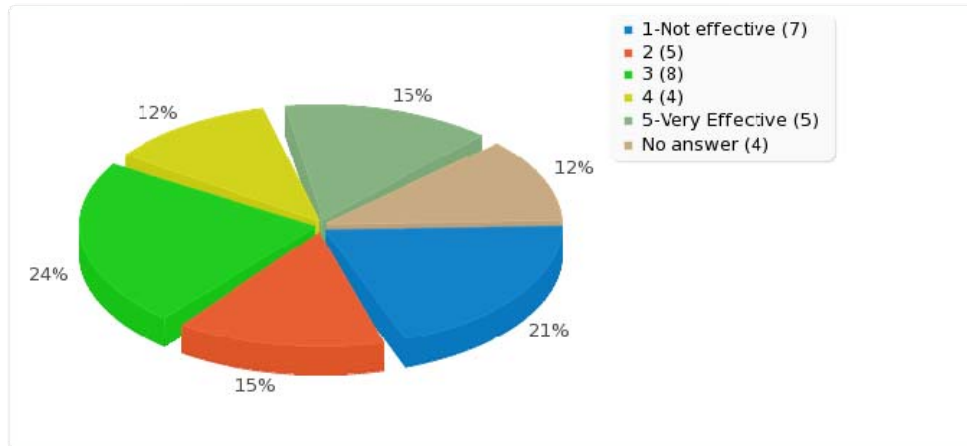


Figure 6.8. How effective is this form of reporting compared with sending home your child's writing book? (2009a)

The previous section presented findings regarding the perceptions of parents who were in favour of the shift to online reporting. This result is further evidence supporting the perception but also addresses how the parents have coped with the technological changes involved with the LMS. Results and findings are likely to overlap in these sections as they relate to more than one research question. During 2009, a writing sample/online learning story was sent home as a part of the reporting process. Figure 6.8 shows that during 2009, 27% of parents found the online reporting very effective while 36% found that the online reporting was not as effective as sending home the child's writing book. These results indicate that more parents were not in favour and perhaps did not cope with the changes that were involved with the LMS.

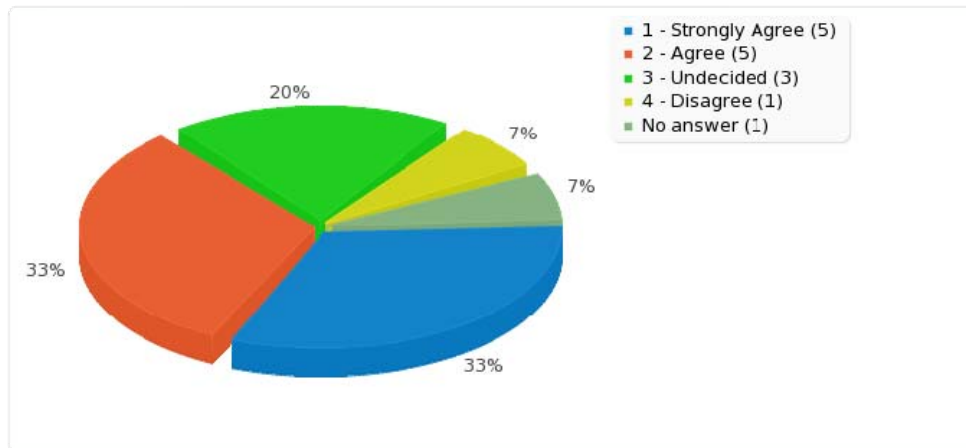


Figure 6.9. I have coped with the technology changes in relation to St Mary's over the last two years. (2010)

Sixty-six percent of parents felt that they had coped with the technology changes in relation to St Mary's during 2009 and 2010. Only 7% of parents disagreed that they had coped with the changes. These results are provided in Figure 6.9.

6.3.2 Qualitative Data

When parents were asked how they had coped with technological changes they commented about the barriers, KN functionality, time and paper. These are presented as qualitative findings in this section.

6.3.2.1 Barriers

Parents commented on the barriers that contribute to coping with the technological changes. Parents identified that they themselves were often the barrier to technological change. An opportunity for parents was available in 2011 for parents to be educated with a Parent Information Evening presented by Doctor Scott McLeod. His presentation was named *Dangerously Irrelevant* (McLeod, 2011). One parent thought that if the parents were more involved and educated that would help parents cope with the changes. Two parents said:

If you look at the way and what we're hearing from these people...that we're the barriers which we know we are! The parents often are the barriers – someone like me is - but I think someone like me, who's got older children

and I've moved on, I still haven't made that mind shift as to where they're going and what they're doing there. - Parent from PFG4

I think it's about keeping the education up with the parents too. Get them more involved like you're trying to do, so that we hunt out at night 'did you do anything on KnowledgeNet?' instead of brushing it aside– Parent from PFG3

6.3.2.2 KN functionality

As expressed by the teachers and students, the parents also referred to the functionality of KN as influencing how teachers cope with technological change. Parents feel that the navigation is not easy, the website is not logical; it is difficult to get around and time consuming. It is important to consider that not all of the functionality issues will be associated with the KN system, as the issues may also be affected by the hardware and internet speed.

I don't find the navigation particularly easy to follow around the site. Parent from 2009a Survey

No problem to access but the website is not logical and hard for an overview - Parent from 2010 survey

*Functionality...but I thought the information that was available was excellent. It was very good. I was just unable to follow those links and I don't know why that was. * had a quick look but not a huge look...I couldn't get the screens enlarged enough to be able to read the information, and I was trying to follow a link and for some reason it wasn't...I found the information that was there excellent, but the rest of the information I personally was unable to access...That's probably just basic use of the computer but however... – Parent from PFG4*

I think it's positive but I've had problems with KnowledgeNet personally so I just find it difficult to get around – Parent from PFG3

But that is just a systems upgrade and it's been going on for long and we're getting tired of it. Become a bit disheartened. – Parent from PFG3

*And I think we're too influenced by other websites and the way they function.
– Parent from PFG3*

I just get the impression that you've had lots of hiccups with it, and it's just taking time to get those plugs ironed out. – Parent from PFG2

*You put it off as much as you can till you haven't got any choices anymore! –
Parent*

KnowledgeNet – the concept of it is really good. It's just about making it function for everyone. – Parent from PFG1

We're only on dialup at home so I avoid it to be quite honest for that reason. I spent a couple of hours last night at random trying to work on his homepage. We didn't get very far but just downloading some of the stuff to put on there...it's really time consuming, especially on dialup. You wait for a long time for things to load...– Parent from PFG2

6.3.2.3 Time

Children, teachers and now parents have raised the issue that limited time has an impact on how they cope with technological changes involved with the LMS. One parent alluded to this by stating:

*I'd say that what is holding me back would be time. I work on a screen all day and then I have to interact with a screen. There is more embodiment or control leading the parent into that content to find out more about their child.
– Parent from PFG1*

6.3.2.4 Paper

One parent identified that children adapt easily to different learning environments and therefore adapt happily to the web-based environment. Another parent identified that the web-based environment is replacing what they are used to and it is a process of time; they also said that the paper option is safe as that is what they know. Adapting to change and the change process was referred to in Chapter 2 the Literature Review. Parents' comments that supported these views were:

It's safe for me to get a piece of paper because that's what I know. Whereas I loved this, and I'm not saying that I'm not, but I've just got to learn that this in the future is going to replace what I'm used to and I think that's just a process of time-- Parent from PFG4

They happily adapt to it and go with the flow-- Parent from PFG2

6.4 CHANGE OF EXISTING PROCESSES

6.4.1 Quantitative Data

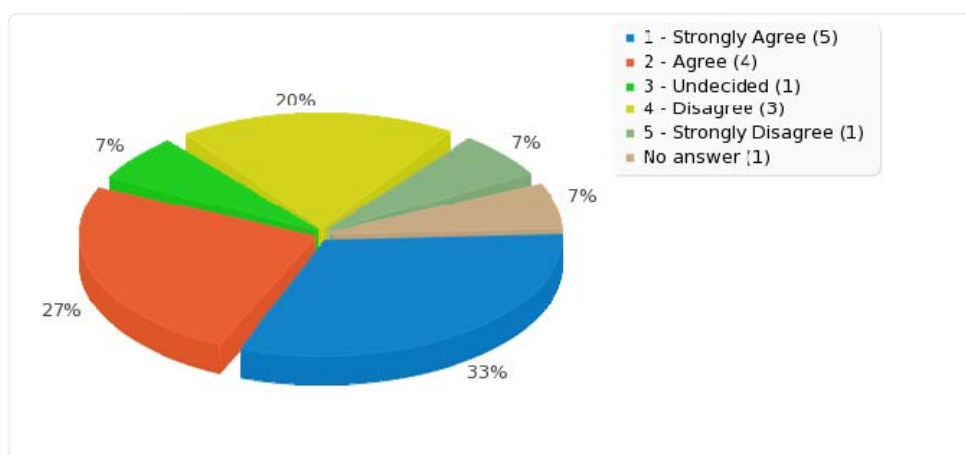


Figure 6.10. The KnowledgeNET Learning Stories provided an opportunity for my children to reflect on and discuss their learning with me. (2010)

During 2010, the learning stories incorporated an audio reflection/critical conversation between the student and teacher. The learning story also provided the opportunity to create a shared language for learning between the teachers, students and parents. Parents had mixed views about whether the learning stories provided the opportunity for their children to reflect and discuss their learning with the parent. Figure 6.10 presents that 60% of the parents agreed, and 27% disagreed that the learning stories provided that opportunity.

Figures 6.11 to 6.17 present how processes used for teaching and learning have changed positively as a result of implementing KnowledgeNET (our Learning Management System). The processes that parents gave feedback on were reporting, e-portfolios, accessibility to resources and activities, audience/

engagement, communication, feedback opportunities and self-reflection. It is important to note that the teachers also assessed these scales although the audience engagement was supposed to be separated as two different items as in the teacher results. Therefore, the audience engagement has been reported as one result or a combined result for the parents.

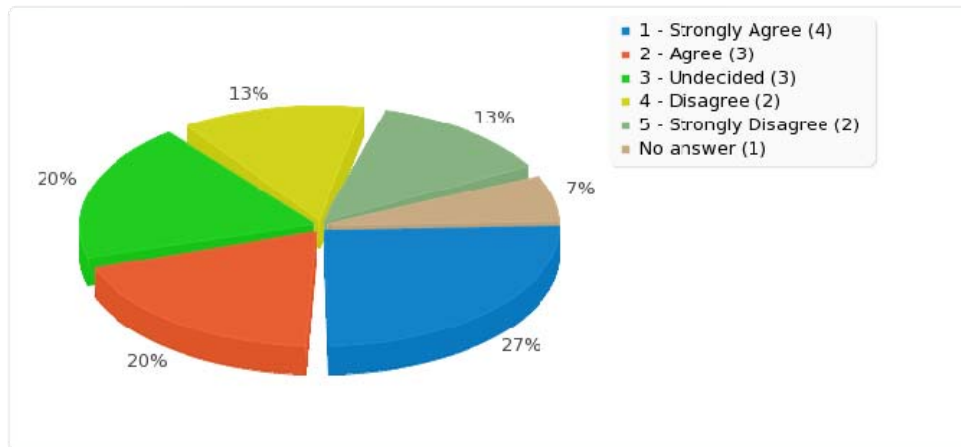


Figure 6.11. [Reporting].
(2010)

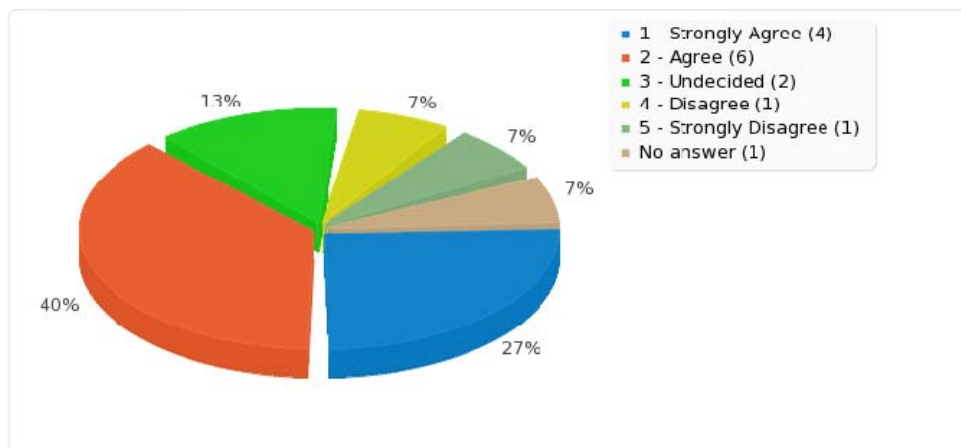


Figure 6.12. [E-portfolios].
(2010)

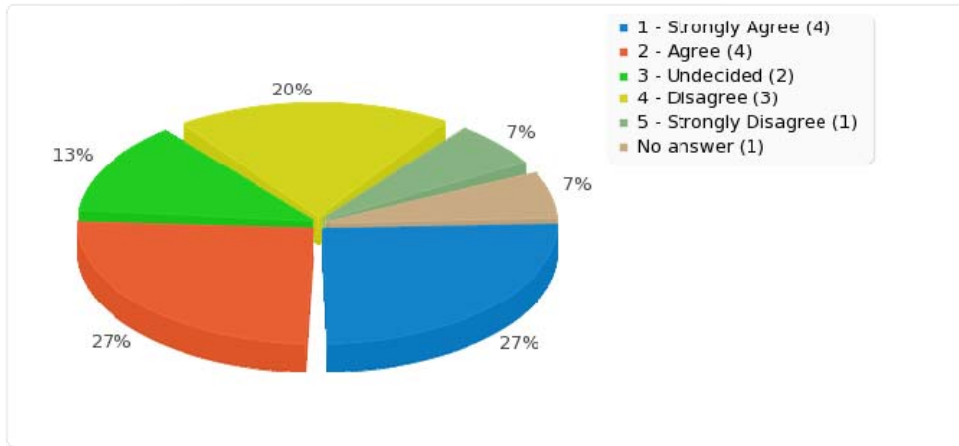


Figure 6.13. [Accessibility to resources and activities]. (2010)

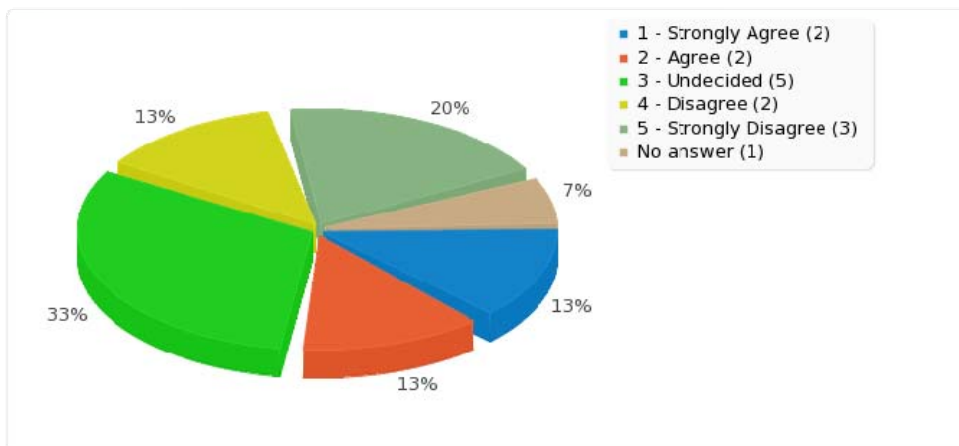


Figure 6.14. [Audience, engagement]. (2010)

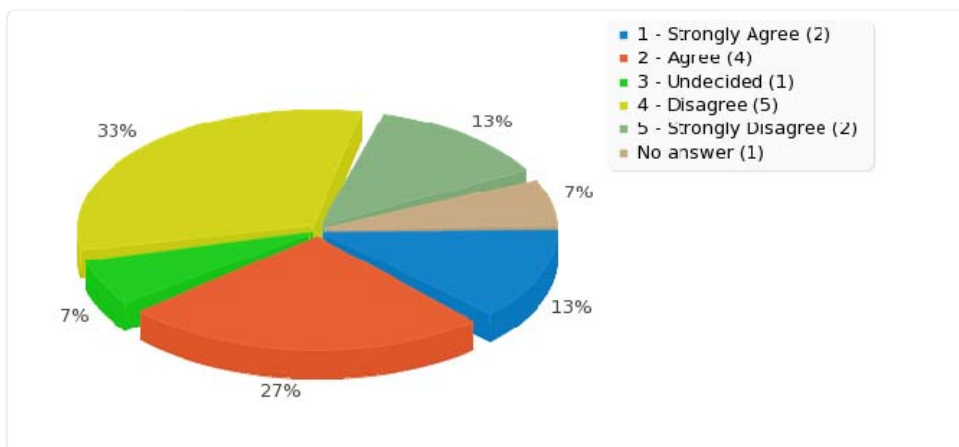


Figure 6.15. [Communication]. (2010)

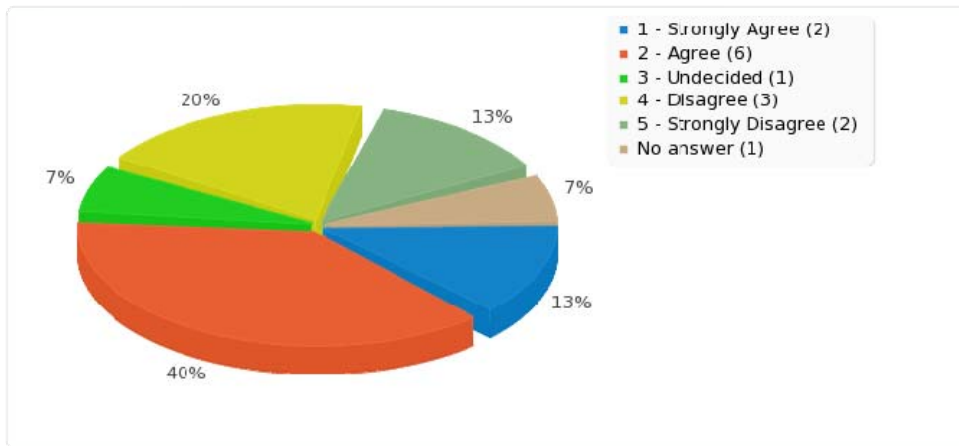


Figure 6.16. [Feedback opportunities]. (2010)

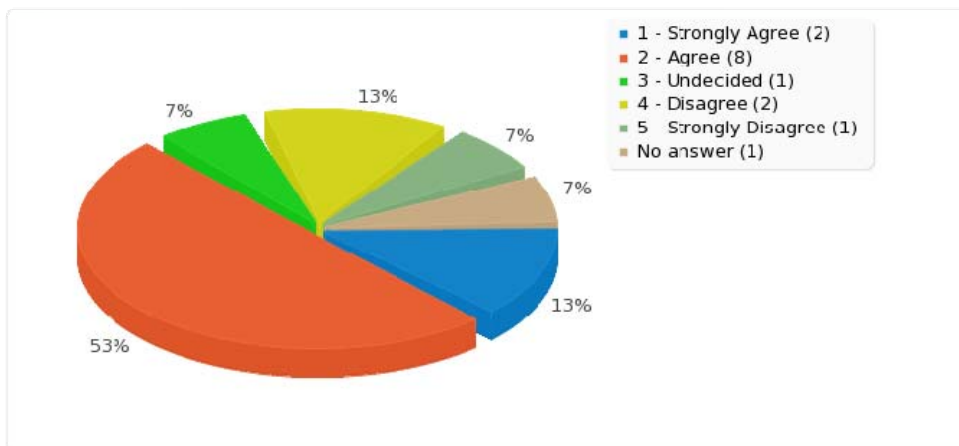


Figure 6.17. [Student reflection]. (2010)

Parents were asked if they agreed that the processes had change positively as a result of implementing KN. Teachers were also asked about the same processes and their results are presented in Chapter 5. The processes of reporting, e-portfolios, accessibility to resources and activities, feedback opportunities and student reflection all had a higher percentage of parents who agreed that they had changed positively. The other processes; audience/engagement (see Figure 6.11) shows that 47% agreed and 26% disagreed that the process of reporting had changed positively. Sixty-seven percent agreed while 14% disagreed about the process of e-portfolios (see Figure 6.12). Figure 6.13 shows that 54% agreed and 14% did not agree that access to resources and activities had improved. Audience engagement had 26 % of parents agree while 33% disagreed that this was a positive change (see Figure 6.13). Communication had 40% of parents agree and

46% disagree (see Figure 6.14). Figure 6.15 show that 53% of parents agreed and 33% disagreed that feedback opportunities had changed positively. The last scale; student reflection had 66% of parents agreeing and 20% disagreeing about the positive change.

6.4.2 Qualitative Data

The qualitative findings support the quantitative data on the parental perceptions of how existing process used for teaching have changed as a result of implementing KN. Parents commented about engagement, assessment capability, home support, reflection and the archiving progress.

6.4.2.1 Engagement

The parents commented about engagement when they were asked how existing processes had changed as a result of using KN. Parents thought KN could support students through their goal setting and reflection, also that the students value what they have done as they see the potential for a wider audience. Another parent commented that their child is engaged and aware of their learning needs in relation to KN.

I wonder, for instance, when last year Jana I know in your class you had the gold streamlines on the wall. The number of children in the classroom, when I went into the classroom, and talked me through their streamlines, like, 'this is what I'm doing in maths', and 'look where I am'...they were really engaged with understanding all the streamlines. If KnowledgeNet could support students so that each time they moved and achieved their goal, there was an example work that correlated to that goal or achievement in terms of uploading and the skill to upload. And to have that explanation that I moved forward because of these steps which were achieved. – Parent from PFG1

I think too from my son's point of view as the audience. I was the audience as well as the teacher. And suddenly he valued what he had done a lot more because of him being able to hear and know that he'd written it or done it for an audience. – Parent from PFG2

*And the achievement highs I'm noticing this year with * – he's so engaged with what's going on in the classroom. 'We're doing this and I learnt that!' It's really significant and a lot of it is talking about KnowledgeNet and what he personally did, and what he needs to do. He is so aware. – Parent from PFG3*

6.4.2.2 Assessment Capable

Assessment capability was also raised by the parents. It is important to note that parents raised assessment capability as this is a part of the learning vision for the school. Parents felt that students critically think, become responsible for their learning and are aware of their learning needs. Parents also felt that it was empowering for them and informative. The parents highlighted this by saying:

I also think it's good because it's starting to make them more critical thinkers. As you get older and study that becomes more important – to be able to analyse what's going on. – Parent from PFG1

It gives them some responsibility in their learning. And some focus as to, say, a goal to improve themselves. – Parent from PFG1

*With the audio for * – this is the 2009 'writing' example – along with using similes, you could really hear her considered response. * is a bit like that anyway and considers what she has to say, but she was really evaluating her work in that forum and this was in Year 4 and she'd respond accordingly and I thought that was really amazing. Quite empowering as a parent to hear that, to be a fly on the wall for a moment. – Parent from PFG1*

I thought it was great. I thought it showed what they were learning and how they were learning. It showed that they were thinking about what they were doing and it wasn't just...you know how with maths especially, you can get an answer right but it doesn't show any thought process? So it actually shows that they understand what they're learning and they can think about where they can improve. I think that's very positive for kids; to be able to set goals for themselves and understand what they're doing. – Parent from PFG1

I was trying to find out what had been posted on KnowledgeNet and it was quite nice to see that during the interview process the child was thinking about what they'd done and doing that sort of self-assessment and having some insight as to where they were at. I thought it was informative. Parent from PFG1

It was good to see their thinking and that they are thinking about their learning, – Parent from PFG2

– teaching the kids to look at and review their own things and review their own work and teach themselves in a sense. – Parent from PFG2

That's the best tool that you can give them; to be able to teach themselves and learn things. That's kind of what Scott was saying – to go out there and find information and find the answers. Don't just go to mum and dad and say 'how do I do this?' You go out and find the answers. – Parent from PFG2...

And discern the reliable from the unreliable, the credible from the non-credible. – Parent from PFG2

6.4.2.3 Home support

Another area that parents commented on in relation to processes that had changed as a result of implementing KN was home support. Parents thought that KN was a modern way of receiving feedback giving them more direction for the next learning step and that it pushes the learning back into the home making them involved. Parents also expressed the opinion that it has the potential to connect the child and parent and share in the learning journey.

I was thinking that she was an example of someone exactly like me who wasn't sure of what we should be doing at home to support our children and things we should be encouraging them to do to improve on. I guess we have those reviews twice a year and I wonder whether we could be having more feedback. I think this is great and I see the advantage of it. In a modern age we should be doing things in a modern way and taking advantage of all the tools that we've got. – Parent from PFG2

Because sometimes we could think 'gosh that didn't look right', or 'there's no punctuation there'. Well, the follow up is actually 'it wasn't actually about the punctuation' or 'it wasn't about the spelling but it was about "this"'. So it helps with the 'where to next?' and it sets in your mind something that you're going to work with them for. So there's a lot more direction I think for 'where to next?' at home. – Parent from PFG2

I was thinking how you could connect the children, the parents and the computer system. And I was thinking that if the children understand KnowledgeNet more, they come home and bring it up on the computer and say 'Hey mum, come and have a look at this!' That brings a sort of connection. – Parent from PFG1

*I actually think that it's something you should be doing with your children because it's a journey that you're sharing with them. *came home a few days ago and they'd updated her with maths and she came and got me because I didn't know about it. But I thought that was great. She was prompting me. – Parent from PFG1*

If it grows, there is that issue that you're pushing it back into the environment of the parent and the home. And there's things happening in the home that step away from involvement. Communication is a great tool I think. I really like the links that come off the reporting pages. – Parent from PFG1

6.4.2.4 Reflection –

Possibly the most significant process along with Assessment Capability is Reflection. As reflection is directly related to the assessment capability of the learner and is a part of the learning vision at St Mary's, it is empowering to see that students, teachers and parents have identified this as significant. The use of student voice was powerful, honest, a 'skill' and an opportunity for the parents to hear what actually happens in the class. Parents also felt that it was empowering and valuable to hear what the child thought of themselves, one parent commented that they found the audio reflections much more informative than static media. Parent comments that highlighted this were:

Once again the information was excellent. In the interview I had,...once again I didn't find the strengths and weaknesses. I think that voice... that was a real shift for me. When you're online and reading something, that's fine. But when you listen to that little voice- It's very powerful. – Parent from PFG4

It's also that they're honest with their learning. They know themselves by assessing themselves where they're at. – Parent from PFG3

To articulate how you have put 'this' onto paper and said 'this' to another person in a fairly formal situation is an absolute skill and I think it's a great indication of KnowledgeNet; that it's not just typing and sitting in front of a screen. It's actually using it as a voice, and I think that to me is important... that it is used as a voice and that is a real reflection of classroom productivity and interaction between student groups and the teacher. – Parent from PFG3

Whereas here it's a real live 'with-the-teacher' experience and you're sort of eavesdropping on that. I guess it was good...it definitely is a good opportunity, but I guess I feel that was just maybe a bit of a novelty – Parent from PFG2

So I think from a parent point of view, when kids are bringing home reading every night, you have conjured up a sense of how well they read. But when you actually hear them with the teacher reading something that's unseen, you get a good sense of the fluency and how well teachers are actually doing their running record. I think that's a good clear example for you as a parent of how well your child is actually reading an unseen text within a classroom or within the office or whatever. But at school, as opposed to reading something over again and again at home. – Parent from PFG2

From a reporting point of view also, by hearing it and seeing it when it's 'where to next?' or 'what to work on', it makes it lot clearer for the parents. – Parent from PFG2

I think the audio was easier to listen to and figure out what was going on. But just getting a peep where some of them were just an example of their work, you just thought...– Parent from PFG2

Yeah, we don't get that opportunity when we get the reports from the teacher. It's nice to hear what they think themselves. The self-reflection I found quite interesting; just to hear how your children are when they're not talking to you. Because they probably talk quite differently to different people. From my perspective I found it really nice to hear how they spoke to their teacher. And it also made them think about what they're doing rather than just getting, say, an answer for maths or writing; to actually think what they did to get from 'A' to 'B', and whether they missed some steps out or...like their strategies and processes. – Parent from PFG1

To me that was more valuable than to see the snapshot of the piece of writing. To me I found their reflections much more informative. – Parent from PFG1

Hearing them say it was definitely more empowering I found. – Parent from PFG1

6.4.2.5 Archiving progress

The concept of archiving progress over time and in a sense filing the milestones in a child's learning journey is interesting. Parents identified that tracking progress over time allows you to see the change; another parent said that the snapshots were effective later and empowers achievement. One parent referred to the LMS being another way to archive progress rather than filing pieces of paper into a drawer or file. Parents said:

Because sometimes the progress that you're making is so small that you don't notice it unless you track it over time. What you do from week to week might seem the same, but over a few months it is enough to see that there actually was a change. – Parent from PFG2

...you don't really see how effective it is until the next year. ..It's progress. – Parent from PFG3

Archiving those snapshots and the progress over time is really wonderful. – Parent from PFG3

It's effective later. – Parent from PFG3

(Archiving – progress over years) And it's that achievement again. That empowerment that 'next year I can do better than that.' – Parent from PFG3

Well the archiving shows us that...that they have come a certain way. If people look at it enough to see...that's the thing. I still have a drawer with every report and first piece of writing and speeches but maybe that's just me. This is another way it's being archived. – Parent from PFG3

6.5 ADAPTED AND IMPROVED LEARNING ENVIRONMENT

6.5.1 Quantitative Data

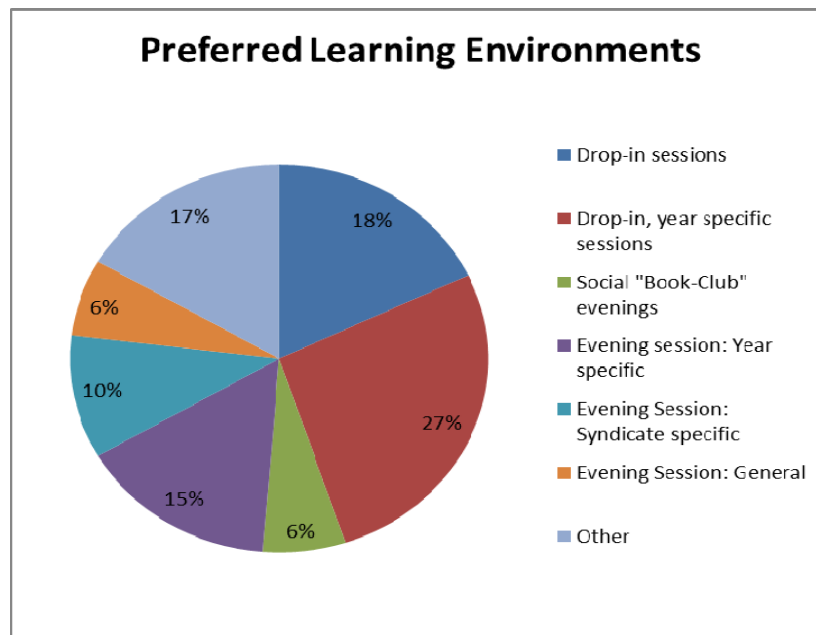


Figure 6.18. Preferred learning environments. (2011)

In order for a school learning environment to be adapted and improved, the learning environment of the parents should be considered. The data presented in Figure 6.18 informs us of the parents preferred learning environment, 27% prefer a year

specific drop-in session, 18 % prefer a drop-in session, 17% prefer other learning environments than what were suggested, 15% prefer year-specific evening sessions, 10% prefer syndicate specific evening sessions, 6% prefer general evening sessions and 6% prefer social “book club” style evenings.

6.5.2 Qualitative Data

When parents were asked to comment on how the learning environment could be adapted and/or improved to provide equal opportunities for all learners and meet the high quality student learning outcomes, parents identified making the LMS a part of everyday practise, teacher involvement, 21st century learning, change, prompts, equity and focussing on the juniors.

6.5.2.1 Every day – habit

Parents recognized the need for the LMS to be used as a part of daily classroom practice in order for them to log in regularly and for it to be effective. Parents also identified that they do not go on to KN if they have spare time, however, if they knew there would be regular updates they would. Teachers and students also recognized the need for the LMS to become a part of everyday practice and that using the equipment would allow for it to be a part of regular classroom routines. The teachers perceived that regularly updating KN was time consuming as the parents were not logging in regularly enough. In order to break this cycle, participants need to actively change their traditional practices and acknowledge that the process of change takes time. Parents stated:

It's an excellent tool and I'd log in more often if I know there were going to be regular updates or additions. -Parent from 2009a Survey

While it is good to see what is going on in the classroom, it will only be really effective if it is updated regularly and holds current information. Parents also then must get in the habit of logging in regularly for it to be worthwhile for the teachers and the effort they expend getting the information in for all students- Parent from 2009a Survey

And you'd probably get into a habit of doing it too. Whereas at the moment it's not a habit. – Parent from PFG2

When you've got spare time you don't just go onto KnowledgeNet. ...But if you knew there was always going to be something interesting, you would. – Parent from PFG2

But in terms of a parent using it at home, it's quite static. It's reporting what has happened and it's not leading you forward as it's maintaining a flow with the child with their academic involvement because...it's not something that I go to regularly because I think 'Oh well, probably not much has changed.' So it's not something that's in my radar constantly. – Parent from PFG1

At the moment it's quite a snapshot isn't it, of where they are at a certain period.

Used to a paper world, used to my books. I agree with you. It was just because we were used to it not being a regular feature. But if you knew that every week there'd be something new on there, you'd probably make it a point to get on every week. – Parent from PFG2

6.5.2.2 Teacher Involvement

Parents identified that the positivity from the teachers is critical for the children to see, and that a positive attitude will have a flow-on effect. A parent also thought that teachers who are coming through in the future will possibly be more comfortable with the system, this is perhaps because they are willing to adapt the way teaching and learning has traditionally taken place. Parents said:

I suppose being positive is critical. If the children see that the teachers are engaged or interested in a particular thing, the positivity will come through. – Parent from PFG1

Possibly teachers that are coming through to the future are probably going to be more okay with these system and will use them for their lesson planning and...as a parent I would love to think that if my child was sick, I could actually go in there and see what they've missed today. – Parent from PFG1

6.5.2.3 21st Century

Parents acknowledge that the world of teaching and learning has changed and that they need to adapt and make the most of it. The LMS is modern and encouraging for the children, it is exciting and the parents recognise that they need to move with the times. Parents highlighted these thoughts by saying:

We've got to make the most of it, to make the most of the tools we've got. – Parent from PFG2

And as parents we need to move along as well and that we've got to move with the times. – Parent from PFG1

At least we should be encouraging them to be in the modern age of using all this technology, getting used to it, making the most of it, getting onto KnowledgeNet whenever they want and encouraging them to do those sort of things. – Parent from PFG2

It's certainly the modern way isn't it in terms of reducing paper and the way the world's moving and yeah...it's an exciting idea. – Parent from PFG4

Now you just Google it and it's there and you just get it off there and read it all. And we just have to adapt to that. That's going to be their world and we have to adapt to that. We can't just be boring and say 'You have to go to learn to go to the library to find the book you're looking for'. The library might not be there when they're older. –

6.5.2.4 Change

In order for everyday classroom practice to be adapted to meet the 21st century learning needs there is a requirement for change. A clear understanding of the intent of the LMS, acknowledging the advantages and disadvantages for all participants and working out a balance that all participants can be involved and respond to is important. Parents shared their views by commenting:

I think that's probably just, 'understanding'. I'm sure you'll find that lots of parents like me, instead of looking at it as just something different, they're

looking at it as an 'instead of' and they're saying they don't like it. And it's the change isn't it. – Parent from PFG4

I think it's a very valuable tool but I think it is quite new and I think it is a mindset change for parents and particularly parents like me who've been around for a little while. So I think it's a slow process and I think we need the parents to be having the conversations. – Parent from PFG4

6.5.2.5 Prompts

Prompting from children was perceived by the parents as one of the most influential and effective ways to draw them into the LMS. Parents think that the enthusiasm of the children is a reflection of what messages are coming through in the class. The prompting from children is a reflection of the student ownership of their learning and e-portfolio. Parents stated:

I think also in terms of that prompting, we're relying on the enthusiasm of the kids, of our kids. And there are some kids that are a little bit more savvy or a little bit more motivated or remember. And that reflects how the messages are coming to them in the classroom, because we know that some teachers are keeners than others. I think that reflects as well. That's not a criticism of teachers; that's just the way personalities and that sort of thing is. The prompting is also reflective of how it's happening in the class. – Parent from PFG2

In terms of the processes again, I rely on prompting. – Parent from PFG2

KnowledgeNet was a bit of a novelty and there'd be a few things in there. But in the few times I went on there wouldn't be much change. So it wasn't something that you'd check every week because you'd think 'oh, there's probably nothing else on there.' So you wait for the prompts that there's something on there that you should look at. – Parent from PFG2

I don't go there unless the kids end up reminding me! – Parent from PFG2

6.5.2.6 Equity

When asked about how to provide equal opportunities for all learners to be involved in a LMS, parents commented that it is about having resources available. The interpretation of the term 'equal' needs to be carefully considered as the variables within homes also have an influence on equity. Parents' comments supported these findings by saying:

The equal opportunity is about having resources available. – Parent from PFG4

So in terms of 'equal', there's probably quite an influence on equality with what's available at home as well as what's available at school. So I don't think you could expect that 'equal' should be interpreted as, say, 'every child has fifteen minutes on the computer every second day or...' There's so many other things that would- – Parent from PFG2

There's so many variables within the home background isn't there? The variables are enormous with the equity. – Parent from PFG2

So to get overall equality you need to take some of those things into account and it's not easy. – Parent from PFG2

So in term of equal opportunities, we've already seen that there are two examples where the opportunities that kids have with KnowledgeNet and computers are quite different in terms of dialup and in terms of siblings. So it's almost...from a classroom point of view, it would be good if there was some form of co-ordination where teachers understood what tensions families had at home. – Parent from PFG2

When you're thinking about 'equal', probably for something like this there could be some co-ordination in terms of what's available for kids at home. – Parent from PFG2

6.5.2.7 Juniors

Parents think that the focus should be on the juniors as they are the children who are coming through the school, have the potential to grow, and are the digital natives of today's environment. Parents think that younger children are more likely to be risk takers and that early exposure has the potential to make a difference. Parents highlighted the focus on juniors by commenting:

I wonder whether we should be focusing more on the juniors, because in some ways we've missed the boat with some of those seniors. We want to catch them up! But I sometimes think that maybe it's with those little kids that we should instill that information and that 'putting stuff on' at the bottom, and then it will grow through the school as they come through. – Parent from PFG2

And they are more the 'digital natives' aren't they. The younger they are the more 'native' they are. – Parent from PFG2

They're more risk takers. They will play with things and experiment more when they're younger. They go through those four or five years before they get to the seniors and then they've lost it. They become like what we are and they lose that risk taking. – Parent from PFG2

You can just see the difference in a child at Year 6 compared to one in Year 2 who has been exposed to it earlier. – Parent from PFG2

6.6 SUMMARY

This chapter presents the qualitative and quantitative data from the parents' perspective. The perceptions of the parents provided some baseline data on what they knew about KN and how useful and accessible they find the tool. The parents' perceptions of the shift towards online communication and reporting were also provided showing that the majority of parents agreed with the shift. The majority of parents also believe that computers in the home have a positive effect on learning. The perceptions of parents as an insight from the qualitative findings showed that parents felt that the child's involvement in learning had improved; it suited different learning types and was an advantage in connecting the parent, home and school in

the learning journey and providing useful help with the next learning steps. However, parents raised the concern that they were still in favour of face-to-face processes; they could see the potential of the system and felt that the buy in of teachers was important.

Technological changes and how parents have coped shows that parents have mixed feelings about the on-line form of reporting as compared to sending home the child's writing book, for example. However, the majority of parents felt they had coped with the technological changes at St Mary's. Other areas that were highlighted by the parents in terms of coping were identifying themselves as the barriers, the difficulty with technological equipment and KN functionality, the lack of time, and the shift from a paper world that they are used to.

The parents identified some of the changes of existing processes since implementing a LMS. Parents mainly agreed that the learning stories had provided an opportunity for them to reflect and discuss their learning with students. It also provided statistics of the perceptions of parents relating to the processes of reporting, e-portfolios, accessibility to resources and activities, audience/engagement, communication, feedback opportunities and self-reflection. The qualitative data in this section show that engagement, reflection and assessment capability of children had improved. Home support was another area identified as a change. The archiving of progress over time had also changed according to the parents.

This chapter also presented the findings of the parents on how they thought the learning environment could be adapted and/or improved. Parents thought that using the LMS every day would improve the learning environment. Also, teacher involvement, focusing on the juniors and receiving prompts from the children would contribute to an enhanced learning environment. Adapting to change and 21st century learning processes and providing equity for all children were also areas that could be adapted or improved.

The next chapter presents the conclusion for this thesis. This presents an overview of the thesis, present major findings, highlight the implications and/or significances for this study and identify the limitations during the study. Suggestions for further research and final comments are also documented in Chapter 7.

CHAPTER 7

CONCLUSION

7.1 INTRODUCTION

In this concluding chapter, an overview of this study, major findings, implications and limitations are presented. Possibilities pertaining to further research in replicating this study or extending it are discussed.

7.2 OVERVIEW OF THESIS

This research study was instigated several years ago when St Mary's School had implemented KN as a LMS; this process provided the opportunity to document and research along the way creating a case study from the scenario. The LMS is a revolutionary aid to teaching and learning and has brought about change in the way education has traditionally occurred in classrooms. With major government and ministry support and emphasis on e-learning, this research has been well supported at school and ministry level. 'About a quarter of New Zealand Schools currently have and use and LMS. However the interest in ePortfolios and/or LMS and associated tools is high and growing' (MoE, 2011c); therefore greater emphasis and value was placed on this research.

As it is the teachers, parents and students who participate in the use of a LMS it was of interest to gain the perceptions of all three and triangulate the data that were gathered to further validate findings. As feedback is often sought from parents and teachers, surveys and focus group interviews were used throughout this research. Most surveys were administered online using the tool Lime Survey, and presented as quantitative data in Chapters 4, 5 and 6. Focus groups were formed and interviews were recorded and transcribed to provide further evidence which was presented as qualitative data in Chapters 4, 5 and 6.

Arguably, the perceptions of the children were of most importance. The students' perceptions on their actual and preferred learning environment were gathered from the administration of the TROLFLEI, while focus group interviews were also held with students.

The TROFLEI (actual and preferred forms) was validated to check that it was reliable and valid for use in a New Zealand upper primary school context. The original TROFLEI was adapted as discussed in Chapter 3 so validation was important. Using the TROFLEI data, tests were carried out to identify and determine if there were significant differences between the actual and preferred learning environment. These perceptions were also associated with students' attitudes and achievement outcomes. Significant differences were also identified between gender and year levels of students.

7.3 MAJOR FINDINGS – ANSWERS TO RESEARCH QUESTIONS

The major findings in this section are presented under the headings Perceptions, Technological Changes, Change of Existing Processes and Adapted and Improved Learning Environment. These are aligned to data that is presented in Chapters 4, 5 and 6 and relate to each of the research questions that were presented in Chapters 1 and 3 of this study.

7.3.1 Perceptions

Research Question:

1. What are parents, teachers and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?

Across all learning environment scales of Student Cohesiveness, Teacher Support, Involvement, Task Orientation, Cooperation, Differentiation, Equity and Computer Use the students' preferred learning environment was statistically greater than their actual learning environment. Female students preferred more Student Cohesiveness, Involvement and more significantly Task Orientation, Cooperation and Equity. Also, across year level groups the Year 6 students perceived teacher support more positively than did the Year 5 students but also preferred even more teacher support. Year 6 students also prefer a more positive learning environment in relation to the Student Cohesiveness scale.

The students also perceived that the LMS gave them more ownership and their parents commented that it allowed for the child's involvement. Parents and teachers both felt that the LMS allowed parents to be better connected and they could see the

potential of the system. While parents felt that buy in from the teachers would ensure the success of the system, teachers identified the need for the buy in of all participants but most commented on parental buy in. Buy in refers to the active involvement and engagement with the LMS and using the LMS as intended. With all the participants using the LMS as intended for the processes of communication, feedback, interaction, links, information, groups and accessing, managing, using, creating and distributing information/content the implementation of the LMS and the structures and intended purpose of the LMS would be met making a transition from the paper based-technology to the online environment.

Students identified that it allowed for sharing and supported changes with ICT in learning processes. Parents perceived that the LMS catered for different learning styles and gave them a better understanding of the learning process. The teachers' results reflect whether they think people are ready for the change involved with the LMS and improving learning, they felt the LMS was teacher driven and is an add-on that contributed to a heavy workload.

7.3.2 Technological Changes

7.3.2.1 Teachers

Research Question:

2. How do teachers cope with the technological changes involved with a LMS?

Tracking teachers' competency in using KN over three years shows that in both 2009 and 2010 a greater number of teachers agreed that their competency levels were satisfactory as opposed to not of a high standard. In 2011 there was a higher percentage (29%) who disagreed and 19% who agreed that their competency was of a high standard. This could be due to recent upgrades of the system, learning of more features that they did not know about, or new teaching staff.

Functionality was identified as an issue that was addressed when teachers commented on how they coped with the technological changes. The system functionality and general IT knowledge had an impact and this leads to increased skill level that teachers identified as a technological change. With an increased level of skill, teachers competence will improve and lead to less frustration with the system as they will better understand the technological issues and be in a better

position to problem solve. A focus on skill and competency in professional development would place teachers in better stead to cope with technological change. Time to get onto the LMS and practice using the system, along with the time to make mistakes and learn about the functionality, were other key factors raised by the teachers.

7.3.2.2 Parents

Research Question:

3. How do parents cope with the changes regarding processes in relation to communication received through the LMS?

Similarly to the teachers, parents identified that the functionality of KN at times caused frustrations and the lack of time to go onto the system and learn about features and information within the system, were barriers to change. Parents acknowledged the shift from paper technology to the LMS and said that this is a part of the change process.

7.3.2.3 Students

Research Question:

4. How do students cope with the technological changes involved with an LMS?

The teachers and parents identified the functionality of the system as a hindrance in the way that they cope with technological change, similarly the children felt frustrated with the tool at times. Students said that they teach and learn from each other as a way of coping with the technological change. Time was also a key factor that the children identified. It is interesting to note that both teachers and parents also identified time to get onto the LMS, have a look around, practice and learn from mistakes.

7.3.3 Change of Existing Processes

Research Question:

5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?

The process of reflection on learning and artefacts of learning was identified by the parents, teachers and students as something that had changed since the implementation of the LMS. Parents and teachers also identified assessment and assessment capability, along with the engagement/ownership of learning for students as existing processes that have changed since implementing a LMS. Parents commented that it provides a better scaffold for home support and is a different way of archiving progress. Teachers felt that other processes that had changed were student voice, sharing the language of learning and the shift from paper technologies.

7.3.4 Adapted and Improved Learning Environment

Research Question:

6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

In the student TROFLEI results, Computer Use and Teacher Support were the two learning environment scales that had a significant impact on the attitudinal outcomes of students. Associations between the learning environment and cognitive achievement showed that Involvement and Task Orientation had significant impacts on improved achievement in listening. Involvement was significantly important for achievement in reading vocabulary. It is important to note that the only association with a negative impact on achievement was in maths, where the results showed that where there was less Differentiation and Computer Use there was a better achievement in maths.

Students raised equity as a way in which the class/school learning environment could be improved in order to achieve high quality student outcomes and equal opportunities for all learners to be involved. Parents and teachers also commented on equity. The other factor that all three groups of participants raised was using the system and equipment so that it becomes a part of everyday practices, that is, it becomes a habit. Students and teachers both raised the idea of developing and having experts available to support and others in the use of the LMS, and they both commented on the use of questioning. Questioning is a deliberate act of teaching

that fosters deeper reflection in students and ensures that comprehension and higher levels of thinking are promoted.

Parents felt that teacher involvement in the LMS, regular prompts to remind them to access the LMS, and building the capability of the juniors were important in adapting and improving the learning environment.

Teachers felt that using an e-portfolio would improve student learning outcomes and further professional development was necessary. An awareness of all children and the use of a teacher portfolio were also raised by the teachers in relation to adapting and improving the learning environment.

In summary, this section has highlighted a few of the key findings from this research and presented these findings along with the initial research questions. This differs from how the results were presented in Chapters 4, 5 and 6 where it was categorised by the groups of students, teachers and parents. The research questions and sections for the major findings related to Perceptions, Technological Changes, Change of Existing Processes and an Adapted and Improved Learning Environment as perceived by the key participants of a LMS, the teachers, parents and students.

7.4 IMPLICATIONS OF RESEARCH: SIGNIFICANCE

7.4.1 School

7.4.1.1 St Mary's School

'Outcomes- focused education has been heralded in many countries as an approach to school reform in which planning, delivery and assessment all focus on the student's outcomes/results from teaching rather than on a syllabus or curriculum' (Fraser, in press, p. 12). Decisions that are made within the school are evidenced based and the results from this research provide both qualitative and quantitative data that can help the development of e-learning pedagogy within the school. With the evidence gathered and collated in this research, the school has the opportunity to shape and develop the strategic planning which supports the ministry requirements outlined in the action plan 'Enabling the 21st century learner'. Its aim is

to: “Contribute to the Government’s overarching goal to build an education system that equips New Zealanders with 21st century skills, through the increased use of e-learning in schools (Ministry of Education, 2006a).

7.4.1.2 Other schools

Other schools will hopefully be able to learn from our successes and be able to mend and fortify the areas that did not work well for us as documented in this investigation. How to make the implementation of a LMS a positive experience needs to be given careful consideration from those initiating the idea of the LMS. It will be significantly more difficult to try and introduce a LMS if the success and value of it has been lost through frustration and the implementation of the system was not introduced at the right time. To avoid this support structures, such as scheduled support time and opportunities and incentives, need to be in place and aligned to the strategic direction and plans and goals for the school.

7.4.2 Class

In this research, some teachers felt unsure about children completing the TROFLEI, however the results and data were significant enough for teachers to reflect upon and identify any areas of concern relating to the learning environment that they could choose to adapt and alter within their classes. Class data were provided to the individual teachers, although they were aware that their classes were not being identified or used in this research. The data were also collated to provide information on year level and gender analysis. It is hoped that the data gathered in this research will have an impact on classroom practice in following years through ensuring, at a school level, plans are developed in accordance with these findings.

7.4.3 Users

An element of trust that school management, system developers and ministry are providing the ongoing support that is required to use a LMS effectively and efficiently is essential for the users to feel positive about the LMS experience. At the school level this can be achieved through careful design of the strategic planning. To support this, the ministry needs to commit and provide the ongoing support through funding and referencing relevant publications and research, and the system developers need to work alongside the users to ensure that developments are

aligned to meet the needs of education, such as interoperability standards, ease of use and functionality.

7.4.4 Knowledge NET

Through the use of surveys and focus group interviews, considerable insight into the learning environment with a particular focus on technology and the use of KnowledgeNET as a LMS was found. Participants were able to share their successes as well as their frustrations. This research will hopefully provide KN with a case study so that they understand the implementation process within a school and can communicate with schools to adapt and improve the process. It may also inform future updates and provide an insight towards the focus for the developments that are required in the release of new versions of KN.

7.4.5 Ministry

As the TROFLEI was originally designed for use in secondary schools, this research has proven through validation that it can be successfully adapted and made suitable for use in upper primary classes in New Zealand. This adds to the selection of learning environment instruments available for use in primary schools.

The Ministry can be assured that schools are embracing e-learning and be made aware of the frustrations and perceptions of participants throughout the implementation. CORE Education is a not-for-profit educational research and development based organisation that support and promote the use of new technologies for learning across all education and training sectors (CORE Education, 2011). CORE has been known to work on case studies and projects that support the Ministry and this research will hopefully contribute towards literature that has a New Zealand context.

7.6 LIMITATIONS OF THE STUDY

7.6.1 Sample

Teachers, parents and students participated and responded to surveys, questionnaires and focus group interviews. As with any sample, the number of respondents had to be considered as a representation of a greater group of people.

The responses of 200 students were collected for the TROFLEI and extensive forms were collected and analysed for validation purposes. To achieve this, the sample group for the TROFLEI was extended to Tauranga Primary; St Mary's data was then extracted after the validation had taken place. The student responses for the TROFLEI were limited to Year 5 and 6 students. As the TROFLEI has typically been used in secondary schools, it was adapted to suit the upper primary year levels.

There were four focus group interviews for each category of teachers, parents and students. The teachers category of interviews could be interpreted as a truer representation as most teachers were a part of a focus group however the parents and students were representing fellow participants of a much larger category. All focus group participants were considered to be a sample of convenience due to accommodating the needs of the participants and their timetables.

The teacher and parent surveys were interesting and caused a predicament when trying to show a true representation. Some surveys and responses were anonymous, this allowed the respondents to share their true reflections and interpretations but there was a low return rate and submissions to the survey. Other surveys required names/identification, on these surveys full participation from staff and increased participation from parents was evident, however it is also important to consider that for these submissions responses may have been more indicative of what the participants thought we wanted to hear.

7.6.2 The Process

As with any change initiative and the taking up of new concepts, there will always be resistance from some. Exposure to and the use of KnowledgeNET varied within the

school and for the participants. The uptake of using KnowledgeNET was slow and therefore had an impact on the implementation process, therefore teaching and learning methods/reporting were not necessarily changing so that learning processes could be shared digitally.

The technical skills and knowledge required to work within a web environment limited the implementation of KnowledgeNET. Issues also arose within the programme that needed to be carefully and continually monitored. Time constraints and the personnel required to monitor this were not available as required. Having set roles, responsibilities and time may have improved the process of addressing and overcoming issues.

Insufficient time was placed on evaluating the processes that were used. Schools always have so many areas to focus on and develop, however ICT is considered to be integrated into all learning areas and professional development will need to address the gaps in pedagogical understanding, knowledge and ability surrounding ICT and in particular a LMS.

7.6.3 Data Collection

While this research provided insight into the perceptions of teachers, parents and students providing cross comparison among participants some may perceive this research to be narrow as it focused on one school and one LMS. However, it was a case study in one school and this limitation however, lends itself perfectly for consideration in the next section as a suggestion for further research.

7.7 SUGGESTIONS FOR FURTHER RESEARCH

The completion of this research study has value as a case study approach on a singular school; however it has been a vehicle for further research ideas. The areas of research that can be implemented as a result of this research can be classified under the headings 'Extension' and 'Variation'

7.7.1 Extension

This research can be replicated in and across other schools using the same methods of data collection. Modifications may be made if desirable but the methods are recommended in that the use of teachers, parents and students provide a triangulation of the data; also surveys/questionnaires and focus group interviews were a part of the methodology providing both quantitative and qualitative findings. A greater sample size could further enhance this research and if it were extended in this way it would increase the scale of the research and results. Correlating the data with other assessment results could further enhance the validity and findings relating to specific areas of learning and achievement outcomes.

7.7.2 Variation

Further research can arise from this existing one. In this research, it was the students who completed the TROFLEI (actual and preferred forms), teachers responses to the TROFLEI would enable the investigator to make cross comparisons between the students and teachers. It would also give further insight into the perceptions of the teachers and what constraints they may perceive themselves to be under through comparison of the actual and preferred learning environment forms.

As this research was a case study on one school, consideration on the degree of representativeness of these findings and if they are aligned with other schools needs to be monitored. As an extension to this research, similar case studies could be carried out in differing schools regarding their location, decile rating, size etc. This would allow for comparisons to be made in and across schools using a certain variable.

Another variable to consider is the actual process of implementation and which LMS each school is using. The different LMS's that have been recommended by the Ministry could be used as a variable to ascertain if the LMS is effective and which have a greater impact on achievement outcomes. Also to be of considered is the different functionalities being used and implemented within each of those schools and systems.

7.8 FINAL COMMENTS

eLearning has been a hot topic for education especially in recent years, however, as it is a new and evolving area there were not many publications and literature when this research first began. Over the last few years, other researchers and passionate enthusiasts have contributed to the literature that is available today and made an impact on the journey of ICT and e-learning.

This research in particular has been an investigation into the use of an IT-based learning management system that supports education in a New Zealand Primary School. The perceptions of the teachers, parents and students were gathered through the use of surveys/questionnaires and focus group interviews. These provided the qualitative and quantitative data that contributed to the rich picture of results. The student TROFLEI data were arguably the most significant as the perceptions of the children's actual learning environment and preferred learning environment were analysed along with correlating the perceptions with attitudinal and achievement outcomes. The gender and year level differences were also analysed as a part of this research.

The results have been realistic and presented in a comprehensive way that was able to best illustrate the perceptions of the teachers, parents and students of St Mary's School and answer the research questions. The results were at times heartening and also revealed some weaknesses in the process of implementation, the successes shared need to be celebrated and the weaknesses revealed can be considered as learning opportunities to improve upon.

We need to empower our children to take ownership of their learning and become assessment capable so they have the motivation and ability to lead their learning. The children have proven that they are passionate and we as teachers need to find the courage to let go of our traditional structures with support from management. We need to ask ourselves if we love our children enough to change our practice. If we don't adapt the children may perish.

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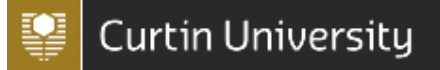
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Appendix A: Informed Consent Form Children



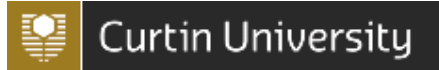
Appendix A

Informed Consent Form – Children

- I know that I don't have to help with the project, but I would like to.
- I know that I will be answering some questions and may be invited to join a group of children my age as part of the project.
- I know I can stop whenever I want to.
- I understand that the researchers have to contact my parent and school principal if I report or my questionnaire responses indicate that I am feeling very sad or have been hurt.
- I know that I need to write my name in the space below, before I can help with the project.

Child's Name: _____ Date: _____

Appendix B: TROFLEI Information for Parents – St Mary’s



Science and Mathematics Education Centre Information Sheet

Janet McCarroll and I are currently completing a piece of research for our Masters of Philosophy at Curtin University.

Purpose of Research

We are interested in finding out about the perceptions of an “IT” based learning management system to support learning in a New Zealand primary school. St Mary’s is currently using KnowledgeNET.

Participation

Year 5 & 6 children have been asked to participate by completing a questionnaire and some children will be interviewed. The questions were about their learning environment. It was explained to the children that they were able to participate and that all information would remain confidential. As the questionnaire did not pose any difficult questions that were outside of normal classroom routine this is a letter to inform parents about the research and let you know that if you have any queries you can contact the school principal Bill, Janet, or myself. Alternatively you can contact the University as detailed below.

Confidentiality

The information provided will be kept separate from personal school details, and I will only have access to this. The children were informed about ‘data’ and assured of their anonymity.

Further Information

This research has been reviewed and given approval by Curtin University of Technology Human Research Ethics Committee (Approval number SMEC-26-11). If you would like further information about the study, please feel free to contact me 075788066 or jbenson@stmarystga.school.nz. Alternatively, you can contact my supervisor Professor Darrell Fisher on 0061 8 9266 3110 or D.Fisher@curtin.edu.au.

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number SMEC-26-11). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or emailing hrec@curtin.edu.au

Thanks,
Jana Benson

APPENDIX C: TROFLEI Information for Parents – Tauranga Primary



Science and Mathematics Education Centre Information Sheet

Janet McCarroll and I are currently completing a piece of research for our Masters of Philosophy at Curtin University, and work at St Mary's School, Tauranga.

Purpose of Research

We are interested in finding out about the perceptions of an "IT" based learning management system to support learning in a New Zealand primary school. Both St Mary's and Tauranga Primary School are currently using KnowledgeNET.

Participation

Year 5 & 6 children have been asked to participate by completing a questionnaire and some children will be interviewed. The questions were about their learning environment. It was explained to the children that they were able to participate and that all information would remain confidential. As the questionnaire did not pose any difficult questions that were outside of normal classroom routines this is a letter to inform parents about the research and let you know that if you have any queries you can contact Janet, or myself. Alternatively you can contact the University as detailed below.

Confidentiality

The information provided will be kept separate from personal school details, and I will only have access to this. The children were informed about 'data' and assured of their anonymity. Tauranga Primary School's data will not be used in the research thesis, it is only collected to validate the questionnaire.

Further Information

If you would like further information about the study, please feel free to contact me 075788066 or jbenson@stmarystga.school.nz. Alternatively, you can contact my supervisor Professor Darrell Fisher on 0061 8 9266 3110 or D.Fisher@curtin.edu.au.

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number SMEC-26-11). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or emailing hrec@curtin.edu.au

Thanks,
Jana Benson
St Mary's School
Tauranga

Appendix D: Information for Tauranga Primary Teachers



Information Sheet

We are currently completing a piece of research for our Masters of Philosophy at Curtin University.

Purpose of Research

I am interested in finding out about the effectiveness of an “it” based learning management system to support learning in a New Zealand primary school. Janet McCarroll is focusing on using a Learning management System as a space for reflection through using Learning Stories. We are both working at St Mary’s Primary School Tauranga.

Participation

As a requirement for our research we need to complete a predesigned questionnaire with 200 Year 5 and 6 children. The questionnaire is called a ‘Technology Rich Outcomes Focused Learning Environment Inventory’ (TROFLEI). There has been a lot of research to validate this ‘tool’ – some more information can be found using the following link:

<http://www.newcastle.edu.au/Resources/Research%20Centres/SORTI/Journals/AJEDP/Vol%204/v4-aldridge-et-al.pdf>

We will not use Tauranga Primary data in our Thesis it will only be St Mary’s data, we will extract the St Mary’s results to present as our research data. St Mary’s only has 120 Year 5 and 6 students so we need another 80 students to participate to validate the survey as a tool for this age group. Tauranga Primary was an obvious choice as we need a school who is using KnowledgeNET.

You are able to determine what information you would like back, the surveys can be completely anonymous (although at St Mary’s we found it was useful to be able to go back to a child if they had missed a question). We are able to collate the data for your school or class results or we can make sure that the data is completely confidential.

Further Information

If you would like further information about the study, please feel free to contact me on 0212948508 or by email: jbenson@stmarystga.school.nz. Alternatively, you can contact my supervisor Professor Darrell Fisher on 61 8 92663110 or D.Fisher@curtin.edu.au.

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number [SMEC-26-11](#)). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or emailing hrec@curtin.edu.au

Regards, Jana Benson

Appendix E: Focus Group Interview Consent



Appendix E

St Mary's

AN INVESTIGATION INTO THE USE OF AN "IT"-BASED LEARNING MANAGEMENT SYSTEM TO SUPPORT LEARNING IN A NEW ZEALAND PRIMARY SCHOOL.

I _____ have read the information on the attached letter. Any questions I have asked have been answered to our/my satisfaction. I agree to participate in this research but understand that I can change my mind or stop at any time.

- I understand that all information provided is treated as confidential.
- I agree for this interview to be taped/ recorded.
- I agree that research gathered for this study may be published provided names or any other information that may identify me/us is not used.

Name: _____ Signature: _____

Date: _____

Investigator: _____ Signature: _____

Appendix F: Participant Information Sheet



Science and Mathematics Education Centre Participant Information Sheet

My name is Jana Benson I am currently completing a piece of research for my Masters of Philosophy at Curtin University.

Purpose of Research

I am interested in finding out about the effectiveness of an “it” based learning management system to support learning in a New Zealand primary school. I would like to find out your thoughts, views and ideas about ICT and in particular the use of a Learning Management System for St Mary’s. I will ask you some questions relating to ICT and Learning Management Systems which will give me an insight into your thoughts, views and ideas. The interview process will take approximately 20 minutes.

Consent to Participate

Your involvement in the research is entirely voluntary. You have the right to withdraw at any stage without it affecting your rights or my responsibilities. When you have signed the consent form I will assume that you have agreed to participate and allow me to use your data in this research.

Confidentiality

The information you provide will be kept separate from your personal details, and I will only have access to this. The interview transcript will not have your name or any other identifying information on it and in adherence to university policy, the interview tapes and transcribed information will be kept in a locked cabinet for at least five years, before a decision is made as to whether it should be destroyed.

Further Information

If you would like further information about the study, please feel free to contact me on 0212948508 or by email: jbenson@stmarystga.school.nz. Alternatively, you can contact my supervisor Professor Darrell Fisher on 61 8 92663110 or D.Fisher@curtin.edu.au.

Thank you very much for your involvement in this research, your participation is greatly appreciated.

This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number SMEC-26-11). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or emailing hrec@curtin.edu.au

Jana Benson

Appendix G: Focus Group Interview Questions

Research Questions

1. What are parents, teachers and children's perceptions of the learning environment in a school in which a Learning Management System LMS is being implemented?
2. How do teachers cope with the technological changes involved with a LMS?
3. How do parents cope with the changes regarding processes in relation to communication received through the LMS?
How do parents cope with the changes in relation to processes received through the LMS?
4. How do students cope with the technological changes involved with an LMS?
5. How have existing processes that were used for teaching changed as a result of the implementation of a LMS?
6. How can a class/school learning environment be adapted and improved in order to achieve both the required high quality student outcomes and equal opportunities for all learners to be involved in a LMS?

Processes

- ❖ Communication
- ❖ Feedback
- ❖ Interaction
- ❖ Links
- ❖ Information
- ❖ Groups
- ❖ access, manage, use, create, and distribute information/content easily and efficiently

PARENTS - Research Questions - 1, 3,6

- What are your perceptions/thoughts of the 'learning environment' in St Mary's as a result of implementing KnowledgeNET?
- Processes
- How do you cope with the changes in relation to processes received through the LMS?
- How can a class/school learning environment be adapted and improved in order to achieve.
 - a). the required high quality student outcomes
 - b). equal opportunities for all learners to be involved in a LMS?

TEACHERS - Research Questions - 1, 2, 5, 6

- What are your perceptions/thoughts of the 'learning environment' in St Mary's as a result of implementing KnowledgeNET?
- How do you cope with the technological changes involved with a LMS?

- How can a class/school learning environment be adapted and improved in order to achieve...
 - a). the required high quality student outcomes
 - b). equal opportunities for all learners to be involved in a LMS?

CHILDREN - Research Questions - 1, 4, 5, 6

- What are your ideas/thoughts of the 'learning environment' in St Mary's as a result of implementing KnowledgeNET?
- How do you cope with the technological 'changes' involved with an LMS?
- How can a class/school learning environment be adapted and improved in order to achieve.
 - a). the required high quality student outcomes
 - b). equal opportunities for all learners to be involved in a LMS?

Appendix H: TROFLEI Questionnaire

**Technology-Rich, Outcomes-Focused Learning
Environment Inventory
(TROFLEI) - Actual**

The completion of this questionnaire implies your informed consent to participate.

Directions for Students

This questionnaire asks you for your perceptions or opinion of **using Knowledge NET** in your class. You are also asked for your permission for your classroom teacher to release recent data.

This questionnaire contains statements about practices that could take place in your class. You will be asked how often each practice takes place. The **‘Actual’** column is to be used to describe how often each practice ***actually takes place*** in this class.

There are no ‘right’ or ‘wrong’ answers. Neatly circle the response that best fits with your opinion of this class. Your responses will be confidential and you will not be identified in this study.

Year Level

Year

Gender

Are you a: Female? Male?

I give permission for my classroom teacher to release the results.

Name _____

Signed _____

Date _____

Class _____

	ACTUAL				
	Never	Seldom	Some times	Most of the time	
Student Cohesiveness					
1. I make friends among students in this class.	1	2	3	4	
2. I know other students in this class.	1	2	3	4	
3. I am friendly to members of this class.	1	2	3	4	
4. Members of the class are my friends.	1	2	3	4	
5. I work well with other class members.	1	2	3	4	
6. I help other class members who are having trouble with their work.	1	2	3	4	
7. Students in this class like me.	1	2	3	4	
8. In this class, I get help from other students.	1	2	3	4	
Teacher Support	Never	Seldom	Some times	Most of the time	
9. The teacher takes a personal interest in me.	1	2	3	4	
10. The teacher goes out of his/her way to help me.	1	2	3	4	
11. The teacher considers my feelings.	1	2	3	4	
12. The teacher helps me when I have trouble with the work.	1	2	3	4	
13. The teacher talks with me.	1	2	3	4	
14. The teacher is interested in my problems.	1	2	3	4	
15. The teacher moves about the class to talk with me.	1	2	3	4	
16. The teacher's questions help me to understand.	1	2	3	4	
Involvement	Never	Seldom	Some times	Most of the time	
17. I discuss ideas in class.	1	2	3	4	
18. I give my opinions during class discussions.	1	2	3	4	
19. The teacher asks me questions.	1	2	3	4	
20. My ideas and suggestions are used during classroom discussions.	1	2	3	4	
21. I ask the teacher questions.	1	2	3	4	
22. I explain my ideas to other students.	1	2	3	4	
23. Students discuss with me how to go about solving problems.	1	2	3	4	
24. I am asked to explain how I solve problems.	1	2	3	4	

Task Orientation	Never	Seldom	Some times	Most of the time				
25. Getting a certain amount of work done is important to me.	1	2	3	4				
26. I do as much as I set out to do.	1	2	3	4				
27. I know the goals for this class.	1	2	3	4				
28. I am ready to start this class on time.	1	2	3	4				
29. I know what I am trying to accomplish in this class.	1	2	3	4				
30. I pay attention during this class.	1	2	3	4				
31. I try to understand the work in this class.	1	2	3	4				
32. I know how much work I have to do.	1	2	3	4				

Cooperation	ACTUAL							
	Never	Seldom	Some times	Most of the time				
33. I cooperate with other students when doing work.	1	2	3	4				
34. I share my books and resources with other students when doing work	1	2	3	4				
35. When I work in groups in this class, there is teamwork.	1	2	3	4				
36. I work with other students on projects in this class.	1	2	3	4				
37. I learn from other students in this class.	1	2	3	4				
38. I work with other students in this class.	1	2	3	4				
39. I cooperate with other students on class activities.	1	2	3	4				
40. Students work with me to achieve class goals.	1	2	3	4				
Equity	Never	Seldom	Some times	Most of the time				
41. The teacher gives as much attention to my questions as to other students' questions.	1	2	3	4				
42. I get the same amount of help from the teacher as do other students.	1	2	3	4				
43. I have the same amount of say in this class as other students.	1	2	3	4				
44. I am treated the same as other students in this class.	1	2	3	4				

45. I receive the same encouragement from the teacher as other students do.	1	2	3	4				
46. I get the same opportunity to contribute to class discussions as other students.	1	2	3	4				
47. My work receives as much praise as other students' work.	1	2	3	4				
48. I get the same opportunity to answer questions as other students.	1	2	3	4				
Differentiation	Never	Seldom	Some times	Most of the time				
49. I work at my own speed.	1	2	3	4				
50. Students who work faster than me move on to the next task.	1	2	3	4				
51. I am given a choice of tasks.	1	2	3	4				
52. I am set tasks that are different from other students' tasks.	1	2	3	4				
53. I am given work that suits my ability.	1	2	3	4				
54. I use different materials from those used by other students	1	2	3	4				
55. I use different assessment methods from other students.	1	2	3	4				
56. I do work that is different from other students' work.	1	2	3	4				
Computer Usage	Never	Seldom	Some times	Most of the time				
57. I use the computer to type my work.	1	2	3	4				
58. I use the computer to email things to my teacher.	1	2	3	4				
59. I use the computer to ask the teacher questions.	1	2	3	4				
60. I use the computer to find out information about the class or our learning.	1	2	3	4				
61. I use the computer at home	1	2	3	4				
62. I access KnowledgeNET.	1	2	3	4				
63. I use the computer to take part in online discussions with other students.	1	2	3	4				
64. I use the computer to obtain information from the Internet.	1	2	3	4				

Attitude to Subject		Never	Seldom	Some times	Most of the time
1.	I look forward to using KnowledgeNET.	1	2	3	4
2.	Work on KnowledgeNET is fun.	1	2	3	4
3.	I dislike KnowledgeNET	1	2	3	4
4.	Knowledge NET bores me	1	2	3	4

5.	KnowledgeNET is one of the most interesting things at school.	1	2	3	4	
6.	I enjoy using KnowledgeNET	1	2	3	4	
7.	Using KnowledgeNET is a waste of time.	1	2	3	4	
8.	Knowledge NET makes me interested in learning at school.	1	2	3	4	
Attitude to Computer Use		Never	Seldom	Some times	Most of the time	
9.	I'm good with computers.	1	2	3	4	
10.	I like working with computers.	1	2	3	4	
11.	Working with computers makes me nervous.	1	2	3	4	
12.	I am comfortable trying new software on the computer.	1	2	3	4	
13.	Working with computers is stimulating.	1	2	3	4	
14.	I get a sinking feeling when I think of using a computer.	1	2	3	4	
15.	I do as little work as possible using a computer.	1	2	3	4	
16.	I feel comfortable using a computer.	1	2	3	4	
Academic Efficacy		Never	Seldom	Some times	Most of the time	
17.	I find it easy to use KnowledgeNET	1	2	3	4	
18.	I am good at Knowledge NET	1	2	3	4	
19.	My friends ask me for help when we are using KnowledgeNET.	1	2	3	4	
20.	I find KnowledgeNET easy.	1	2	3	4	
21.	I outdo most of my classmates in using KnowledgeNET	1	2	3	4	
22.	I have to work hard to understand KnowledgeNET	1	2	3	4	
23.	I am an intelligent student.	1	2	3	4	
24.	I help my friends with their tasks using KnowledgeNET.	1	2	3	4	
Processes		Never	Seldom	Some times	Most of the time	
25.	Schoolwork has changed now that we have KnowledgeNET	1	2	3	4	
26.	My teacher likes Knowledge NET	1	2	3	4	
27.	My learning would improve if I used KnowledgeNET.	1	2	3	4	
28.	I am better than my parents at using the computer.	1	2	3	4	
29.	Sharing my learning has changed through using Knowledge NET	1	2	3	4	
30.	I like reporting to my parents using KnowledgeNET	1	2	3	4	
31.	I like recording my reflections and sharing them on KnowledgeNET	1	2	3	4	

Technology-Rich, Outcomes-Focused Learning Environment Inventory (TROFLEI) - Preferred

The completion of this questionnaire implies your informed consent to participate.

Directions

This questionnaire contains statements about practices which could take place in this class. You will be asked **how often** you would **prefer** each practice to take place. The **'Preferred'** column is to be used to describe *how often you would like* each practice to take place (a wish list).

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Think about how well each statement describes what your preferred class would be like for you.

Draw a circle around

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.

Some statements in this questionnaire are fairly similar to other statements. Don't worry about this. Simply give your opinion about all statements.

Practice Example

Suppose that you were given the statements: "I would choose my partners for group discussion." You would need to decide whether you think **you** would **prefer** to choose your partners 'Never', 'Seldom (not much)', 'Sometimes', or 'Almost Always'. For example, if you selected 'Often', you would circle the number 4 on your questionnaire.

I give permission for my classroom teacher to release the results.

Name _____

Signed _____

Date _____

Class _____

		PREFERRED							
Student Cohesiveness		Never	Seldom	Some times	Most of the time				
1.	I would make friends among students in this class.	1	2	3	4				
2.	I would know other students in this class.	1	2	3	4				
3.	I would be friendly to members of this class.	1	2	3	4				
4.	Members of the class would be my friends.	1	2	3	4				
5.	I would work well with other class members.	1	2	3	4				
6.	I would help other class members who were having trouble with their work.	1	2	3	4				
7.	Students in this class would like me.	1	2	3	4				
8.	In this class, I would get help from other students.	1	2	3	4				
Teacher Support		Never	Seldom	Some times	Most of the time				
9.	The teacher would take a personal interest in me.	1	2	3	4				
10.	The teacher would go out of her way to help me.	1	2	3	4				
11.	The teacher would consider my feelings.	1	2	3	4				
12.	The teacher would help me when I have trouble with the work.	1	2	3	4				
13.	The teacher would talk with me.	1	2	3	4				
14.	The teacher would be interested in my problems.	1	2	3	4				
15.	The teacher would move about the class to talk with me.	1	2	3	4				
16.	The teacher's questions would help me to understand.	1	2	3	4				
Involvement		Never	Seldom	Some times	Most of the time				
17.	I would discuss ideas in class.	1	2	3	4				
18.	I would give my opinions during class discussions.	1	2	3	4				
19.	The teacher would ask me questions.	1	2	3	4				
20.	My ideas and suggestions would be used during classroom discussions.	1	2	3	4				
21.	I would ask the teacher questions.	1	2	3	4				
22.	I would explain my ideas to other students.	1	2	3	4				

23. Students would discuss with me how to go about solving problems.	1	2	3	4				
24. I would be asked to explain how I solve problems.	1	2	3	4				
Task Orientation	Never	Seldom	Some times	Most of the time				
25. Getting a certain amount of work done would be important to me.	1	2	3	4				
26. I would do as much as I set out to do.	1	2	3	4				
27. I would know the goals for this class.	1	2	3	4				
28. I would be ready to start this class on time.	1	2	3	4				
29. I would know what I am trying to accomplish in this class.	1	2	3	4				
30. I would pay attention during this class.	1	2	3	4				
31. I would try to understand the work in this class.	1	2	3	4				
32. I would know how much work I have to do.	1	2	3	4				

	PREFERRED							
Cooperation	Never	Seldom	Some times	Most of the time				
33. I would cooperate with other students when doing work.	1	2	3	4				
34. I would share my books and resources with other students when doing work	1	2	3	4				
35. When I work in groups in this class, there would be teamwork.	1	2	3	4				
36. I would work with other students on projects in this class.	1	2	3	4				
37. I would learn from other students in this class.	1	2	3	4				
38. I would work with other students in this class.	1	2	3	4				
39. I would cooperate with other students on class activities.	1	2	3	4				
40. Students would work with me to achieve class goals.	1	2	3	4				
Equity	Never	Seldom	Some times	Most of the time				
41. The teacher would give as much attention to my questions as to other students' questions.	1	2	3	4				

42. I would get the same amount of help from the teacher as do other students.	1	2	3	4					
43. I would have the same amount of say in this class as other students.	1	2	3	4					
44. I would be treated the same as other students in this class.	1	2	3	4					
45. I would receive the same encouragement from the teacher as other students do.	1	2	3	4					
46. I would get the same opportunity to contribute to class discussions as other students.	1	2	3	4					
47. My work would receive as much praise as other students' work.	1	2	3	4					
48. I would get the same opportunity to answer questions as other students.	1	2	3	4					
Differentiation	Never	Seldom	Some times	Most of the time					
49. I would work at my own speed.	1	2	3	4					
50. Students who work faster than me would move on to the next task.	1	2	3	4					
51. I would be given a choice of tasks.	1	2	3	4					
52. I would be set tasks that are different from other students' tasks.	1	2	3	4					
53. I would be given work that suits my ability.	1	2	3	4					
54. I would use different materials from those used by other students	1	2	3	4					
55. I would use different assessment methods from other students.	1	2	3	4					
56. I would do work that is different from other students' work.	1	2	3	4					
Computer Usage	Never	Seldom	Some times	Most of the time					
57. I would use the computer to type my work.	1	2	3	4					
58. I would use the computer to email things to my teacher.	1	2	3	4					
59. I would use the computer to ask the teacher questions.	1	2	3	4					
60. I would use the computer to find out information about the class or our learning.	1	2	3	4					
61. I would use the computer at home	1	2	3	4					
62. I would access KnowledgeNET.	1	2	3	4					
63. I would use the computer to take part in online discussions with other students.	1	2	3	4					
64. I would use the computer to obtain information from the Internet.	1	2	3	4					

Appendix I: The New Role of ICT in St Mary's Catholic School

In preparation for our community, parents and students to access 'Knowledge Net', the St Mary's Learning Management System, we require an overview of the ICT capacities of each St Mary's household.

KnowledgeNet facilitates 24/7 access at school and home from any internet enabled computer. This 'safe' learning environment can only be accessed through a personal/family password.

To ensure all students have equitable access to the global, rich learning opportunities KnowledgeNet provides, the school will meet the needs of those students who cannot access the internet at home.

There are 23 questions in this survey

Your Details

1 Please enter your Family Name *

Please write your answer here:

2 Please enter your child/children's name(s) & year(s) *

Please write your answer here:

eg; John (3), Janet (5)

Technology At Home

3 Do you have any computers in your household? *

Please choose only one of the following:

Yes

No

4 How many computers do you have in your household? *

[Only answer this question if you answered 'Yes' to question '3']

Please choose the appropriate response for each item:

Desktop Laptop/Notebook

None

1

2

3

4 or more

5 What sort of computers do you use? *

[Only answer this question if you answered 'Yes' to question '3']

Please choose all that apply:

Microsoft Windows

Apple Mac OS

Linux

Other:

6 Are any of your PCs or laptops able to access the Internet? *
[Only answer this question if you answered 'Yes' to question '3']
Please choose only one of the following:
Yes
No

7 Would you or your family make use of school computers to access learning resources & tools, if they were available to you? *
[Only answer this question if you answered 'No' to question '6']
Please choose only one of the following:
Yes
No

8 What sort of Internet connection do you have? *
[Only answer this question if you answered 'Yes' to question '6']
Please choose only one of the following:
Broadband
Dial-up
I'm not sure
Other

9 We regularly use computers at home for: *
[Only answer this question if you answered 'Yes' to question '3']
Please choose all that apply:
General Internet access
Email access
Social networking
Playing games
Online banking
Internet shopping
Other:

10 Which of the following electronic devices do you have in your household? *
Please choose all that apply:
Mobile Phone
Games Console
DVD Player
Digital Camera
Video Camera
Netbook

11 I believe that access to computers at home has a positive effect on learning. *
Please choose only one of the following:
Yes
No

12 I believe that access to computers at school has a positive effect on learning. *
Please choose only one of the following:
Yes
No

13 I am interested in supporting the school to increase the number of computers available to students, by: *

Please choose the appropriate response for each item:

	Yes	Uncertain	No
Donation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helping to fundraise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sponsoring a computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What Do The Children Think?

Please discuss the following questions with your child/children:

14 Our child/children believe(s) that computers and the Internet help their learning: *

Please choose only one of the following:

Yes

No

15 Our child/children believe(s) that computers are important in being a life-long learner: *

Please choose only one of the following:

Yes

No

16 Our child/children believe(s) that the number of computers in their classroom(s) is: *

Please choose only one of the following:

Not enough

Just right

Too many

Safety & Security

17 Is/are your child/children allowed to access the Internet without supervision? *

Please choose only one of the following:

Yes

No

18 Is/are your child/children able to access the Internet without supervision? *

Please choose only one of the following:

Yes

No

19 Which of the following technique(s) (if any) do you use to monitor or control Internet access at home? *

Please choose all that apply:

The location of the computer(s)

Supervision

Internet filtering software

Other:

School Website & Email Communication

20 I currently use the school website (<http://www.stmarystga.school.nz>) for the following: *

Please choose all that apply:

- I didn't know St Mary's had a website
- Checking school event dates and times
- Reading school notices
- Contacting the school (phone and email addresses)
- Accessing past and current newsletters
- Accessing reply slips

Other:

21 Would you prefer to receive all school & PTA notices via email? *

Please choose only one of the following:

- Yes
- No

22 If we don't have your email address, or you wish to update it, please add it here:

Please write your answer here:

23 Suggestions or comments regarding the use of the school website:

Please write your answer here:

1980-01-01

Please fax your completed survey to: 07 578 8956 Submit your survey.

Thank you for completing this survey.

Appendix J: Teaching Staff Review of the On Line Writing Sample In KnowledgeNET

2009 MOE Target in Literacy

There are 13 questions in this survey

Teaching Staff Review of the On Line Writing Sample
1 2009 MOE Target in Literacy

Goal 2: “To develop Personalised Learning Reporting progress of student writing and reading using ePortfolios- including student reflection”

Was the on line writing sample and reflection successful in meeting Goal 2 of the MOE 2009 literacy Target? *

Please choose **only one** of the following:

- 1 - Agree
- 2
- 3
- 4
- 5 - Disagree

Make a comment on your choice here:

2 Learning Stories/Narratives

Do you think using an online learning story allows for students active involvement in their learning? *

Please choose **only one** of the following:

- 1 - Agree
- 2
- 3
- 4
- 5 - Disagree

Make a comment on your choice here:

3 Metacognition

Do you think that the writing sample met the need for student self-reflection and involvement in their own learning? *

Please choose **only one** of the following:

- 1 - Agree
- 2
- 3
- 4
- 5 - Disagree

Make a comment on your choice here:

4 How useful was the audio tool 'jing' in terms of developing the skill of articulating and making 'Thinking Visible' for the student? *

Please choose **only one** of the following:

- 1 - Useful
- 2
- 3
- 4
- 5 - Not Useful

Make a comment on your choice here:

5 Technical

Were the technical skills required for this on line writing sample well supported by In house support i.e. ICT Team, Lead team and Outside Assistance including ICT Facilitator? *

Please choose **only one** of the following:

- 1 - Agree
- 2
- 3
- 4
- 5 - Disagree

Make a comment on your choice here:

6 As a whole staff we have navigated new learning territory. Rate your level of competency using KnowledgeNET. *

Please choose **only one** of the following:

- 1 - High
- 2
- 3
- 4
- 5 - Low

Make a comment on your choice here:

7 Professional Development

How important is further Professional Development necessary to build your understanding of the value of Learning Narratives/Stories as a key element in the Teaching/Learning/Assessment cycle? *

Please choose **only one** of the following:

- 1 - High
- 2
- 3
- 4
- 5 - Low

Make a comment on your choice here:

8 Teaching and Learning

Next time we report writing to parents, would you prefer to send home the writing book or complete another on line sample? *

Please choose **only one** of the following:

- Writing Book
- Writing sample in Learning Story On Line

Make a comment on your choice here:

9 Writing Book

Writing sample in Learning Story On Line

How valuable do you see KnowledgeNET in connecting parents with their child's learning journey? *

Please choose **only one** of the following:

- 1 - Valuable
- 2
- 3
- 4
- 5 - Not Valuable

Make a comment on your choice here:

10 How could the B.O.T. support your learning journey in using KnowledgeNET to improve Learning Outcomes for your students?

Please write your answer here:

11 To ensure that next time we use KnowledgeNET for school wide reporting mid-year 2010, we ask for and value your comments to help us refine the process and ensure that both teachers and students are set up for optimum success. Please enter your comments in the PMI comment box.

PLUS

Please write your answer here:

MINUS

Please write your answer here:

INTERESTING

Please write your answer here:

1980-01-01

{FAX_TO} Submit your survey. Thank you for completing this survey.

Appendix K: Knowledge Net Survey

We have recently launched KnowledgeNET and appreciate your ideas and thoughts. There are 5 questions in this survey

KnowledgeNET launch

1 How effective is the audio tool (listening to your child speak) as a means of communicating your child's self-assessment of their writing? *

Please choose only one of the following:

- 1-Not effective
- 2
- 3
- 4
- 5-Very Effective

2 How effective is this form of reporting compared with sending home your child's writing book? *

Please choose only one of the following:

- 1-Not effective
- 2
- 3
- 4
- 5-Very Effective

3 Have you taken the opportunity to visit your child's class homepage? *

Please choose only one of the following:

- Yes
- No

4 How effective do you see your child's class homepage as a means of being connected with the learning journey of your child?

[Only answer this question if you answered 'Yes' to question '3']

Please choose only one of the following:

- 1-Not effective
- 2
- 3
- 4
- 5-Very Effective

5 Is there any desired context/content/ideas that you would like to see added to your child's homepage/class homepage?

Please write your answer here:

2009-06-27

{FAX_TO} Submit your survey. Thank you for completing this survey.

Appendix L: Teacher 2010 Learning Stories

The Directions for Assessment in New Zealand (DANZ) paper provides broad advice to the Ministry of Education to guide and inform the design of new and improved strategies, policies, and plans for assessment.

Quotes in this survey are in italics and can be found in the DANZ report using the following link:

<http://assessment.tki.org.nz/Assessment-in-the-classroom/Directions-for-assessment-in-New-Zealand-DANZ-report>

The information obtained through this survey will be used for self review of our reporting practices at both B.O.T. and Management levels, to help inform and refine our future school reporting processes and for publications regarding educational research.

There are 17 questions in this survey

Making Thinking Visible

1 [1]

DANZ: “getting it right’ begins with ensuring that students are placed at the heart of the assessment process and educated in ways that develop their capability to assess their own learning’...

Throughout this process my children are aware of where they are at, where they are going and how to get there?

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

2 [2]

DANZ: ‘all young people should be educated in ways that develop their capacity to assess their own learning’

An online learning story allows for students active involvement in their learning. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

3 [3]

DANZ: ‘At present the most important assessment decisions tend to be made by adults on behalf of students. Students should be involved in assessment as a matter of course because it is a core aspect of their learning, and they should contribute to any assessment decisions that are used to inform their learning goals.

My students were able to participate as fully in assessment as in learning. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

4 [4]

The Learning Stories met the need for student self-reflection in their own learning. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

5 [5]

DANZ: 'strengthening the assessment capability of students, by enhancing the assessment capabilities of teachers, school leaders, parents, and those who support them'.

Further Professional Learning and Development is necessary to build my understanding of the value of Learning Narratives/Stories as a key element in the Teaching, Learning and Assessment capabilities/cycle *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

6 [6]

DANZ: 'Students who have developed their assessment capabilities are able and motivated to access, interpret, and use information from quality assessments in ways that affirm or further their learning.'

A Learning Story /e-portfolio enables students to access, interpret and use quality info to support their assessment and learning. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

7 [7]

Connecting parents with their child's learning journey through using a Learning Management System (KnowledgeNET) is very important?

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

Implementation

8 [9]

The technical skills required for this on line reporting were well supported by in house support ie. ICT Team, Management Team and Outside Assistance. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

9 [10]

As a whole staff we have navigated new learning territory. My level of competency using KnowledgeNET is of a high standard.

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

10 [11]

I have coped with the technological changes involved with a Learning Management System.

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

11 [12]

Would you prefer to send home the child's books & a paper report or complete another online sample? *

Please choose the appropriate response for each item:

	Yes	Uncertain	No
Child's books & a paper report	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Another online sample?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12 [13]

How could the Management support your learning journey in using KnowledgeNET to improve Learning Outcomes for your students? *

Please write your answer here:

13 [14]

The following processes used for teaching and learning have changed positively as a result of implementing KnowledgeNET (our Learning Management System)

Please choose the appropriate response for each item:

	Reporting	E-portfolios	activities	resources	and	to	Audience	Engagement	Communication	opportunities	Feedback	reflection	Student
1 - Strongly Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 - Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 - Undecided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 - Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 - Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14 [15]

How can a school/class environment be adapted and improved in order to achieve both high quality student outcomes required and the equal opportunity for all learners to be involved in a Learning Management System?

Please write your answer here:

15 [16]

To ensure that next time we use KnowledgeNET for school wide reporting we ask for and value your comments to help us refine the process and ensure that both teachers and students are set up for optimum success. Please enter your comments ...

PLUS

Please write your answer here:

16 [17]MINUS

Please write your answer here:

17 [18]INTERESTING

Please write your answer here:

01.01.1970 – 12:00

Submit your survey.

Thank you for completing this survey.

Appendix M: Learning Stories Parent Survey 2010

In 2009 St Mary's school introduced the concept of an eportfolio to our community when we used an 'On Line Learning Story' to report in writing mid-year and maths later that year. Every student was issued with a password to access the 'Learning Stories' stored in an electronic portfolio within KnowledgeNET our Learning Management System

"An electronic portfolio uses technologies as the container, allowing students/teachers to collect and organise artifacts in many media types, (audio, video, graphic, text); and using hypertext links to organise the material, connecting evidence to appropriate outcomes, goals or standards." (Barrett, 2005. P.5)

In July 2010, St Mary's School used Learning Stories in KnowledgeNET to report Writing, Reading and Mathematics to parents for our Interim National Standards. The New Zealand Curriculum 2007 states:

"The primary purpose of assessment is to improve students' learning and teachers' teaching as both student and teacher respond to the information that it provides. With this in mind, schools need to consider how they will gather, analyse, and use assessment information so that it is effective in meeting this purpose"

We encourage all parents to complete the survey which is anonymous. The information obtained through this survey will be used for self-review of our reporting practices at both B.O.T. and Management levels, to help inform and refine our future school reporting processes and for publications regarding educational research. We thank you for your support in completing this survey.

There are 9 questions in this survey

::Secret Word is Balthasar ::

1 [1]The information provided for my child/ren in KnowledgeNET helps him/her see where they are currently at with their learning. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

2 [2]The KnowledgeNET Learning Stories provided an opportunity for my child/ren to reflect on and discuss their learning with me. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

3 [3]The Learning Stories provided clear learning intentions (We are learning to - WALT) *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

4 [4]The Learning Stories provided effective teacher feedback. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

5 [5]The Assessment information (such as the Reading Wedge and Maths Table) in the KnowledgeNET eportfolio enabled me to understand my child/rens progress and achievement.

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

6 [6]

The following processes used for teaching and learning have changed positively as a result of implementing KnowledgeNET (our Learning Management System)

Please choose the appropriate response for each item:

	Reporting	E-portfolios	Accessibility to resources and activities	Audience, engagement	Communication	Feedback opportunities	Student reflection
1 - Strongly Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2 - Agree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3 - Undecided	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4 - Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5 - Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7 [7]

I have coped with the technology changes in relation to St Mary's over the last two years. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

8 [8] This year our reporting process has included Parent Teacher Interviews, Online Reporting and will include an End of Year Written Report.

Overall, I am in favour of the shift towards on-line student reporting (eportfolios) as a part of the reporting process. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

9 [9]

Overall, I am in favour of the shift towards on-line communication with parents / caregivers. *

Please choose only one of the following:

- 1 - Strongly Agree
- 2 - Agree
- 3 - Undecided
- 4 - Disagree
- 5 - Strongly Disagree

Make a comment on your choice here:

01.01.1970

–

12:00

Submit

your

survey.

Thank you for completing this survey.

Appendix N: Nick Rate

After our recent Professional Development we are wanting some quantifiable data/feedback on a few of Nick's questions. It is intended that this survey is short and sharp so please make your responses brief. It is intended that we will also create a forum on Knowledge NET for further discussions and reflections with an opportunity for deeper thinking to be shared.

For this survey we would like you to enter in your name as in previous surveys we haven't had a full staff response. Without a full response it is hard to use the data as 'true' evidence and justification for future decisions. We will then be able to identify those who have completed the survey.

There are 8 questions in this survey

Your details

1 [D1]Name *

Please write your answer here:

Feedback

2 [1]DANZ : 'strengthening the assessment capability of students, by enhancing the assessment capabilities of teachers, school leaders, parents, and those who support them'.

Further Professional Learning and Development is necessary to build my understanding of the value of Learning Narratives/Stories as a key element in the Teaching, Learning and Assessment capabilities/cycle * *

Please choose only one of the following:

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Make a comment on your choice here:

3 [2]In comparison with other Professional Development opportunities we have had as a staff Nick Rate was extremely valuable. *

Please choose only one of the following:

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Make a comment on your choice here:

4 [3]As a whole staff we have navigated new learning territory. My level of competency using KnowledgeNET is of a high standard. *

Please choose only one of the following:

- Strongly Agree
- Agree
- Undecided

- Disagree
- Strongly Disagree

Make a comment on your choice here:

5 [4]I agree that the impact of using an eportfolio will change teaching and learning to improve learning outcomes. *

Please choose only one of the following:

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Make a comment on your choice here:

6 [5]What has shaped your eportfolio pedagogy? *

Please choose all that apply:

- pedagogical beliefs
- research
- trends
- Professional Development
- Other:

7 [6]What type of eportfolios are yours? *

Please choose all that apply:

- Process
- Accountability
- Showcase

8 [7]Your thoughts? *

Please choose the appropriate response for each item:

	Yes	Uncertain	No
Are your parents ready?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are your teachers ready?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is the School leadership ready?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is it important for eportfolios in your school to have a consistent look and feel?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Should your school expect the teachers to have a reflective eportfolio just as the students do?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Should students and teachers use the same tool (ie. Knowledge NET) for their e-portfolios?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

01.01.1970 – 12:00

Submit your survey.

Thank you for completing this survey.

Appendix O: KnowledgeNET Questionnaire May 2011

St Mary's Parent Information Sessions

Knowledge Net Requirements Questionnaire

St Mary's school is currently reviewing the way Knowledge Net is used, understood, and maintained, and they are interested in hearing the Parent's voice!

Below are a series of questions that we would like you to answer so the school can see how to improve the parents understanding of and use of Knowledge Net as a tool to aid and follow your child's learning over time.

Please circle or tick the appropriate answer.

1. a) Do you know about Knowledge Net and how to access it?

Yes No

	Not at all		Mostly		Very Useful/ Accessible	Not applicable
b) If YES, how useful and easily accessible do you find it.	<input type="radio"/>					

2. If you would like to know (more) about Knowledge Net, what sort of learning environment would you like to see available to parents?(Tick 1 or more options)

a) "Drop-In" Learning Sessions, at school one day per week from 3pm to 8pm	<input type="radio"/>
b) Scheduled "Drop-In" learning sessions for specific Year groups (as per (a) above)	<input type="radio"/>
c) Social "Book-Club" style evening sessions at someone's home	<input type="radio"/>
d) Evening Parent session in school hall (for up to 20 users)	<input type="radio"/>
i) Year specific	<input type="radio"/>
ii) Syndicate specific	<input type="radio"/>
iii) General	<input type="radio"/>
e) Other: Please specify	<input type="radio"/>

3. What sort of information would you like to have available at these Knowledge Net learning sessions?

a) Basic access and navigation information	<input type="radio"/>
b) How to set up and maintain a home page	<input type="radio"/>
c) How to interpret uploaded information and upload new information/data/photos etc	<input type="radio"/>
d) Links to other useful sites, freeware, learning tools/game sites etc.	<input type="radio"/>
e) Other (please specify):	<input type="radio"/>

4. If there were more opportunities available for parent information sessions, what topics or speakers would you be interested in hearing about/from?

5. If you are able to assist the teacher in a technical assistant type role, to maintain and update Knowledge Net regularly, please provide your name and contact detail below.

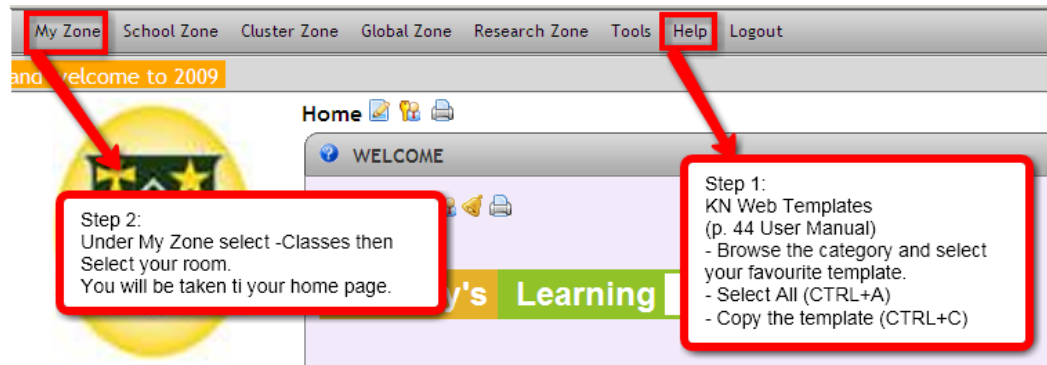
Name: _____ Ph: _____

Thank you very much for taking the time to complete this survey.

Please return this survey in the PTA Post Box inside the sick bay near the office

by 27th May 2011.

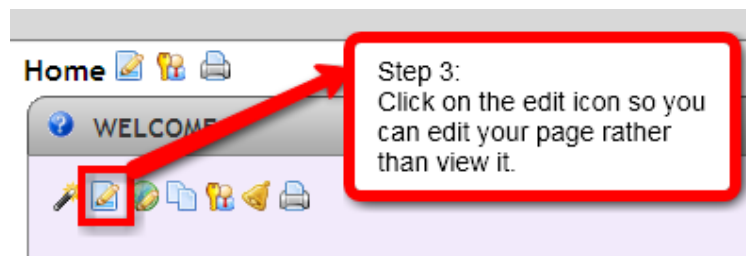
Appendix P: Accessing and Using KN Templates



The screenshot shows the top navigation bar with the following items: My Zone, School Zone, Cluster Zone, Global Zone, Research Zone, Tools, Help, and Logout. Below the navigation bar is a banner that says "and welcome to 2009". The main content area has a "Home" header with icons and a "WELCOME" section. A callout box points to the "My Zone" menu item, and another callout box points to the "Help" menu item.

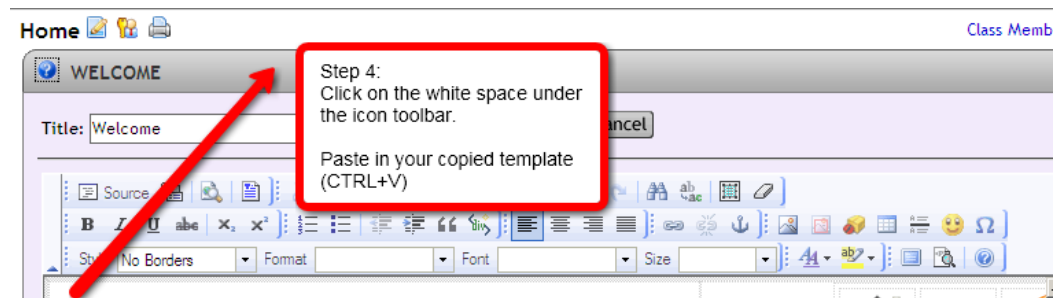
Step 2:
Under My Zone select -Classes then
Select your room.
You will be taken to your home page.

Step 1:
KN Web Templates
(p. 44 User Manual)
- Browse the category and select
your favourite template.
- Select All (CTRL+A)
- Copy the template (CTRL+C)



The screenshot shows the "Home" header and "WELCOME" section. A callout box points to the edit icon in the toolbar.

Step 3:
Click on the edit icon so you
can edit your page rather
than view it.



The screenshot shows the "Home" header and "WELCOME" section. A callout box points to the white space under the icon toolbar. The toolbar includes options for Source, Bold, Italic, Underline, Text Color, Background Color, Bulleted List, Numbered List, Indent, Outdent, Link, Unlink, Image, Table, and other editing tools.

Step 4:
Click on the white space under
the icon toolbar.

Paste in your copied template
(CTRL+V)

Appendix Q: Instructions for the Writing Template

1. School Zone - Staff Area

2. Click on + next to Info store, then you will find Instructions & or Templates

4. Click on the edit icon to enter the editing mode.

3. Access Descriptive Writing Template by clicking on the Title

DESCRIPTIVE WRITING TEMPLATE

Title: Descriptive Writing Template Sequence: 0 OK Cancel

St Mary's V

Writing Assessment Term 2 2009

PURPOSE FOR WRITING

5. Click inside on the template and Highlight All and Copy - (Ctrl+A) (Ctrl+ C)

NAVIGATOR

- Job Applications
- Job Vacancy
- Life Long Learning
- Professional Learning
- Special Needs
- Staff Fun
- Student Achievement
- Templates
 - Class Homepage 1
 - Descriptive Writing
 - Graph Test
 - Instructions

WELCOME

St Mary's

VERAX ET GLENDIS

Room 5

Room 1

Room 10

Room 11

Room 12

Room 13

Room 14

Room 15

Room 17

Room 1A

Room 2

Room 3

Room 4

Room 5

Room 6

Room 7

Room 8

Room 9

Extension

Forum

Noticeboard

Personal Calendar

Resources

Welcome

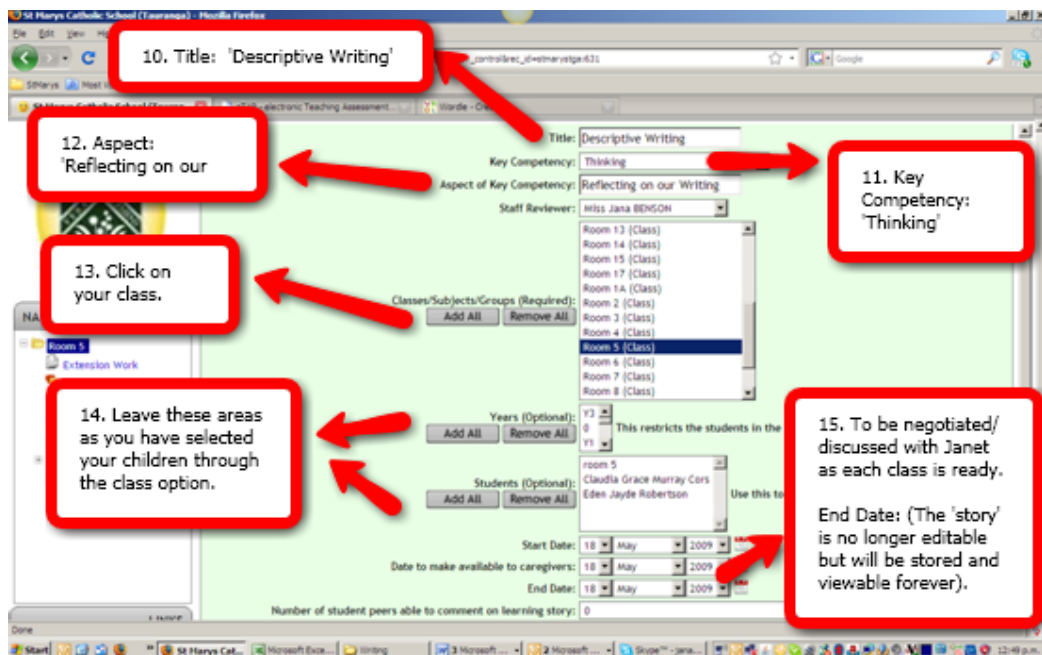
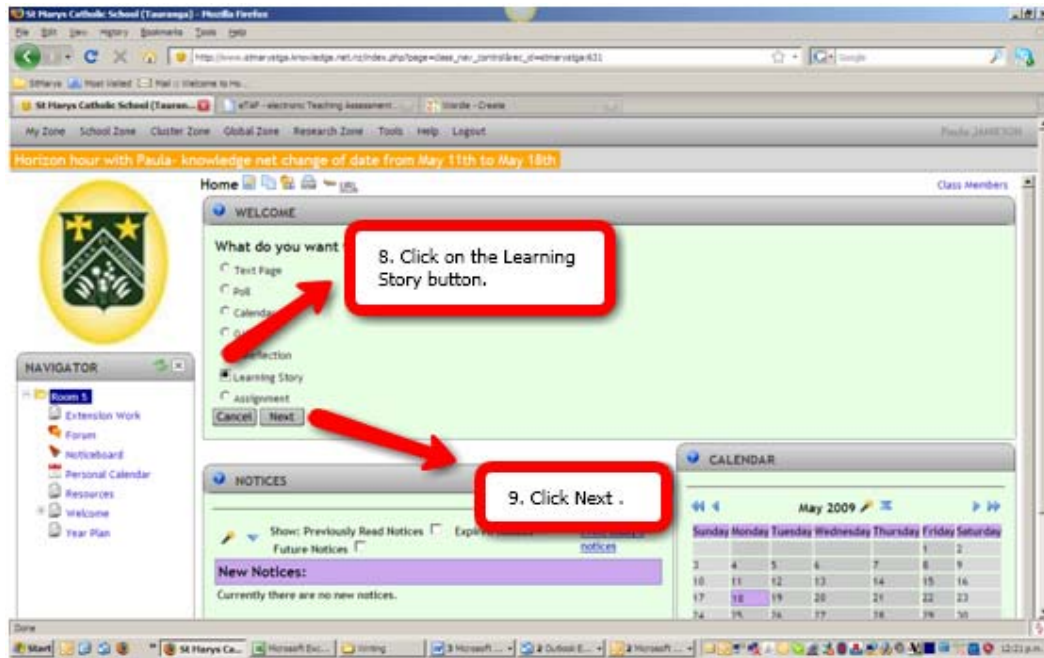
Year Plan

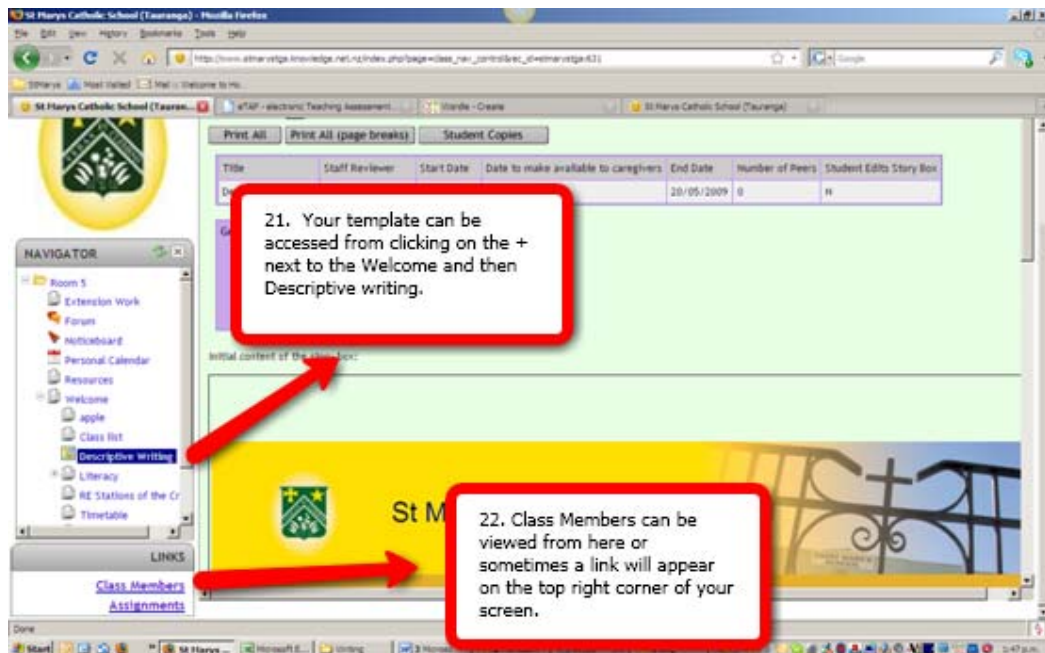
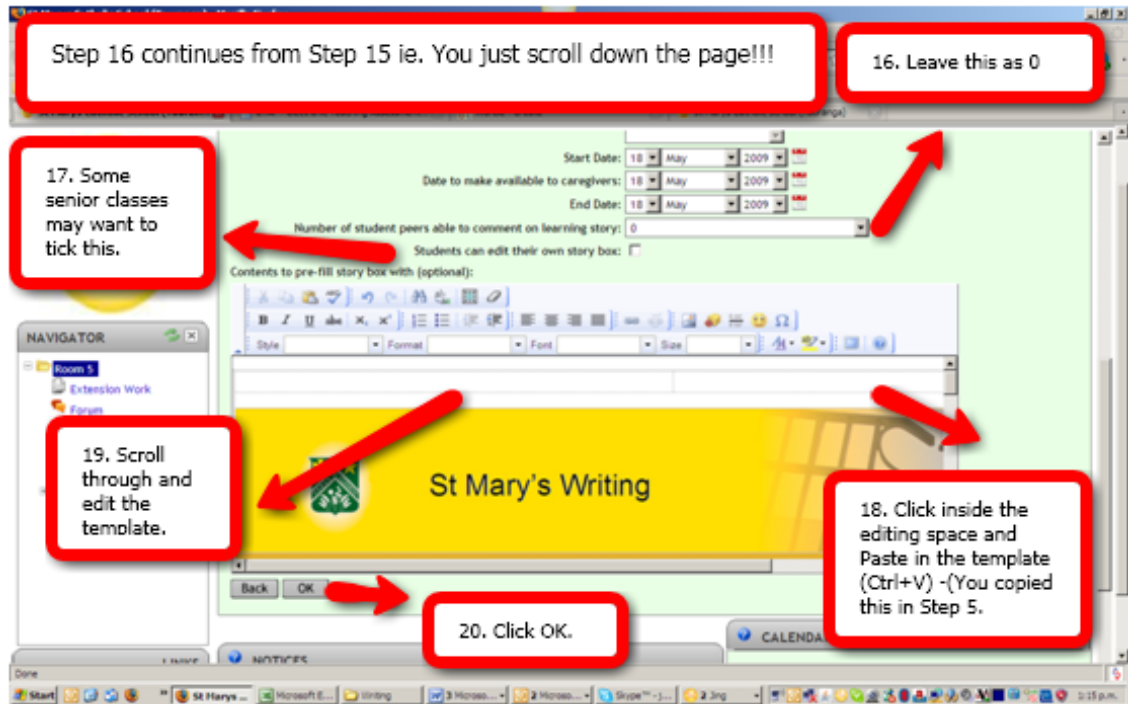
7. Click the Add icon.

6. Access your class from My Zone - Classes - Room...

Room 5

Niko Broch Claudia Leilani Brennan Ethan Caitlin





23. Click on class members
24. Click on Learning Stories
25. Click on blue Descriptive Writing link.

