Implementing personalised learning in New Zealand primary schools Innovative Learning Environments

Emma Tolmie

A thesis submitted in partial fulfilment of the requirements for the degree of Master of Educational Management and Leadership

Unitec Institute of Technology
2016
ABSTRACT

The New Zealand Ministry of Education is requiring that all primary school ‘new builds’ and renovations be Innovative Learning Environments (ILEs), within these there is an expectation that personalised learning is to be implemented. The problem is that there are numerous understandings about the term ‘personalised learning’. This study focuses on school leaders’ and teachers’ understandings of personalised learning, what it looks like in practice, and the challenges in implementing personalised learning in Innovative Learning Environments.

An interpretive approach and a qualitative methodology has been employed. The data have been collected through semi-structured interviews and document analysis. A leader and teacher from three Auckland schools who practice personalised learning within their Innovative Learning Environments were interviewed (six interviews in all). Government documents and school documents were analysed.

A key finding was that the school educators’ definitions and understandings of the term personalised learning, influenced how personalised learning was implemented in their Innovative Learning Environments. There appears to be confusion over the term personalised learning. School leaders and teachers did not have the same understanding of what personalised learning was. Educators were unanimous in their purpose of personalised learning in ILEs which was to improve student learning outcomes. Two models of deep personalisation were discovered which included systems to track student participation and achievement. Although every educator saw advantages in implementing personalised learning, managing change was the biggest challenge.

Conclusions from my study are that leaders must take certain actions to assure the effective implementation of deep personalised learning in Innovative Learning Environments. First the way in which personalised learning is understood and practiced has to be shared by all stakeholders; therefore, leaders must develop a shared vision about definition and practice. The second implication for practice is that change has to be managed collaboratively and leaders and teachers must agree about when and how personalised learning will be implemented.

Recommendations are that leaders collaboratively develop a shared vision of what personalised learning is and decide on what model they will adopt as a structure for implementation. As part of the personalised learning model leaders need to design and develop a tracking system to monitor and evaluate student participation and achievement.
Acknowledgements

Firstly, I would like to acknowledge the six participants from the three schools in my study, of whom I have learnt a lot. They have given up time to be interviewed, and found documents for me. Through being open and willing to share, hopefully others can also learn from what has been found in this study as a result.

Secondly, I would never have been able to complete my dream of completing my master’s degree without the support of my fantastic Murrays Bay Intermediate School board and principal Colin Dale, who encouraged me to apply for the TeachNZ Study award. Upon being given the award they then worked with me to be able to use it. I have enjoyed being able to take time out of the classroom to think, reflect and learn such a lot. I have also appreciated the leadership and teacher interest in the research I have been doing, and enjoyed being able to pop in each week to work. Particular thanks to Bronwen who checked in with me regularly and got me out walking. You are such a great friend.

Thirdly, my supervisor Carol Cardno has been the best supervisor I could have hoped for! With straight up feedback that has immensely helped raise my standard and point me in the right direction. She has been open and available. Carol has been an expert supervisor, scaffolding me at the beginning, so that I could be set out to sail, knowing I would return when I needed the next chat and feedback on a section of writing.

Lastly, my incredible family who are super supportive and have never tired from chatting with me about the new things I have discovered or learnt while carrying out this research. I found some school holidays particularly amusing. On occasion when I would bury my head into my work, nerf wars would erupt all around me, making writing my thesis all the more fun. I have enjoyed the flexibility of time, so that I have been able to spend more time with my family during my year of study.
# Table of Contents

ABSTRACT .......................................................................................................................... ii  
Acknowledgements ............................................................................................................ iii  
Table of Contents .............................................................................................................. iv  
List of tables ....................................................................................................................... vi  
List of abbreviations .......................................................................................................... vi  

CHAPTER 1: Introduction .................................................................................................... 1  
Background ......................................................................................................................... 1  
Rationale ............................................................................................................................... 3  
Research aims ..................................................................................................................... 5  
Research questions ............................................................................................................ 6  
Thesis organisation ............................................................................................................ 6  

CHAPTER 2: LITERATURE REVIEW .................................................................................. 8  
Introduction ......................................................................................................................... 8  
PERSONALISED LEARNING AS A CONCEPT ............................................................... 8  
Confusion over definitions ................................................................................................. 9  
Pedagogy, shallow versus deep .......................................................................................... 10  
THE PRACTICE OF PERSONALISED LEARNING ......................................................... 13  
History of personalised learning ....................................................................................... 13  
Government pressure for implementing personalised learning .................................... 14  
Space .................................................................................................................................. 15  
Student wellbeing ............................................................................................................... 16  
Timetabling .......................................................................................................................... 16  
Technology .......................................................................................................................... 17  
Personalised learning in practice ..................................................................................... 18  
Implementation construct ................................................................................................. 19  

CHALLENGES OF PERSONALISED LEARNING IN INNOVATIVE LEARNING  
ENVIRONMENTS (ILEs) .................................................................................................... 21  
Are we repeating history? .................................................................................................. 21  
System constraints ............................................................................................................. 22  
Teacher-student role change ............................................................................................. 22  
Leadership challenges in managing change .................................................................. 23  
CONFIRMING RELEVANCE .......................................................................................... 26  

CHAPTER 3: METHODOLOGY ......................................................................................... 28  
SOCIAL CONSTRUCT ....................................................................................................... 28  
RESEARCH DESIGN .......................................................................................................... 29
Practical challenges ................................................................................................................. 81
Managing change .......................................................................................................................... 82
CONCLUSIONS ............................................................................................................................. 84
RECOMMENDATIONS ............................................................................................................... 86
School in study recommendations .............................................................................................. 86
General recommendations ......................................................................................................... 87
STRENGTHS AND LIMITATIONS OF THE STUDY ................................................................. 87
Areas for further research .......................................................................................................... 88
REFERENCES ............................................................................................................................... 89
APPENDIX A – Participant information ................................................................................... 97
APPENDIX B – Interview Schedule .......................................................................................... 98
APPENDIX C – Organisation consent template ......................................................................... 99
APPENDIX D - Individual consent form .................................................................................. 100

List of tables

Table 1. Deep and shallow personalised; Individualised and Differentiated Learning ........... 12
Table 2: Adaptation of Continuum ............................................................................................. 19
Table 3: Codes of interview participants ................................................................................... 40
Table 4: Summary of key findings ............................................................................................... 75

List of abbreviations

ERO - Education Review Office
ILE – Innovative Learning Environments
MLE – Modern Learning Environments
MOE – Ministry of Education
OECD - Organization for Economic Cooperation and Development
PSI - Personalised System of Instruction
SSC - State Services Commission
UDL – Universal Design for Learning
UREC - Unitec Research Ethics Committee
CHAPTER 1: Introduction

Background

New Zealand classrooms in primary schools are changing and with the Education Amendment Bill presently going through select committee in parliament to update the Education Act (New Zealand Parliament, 2016a), further changes are imminent. There is a general worldwide movement away from traditional classroom teaching where the teacher dictates all learning, to a collaborative approach where the student is an active participant in personalising their learning (Maharey, 2006b; Organization for Economic Cooperation and Development, OECD, 2015). This change in school pedagogy is causing change to the design of classrooms. The Ministry of Education (MOE) are leading the change by focusing on updating traditional classrooms. All new classroom builds and renovations are required to be Innovative Learning Environments (Bolstad, Gilbert, McDowall, Bull, Boyd, & Hipkins, 2012), where walls are opened up, break out rooms are present and technology is available. Multiple teachers and classes operate in these spaces and the intention of the MOE is that teaching pedagogy will also change and shift from a single-cell classroom teaching style to a collaborative teaching style which includes personalised learning. The MOE states: “Traditional approaches to teaching and learning are no longer enough on their own to give children the best education to prepare them for life (Ministry of Education, 2016e). These changes are cause for examination as open-plan classrooms and personalised learning are not new ideas.

The concept of Innovative Learning Environments is not new. Over 40 years ago, in the 1970’s, governments of the time in New Zealand, England and America, implemented what was called ‘open-plan’ classrooms (Cuban, 2004; Department of Education, 1977). Since then classrooms have reverted back to single-cell traditional classrooms. Recently the New Zealand government reintroduced the open-plan classrooms as Modern Learning Environments (MLEs). MLEs have since been renamed ‘Innovative Learning Environments’ (ILEs), to reflect the pedagogical change worldwide (Ministry of Education, 2016d). The reason for bringing back the use of ILE classrooms is to foster collaboration between teachers and students, to teach more
than content knowledge of subjects and to raise achievement. The MOE (Ministry of Education, 2016e) share that they have gleaned their information from research which shows that learning environments positively affect student achievement. “Well-designed classrooms can boost learning progress in primary school pupils by up to 16% in a single year” (Barrett, Zhang, Davies, & Barrett, 2015, p. 1). The OECD (2015) express that student learning is more than the environment alone; the human element and expertise of a teacher is vital, stating that an “innovative learning environment framework will have… a rich mix and diversity of pedagogical practices with highly visible personalised approaches” (p. 13). The MOE (2015a) agree stating “Good spaces, enable, but do not guarantee, good educational outcomes” (p. 1).

Since 2006, the MOE or House of Representatives have been calling for a transformational shift in teaching; for personalised learning to be implemented into practice (Education and Science Committee, 2008; Kaye, 2015; Maharey, 2006a; Ministry of Education, 2006, 2007a, 2008, 2009, 2015). A new curriculum was released in 2007 which moved from a teacher-centered to a student-centered focus. “The National Curriculum makes it clear that education in New Zealand puts learners at the centre of teaching and learning” (Ministry of Education, 2016c). The single-cell traditional classrooms are regarded as stifling educators’ ability to change their pedagogy. The MOE in New Zealand have recognised this and are requiring schools move to the Innovative Learning Environments, hence helping enable personalised learning to be implemented.

Personalised learning is important because it is impelling learning from a traditional teaching practice to a model that can meet every students learning needs. Personalised learning moves away from teachers being imparters of knowledge, to showing students how to learn, creating the curiosity and thirst for what to do with knowledge (OECD, 2015). Leadbeater (2006) outlines several types of personalised learning. Shallow personalised learning is where the educator decides the activities and personalises them for the student, also called ‘mass-customisation’. Bolstad et al., (2012) add that shallow personalised learning is also called individualisation and is superficial. Bray and McClaskey (2013) agree but add that differentiation is teacher led and part of shallow personalised learning. Deep personalised learning uses
authentic real world contexts, is adaptive, easier to implement with devices, involves goal setting, feedback, collaboration where students and teachers organise learning (Bolstad et al., 2012; Grant & Basye, 2014; Leadbeater, 2006). Deep personalisation requires students to self-manage or self-regulate and be independent learners (Underwood & Banyard, 2008, p. 233). The difference between shallow and deep personalised learning is who has control, the teachers or the students (Clarke, 2013; Grant & Basye, 2014). Hipkins (2014) explains that personalised learning is collaborative; it isn’t teacher directed or student directed, it is both. Personalised learning raises student engagement due to students feeling ownership and pride in their learning (OECD, 2015).

The challenge of a changing teachers’ pedagogy and practice is highlighted by Timperley, who states: “Teaching is a complex activity. Teachers’ moment-by-moment decisions about lesson content and process are shaped by multiple factors, not just the agendas of those looking for changes in practice” (Timperley, 2008, p. 6). Due to the complex nature of teaching, leaders’ change management must be considered and be led collaboratively with teachers so that they can understand the importance of the changes being made in their teaching environment and practice, and know how to implement those changes.

Rationale
Several problems face school leaders and teachers who want to implement personalised learning in Innovative Learning Environments. Firstly, there is confusion about the concept of personalised learning by educators. Secondly, as school leaders and teachers shift their pedagogy, new skills are needed to cope with change and this poses challenges for primary school leaders when implementing personalised learning. Thirdly, several teachers will be teaching collaboratively in the same learning space, therefore tensions could arise when teachers are not heading in the same direction with the same purpose.

My interest in personalised learning comes from my experience as a teacher and a parent. My teaching pedagogy changed to encompass personalised learning. When I changed from traditional teaching methods to the personalised learning methods, I
first experienced feelings of loss of control. However, talking with other teachers about their personalised teaching methods I realised that there were very different views about what personalised learning was and what it looked like in the classroom. I felt confused. I wanted to know whether my concept of personalised learning was correct. Research confirms that there is confusion over the concept of personalised learning (Courcier, 2007; Underwood & Banyard, 2008). Zmuda, Curtis, & Ullman (2015) reveal that the term ‘personalised learning’ is used for a wide variety of teaching methods and Cavanagh (2014) states that “there is not yet a shared understanding of what it [personalised learning] means” (p.52). Consequently, Courcier (2007) fears that the confusion is causing educators to use the term ‘personalised learning’ to enable traditional teaching practices to continue.

Personalised learning has historically focused on children with special needs, minority groups such as Māori and Aborigines, and digital learning, rather than to learning as a whole. The historic focus on these groups, has brought about individual education plans (IEPs) (Clarke, 2013). However, new educational spaces promote a personalised approach to teaching and learning for all children. It is this demand that currently challenges teachers in our primary schools.

Moving stakeholders such as teachers, parents and students to a new understanding and change in practice, requires leaders who understand how to lead change management and who have a deep knowledge of pedagogy. The OECD state: “Having a theory of change is not enough as there needs to be an understanding and capacity to actually bring those changes about” (OECD, 2015, p. 21). Woolner, McCarter, Wall and Higgins (2012) research and the Ministry of Education (2015) agree, that school leaders might know ILEs require pedagogical change in teaching and learning, but are not always able to produce the change in practice. This can be because change can be confusing and very unsettling for people (Bolman & Deal, 2008; Busher, 2006; Fullan, 2003; Grant & Basye, 2014). Hence, it is vital that leaders collaboratively develop a clear shared vision about what personalised learning is and what it looks like in practice. My focus is on the pedagogy change; from traditional single cell practices, to personalised learning, that the MOE and OECD are hoping for in the ILEs. Today we are in a digital age where technology is accessible and widely used to share
knowledge, learn and communicate. This technological shift is influencing the re-emergence of personalised learning, but is causing educators to struggle adopting new pedagogies (Carneiro, Lefrere, Steffens, & Underwood, 2011). I hope this research will help leaders understand the history of personalised learning, what personalised learning is, models and constructs of personalised learning that leaders can use to help implement personalised learning in their own ILEs. From this research, leaders might also be able to see what challenges educators face when implementing personalised learning so that they can learn from these when adopting personalised learning in their own environment. In turn, leaders may reduce potential teacher tensions as educators learn to work collaboratively in the Innovative Learning Environments, with the purpose of raising student achievement by adopting personalised learning.

There is little research in New Zealand about the implementation of personalised learning within ILEs in primary schools. This study will contribute to this area of research and possibly help educators who read the research findings to learn about the concept of personalised learning, how it is implemented, and challenges facing educators when implementing personalised learning in Innovative Learning Environments. Ultimately, this could benefit primary school students in New Zealand, if educators learn from the study’s findings and apply them.

**Research aims**

1. To explore how the concept of personalised learning is understood and espoused by New Zealand primary school leaders in relation to teaching in Innovative Learning Environments.

2. To investigate ways in which personalised learning is implemented in New Zealand primary schools.

3. To investigate the challenges facing teachers who implement personalised learning in Innovative Learning Environments.
Research questions

1. How is the concept of personalised learning understood and espoused by New Zealand primary school leaders in relation to teaching in Innovative Learning Environments?

2. In what ways is personalised learning implemented in New Zealand primary schools?

3. What challenges New Zealand primary school teachers when implementing personalised learning within Innovative Learning Environments?

Thesis organisation

Chapter one introduces the background to the topic of personalised learning in New Zealand primary schools Innovative Learning Environments. The thesis rationale and why this study is important for today’s primary school leaders is shared. The research questions and aims are presented.

Chapter two uses literature to critically discuss personalised learning as a concept, what personalised learning looks like in practice, and challenges for leaders in adopting personalised learning. The concept of personalised learning presents evidence that personalised learning is a confused term, but then the definition of personalised learning is divulged. The practice of personalised learning reviews the history of personalised learning, government influence, influence of changing learning environments, effects on achievement and student wellbeing. Timetabling and technology is probed within personalised learning. The practice of personalised learning and constructs leaders can use to implement personalised learning is presented. Challenges of personalised learning in ILEs are discussed in particular historical challenges, system constraints, teacher-student role changes, change management and the relevancy of this study are explored.

Chapter three uses literature to justify and present the methodology employed for the research part of this study. The social constructivist stance is discussed from
ontological and epistemological reasoning. The research design argues why a qualitative methodology with an interpretive approach has been employed. Methods of data collection and analysis is revealed to include how participants were selected, why semi-structured interviews, documentary analysis, and the method of qualitative data analysis were chosen. To show that the research is reliable; validity, trustworthiness, integrity and triangulation is disclosed. Lastly, the ethical considerations are explored to show the measures that have occurred to keep people and organisations safe from harm.

Chapter four presents summaries of participant perceptions and the findings from the document analysis, semi-structured interviews, and the triangulated analysis. The relevancy of the schools and participants is given through description of their ILEs, the age of the students and how many people are within each ILE. The document analysis findings outline the documents obtained for analysing. The documents are sorted under government documents and school documents. The key findings from analysis are given. The semi-structured interview findings are organised under three categories: the concept of personalised learning in schools, implementation of personalised learning, and challenges of implementing personalised learning. Within each category themes emerge and are presented with verbatim data to provide evidence. A summary of the key findings is divulged.

Chapter five is a discussion of the key findings from the document analysis and semi-structured interviews discussed in chapter two, against a literature backdrop. The framework is organised around the three main research aims: the concept of personalised learning; the implementation of personalised learning in Innovative Learning Environments; challenges of implementing personalised learning. Within these headings the key findings that emerged from the data are presented. The conclusions, recommendations, strengths and limitations of this study conclude the thesis.
CHAPTER 2: LITERATURE REVIEW

Introduction

Literature will be critically discussed within the focus of my research about the implementation of personalised learning in Innovative Learning Environments. There is a general worldwide movement away from traditional classroom teaching where the teacher dictates all learning, to a collaborative approach where the student is an active participant (Maharey, 2006b; OECD, 2015). This change in school pedagogy is causing change to the design of classrooms. Dovey and Fisher research acknowledges the influence that the change in pedagogy is having on learning environments, and states: “A shift from teacher-centred to student-centred learning is accompanied by the move towards a more ‘open’ plan with new spatial types, interconnections and modes of adaptation” (Dovey & Fisher, 2014). These open plan classrooms have a rich history in education and a variety of terms to describe them, such as Modern Learning Environments (MLEs), Innovative Learning Environments (ILEs) and flexible learning spaces, to name a few. Reform in environments provokes teachers’ pedagogy to change and adapt, which creates challenges around personalised learning as a concept, what personalised learning looks like in practice, and how personalised learning is implemented in the new classroom environments.

PERSONALISED LEARNING AS A CONCEPT

In New Zealand, primary schools were created in the industrial era and haven’t moved too far from the model first set up where everything was standardised and taught to classes as a whole. Bolstad, et al., acknowledge that the education system needs to change, stating: “It is widely argued that current educational systems, structures and practices are not sufficient to address and support learning needs for all students in today’s world” (Bolstad, et al., 2012, p. 7). This traditional model of schooling is described as “a teacher-centred pedagogy, framing a hierarchical relationship between teacher and students” (Dovey & Fisher, 2014, p. 43). The Ministry of Education (2016) state that in New Zealand low-skilled occupations are vanishing, while jobs which require highly skilled people, are in demand, causing a need for a nationwide system transformation. Bolstad et al., (2012) suggest an ‘unbundling’ of schools and content, then discusses six themes that are at the heart of taking schools to the next level. Personalised learning is the first theme which permeates the other
themes. “Learning has to be personalised—not a standardised-experience” (Bolstad, et al., 2012, p. 15). The following discusses the definition and concept of personalised learning.

Confusion over definitions
The understanding of personalised learning is conflicting. The Ministry of Education (2015) refers to ‘21st century learning practices’. Bolstad et al., (2012) explain how personalised learning is a key aspect of the Ministry of Education’s 21st century learning practices. Cavanagh (2014) discusses how personalised learning doesn’t evoke easy definitions, “there is not yet a shared understanding of what it [personalised learning] means” (p.52). Zmuda, Curtis, & Ullman (2015) state, “The term personalized learning has been used perhaps too broadly to cover a whole host of strategies and values”(p. xi.). Courcier (2007) strongly supports the notion that personalised learning has mixed understandings, and explains how teachers can see the term personalised learning as ambiguous, appear confused about what it is and how to implement personalised learning. Consequently, Courcier (2007) expresses fear about personalised learning being used for various teaching methods that could be enabling traditional teaching practices. Research into leaders’, teachers’ and students’ perceptions of personalised learning in the United Kingdom, supports the notion that personalised learning is a confused term and found that there was not one shared understanding of personalised learning (Underwood & Banyard, 2008).

There are other terms used in literature that are similar to personalised learning. Bray and McClaskey (2013) acknowledges that the following terms are often confused: personalisation, individualised and differentiated learning, adding to the confusion for educators around what personalised learning is. Bolstad et al. (2012), state that personalised learning in New Zealand “is poorly understood, and yet to be fully implemented” (p. 24). A 2016 conference in Australia (Delivering Personalised Learning Summit, 2016) reflect how educators are confused about the definition of personalised learning. Only the two keynote speakers (Boscardin & Walter-Thomas, 2016) defined personalised learning. Every other speaker at the conference talked about personalised learning in different ways such as differentiated, individualised and
flexible learning. Personalised learning was also described as teachers’ implementing and directing the learning without student input.

**Pedagogy, shallow versus deep**

Personalised learning is described by Bolstad et al., (2012) as supporting every individual to reach their full potential, rather than having every individual aim for the same achievement goal. Leadbeater (2006) outlines several types of personalised learning. Shallow personalised learning is where the educator decides the activities and personalises them for the student, also called ‘mass-customisation’. Deep personalisation is when the student gets to participate in the decisions and co-create their personalised learning, called ‘mass-personalisation’. Bolstad et al., (2012) clarify shallow personalised learning as superficial, whereas deep personalisation reflect students’ interests, choices and input. Shallow personalised learning is also called individualisation. The distinct teacher and student roles can be seen in the difference between individualisation and personalisation. The distinct teacher and student roles can be seen in the difference between individualisation and personalisation described by Clarke: “Personalization is not the same as individualization. Personal learning requires the active direction of the student; individualization lets adults tailor the curriculum to scaled assessments of interest and abilities” (Clarke, 2013, p. 23). Clarke’s point of difference between the two styles of learning is defined by who has control, the teacher or the students. Bray and McClaskey (2013) agree but add that differentiation is also teacher led.

Engaging students in authentic real world relevant contexts within their own communities is a key aspect of personalisation. Bolstad et al., (2012) explains that authentic real world contexts for learning are only examples of deep personalisation when students have contributed to the decisions about the learning contexts, timeframes and solve challenges that occur. Shallow personalisation where teachers have given students authentic learning examples as projects, led to low student engagement because students didn’t have the same input or see the end results. Deep personalisation requires students to self-manage or self-regulate and be independent learners. “The personalisation of learning and self-regulated learning are overlapping concepts” (Underwood & Banyard, 2008, p. 233). From the literature, Table 1 gives an
overview of the differences between individualised and differentiated learning; deep and shallow personalised learning. The table has been designed so that Leadbeater (2006) and Bolstad et al., (2012) descriptions can be compared with Bray and McClaskey (2013, p. 13) descriptions of the same terms. The table is also arranged so that the terms can be compared with each other in a visual summary.
Table 1. Deep and shallow personalised; Individualised and Differentiated Learning

<table>
<thead>
<tr>
<th>Adapted from Leadbeater (2006) and Bolstad et al. (2012)</th>
<th>Deep Personalised learning</th>
<th>Shallow personalised learning or Individualised learning</th>
<th>Differentiated learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students contribute to decisions about their learning such as:</td>
<td>Students contribute to decisions about their learning such as:</td>
<td>Teacher led and directed.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- self-regulating</td>
<td>- self-regulating</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- setting personal learning goals</td>
<td>- setting personal learning goals</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- timeframes</td>
<td>- timeframes</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- design and choice of authentic learning projects</td>
<td>- design and choice of authentic learning projects</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- reflect their interests</td>
<td>- reflect their interests</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- solve challenges that arise from their decisions</td>
<td>- solve challenges that arise from their decisions</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>- reflection</td>
<td>- reflection</td>
<td>Teacher decides the activities and personalises them for the student. Example, online maths programme where a teacher limits what activities individual students can do.</td>
<td>Teacher decides which group students will learn best in. Examples, streaming for extension classes, reading or maths groups that are ability levelled.</td>
</tr>
<tr>
<td>Bray and McClaskey (2013, p. 13)</td>
<td>The teacher:</td>
<td>The teacher:</td>
<td>The teacher:</td>
</tr>
<tr>
<td>The learner:</td>
<td>- Drives his or her own learning</td>
<td>- Provides instruction to an individual learner</td>
<td>- Provides instruction to groups of learners</td>
</tr>
<tr>
<td>- Connects learning with interests, passions, and aspirations</td>
<td>- Connects learning with interests, passions, and aspirations</td>
<td>- Accommodates learning needs of the individual learner</td>
<td>- Adjusts to learning needs of groups of learners</td>
</tr>
<tr>
<td>- Develops the skills to select and use appropriate technology and resources to support learning</td>
<td>- Develops the skills to select and use appropriate technology and resources to support learning</td>
<td>- Selects technology and resources to support the learning needs of the individual learner</td>
<td>- Selects technology and resources to support the learning needs of groups of learners</td>
</tr>
<tr>
<td>- Demonstrates master of content in a competency-based model</td>
<td>- Demonstrates master of content in a competency-based model</td>
<td>- Monitors learning based on grade level</td>
<td>- Monitors learning based on grade level</td>
</tr>
<tr>
<td>- employs assessment as learning</td>
<td>- employs assessment as learning</td>
<td>- Employs assessment for learning</td>
<td>- Employs assessment for learning</td>
</tr>
<tr>
<td>- Becomes a self-directed learner who monitors progress and reflects on learning based on mastery of content and skills</td>
<td>- Becomes a self-directed learner who monitors progress and reflects on learning based on mastery of content and skills</td>
<td>- Uses data and assessments to confirm progress and report what the individual learner has learned</td>
<td>- Uses data and assessments to confirm progress and report what the individual learner has learned</td>
</tr>
</tbody>
</table>

12
THE PRACTICE OF PERSONALISED LEARNING

History of personalised learning
As a concept, personalised learning is not new. An extensive Personalised System of Instruction (PSI) also known as the Keller Plan, has been in American classrooms since 1960 (Frederick & Hummel, 2014). It started out in Universities to teach physics, then adapted to teach all levels of schooling. PSI has had a remarkable amount of research demonstrating its effectiveness in a variety of settings. Few educational innovations have been subjected to the empirical scrutiny PSI has, and fewer still have emerged so unscathed… over 300 papers, articles, and research reports on PSI had been published, and by 1979 there were close to 3000 such publications”. (Frederick & Hummel, 2014, pp. 202, 205)

Frederick and Hummel (2014) reveal that the advances in technology may improve the PSI factors which were so heavily criticised. The main reasons outlined by Frederick and Hummel (2014) that led to PSI demise, are relevant now, as they may be the same challenges facing educators today. For example, “the hesitation of instructors to transition from a teacher-centered approach to a learner-centred approach” (p. 206); PSI changed the role of the teacher and required more planning and organisation.

Frederick and Hummel (2014) cite Kulik, Kulik, and Cohen (1979) meta-analysis “of 72 studies that compared PSI to conventional instruction” (p. 307). The findings showed that students who experienced PSI achieved significantly better, retained more information months after exams and enjoyed learning much more than conventional instruction. Another meta-analysis studied 108 university programmes and their effectiveness. They found that 72 programmes used PSI, less university programmes used Bloom’s Learning for Mastery which also spread to all levels of schooling. The results showed students using PSI, did better.

However, it is questionable whether Personalised System of Instruction (PSI) goes far enough to be completely ‘learner-centred’. The program requires students to read individually or in groups, and then complete an assignment set by the teacher. While the students get to set their pace within a time frame - it is still highly teacher directed due to the teacher supplying the reading material and demanding that students reach
certain mastery before being allowed to move on. PSI can be adapted to any subject; students can go at their own pace (within a deadline); has an aspect of peer tutoring; immediate feedback is given by a teacher once they have marked it. The fact that PSI demands frequent testing, isn’t suited to collaborative activities and is mastery driven (Frederick & Hummel, 2014), means that this is not a personalised model for the 21st century learner, but leans fully into the individualised learning style of the 20th century.

Government pressure for implementing personalised learning

The Ministry of Education is a government department in New Zealand that advises the government, guides education policy, funds the system and regards themselves as the steward of the education system in New Zealand (Ministry of Education, 2016). However, The State Services Commission (SSC) make it clear that there is not one centre of power, “no agency has overall accountability for the achievement of education outcomes for students and learners” (State Services Commission, 2005, p. 22). The SSC state that there are numerous types of stakeholders involved with learning in education, such as parents, school boards, employers. The SSC acknowledged in 2005 that “There are moves from ‘mass market’ delivery of education to expectations by students and their families of an increasingly personalised curriculum” (State Services Commission, 2005, p. 38). The Ministry of Education released the new curriculum in 2007 with the intention that personalised learning could occur in schools. Since 2006, the Ministry of Education or House of Representatives have been calling for a transformational shift in teaching; for personalised learning to be implemented into practice (Education and Science Committee, 2008; Kaye, 2015; Maharey, 2006a; Ministry of Education, 2006, 2007a, 2008, 2009, 2015). National Standards became the focus in government documents and statement of intents in 2010. Personalised learning reappeared again in MOE statement of intents from 2011 onwards. Personalised learning in primary school Innovative Learning Environments is being called for because, “some key skill levels are falling… national monitoring studies show that the proportion of children meeting some curriculum expectations reduces between years 4 and 8… Technological advancements are also creating the potential for huge change in teaching and learning” (Ministry of Education, 2015, p. 12). Ultimately, the Ministry of Education want to see higher achievement rates for students so that they can get jobs when they leave the education system, in a global
economy. The MOE (2015) acknowledge that the success of the New Zealand future economy depends on student achievement. The Ministry of Education states that by 2023 in Christchurch, “more than 80% of teaching spaces will be Innovative Learning Environments” (2015, p. 10) and recognises that there is great pressure on teachers and schools to raise the quality of teaching and learning within.

Space
The Ministry of Education manages the Crown’s property portfolio of $23.5 billion (Ministry of Education, 2016f). Stonefield school is a New Zealand primary school that opened in 2011 as a complete innovation learning environment, previously called modern learning environment. Stonefield school is cited by Bolstad et al., (2012) as describing their new innovation learning environment and the relationships of teachers and students within them:

By opening a school with open learning spaces/ a modern learning environment with two or three teachers in a space we are challenging teachers’ notions of their ‘ownership of a space’ and of a set of children. We see the learning hub as a learner’s space rather than as a teacher’s space. (Bolstad, et al., 2012, p. 9)

Stonefields school is acknowledged by the Ministry of Education (2015) as a business study for what is hoped to be implemented in all classrooms across the country; for innovation learning environments where students’ learning is at the centre of all educative practice. The Ministry of Education (2015a) acknowledge on their innovative learning environment fact sheet that “Good spaces, enable, but do not guarantee, good educational outcomes. Poor spaces will adversely impact educational outcomes” (p. 1). This statement leads us to believe that the new environment, teacher pedagogy and student well-being, can influence student outcomes in Innovative Learning Environments. Barret et al., (2015) research shows that the environment can have an impact on student achievement, and state “Well-designed classrooms can boost learning progress in primary school pupils by up to 16% in a single year” (p. 1). The OECD (2015) express that student learning is more than the environment alone and that the expertise of a teacher is vital.
Student wellbeing
The implementation of personalised learning could increase student wellbeing. A student’s ability to learn is inextricably woven to their wellbeing. The Education Review Office (ERO) states in its national report findings that New Zealand primary school aged children had low levels of wellbeing and that, “A transformational shift in practice for many teachers and leaders about students’ ability to make and take accountability for their own choices was necessary if wellbeing goals were to be realised” (Education Review Office, 2015). ERO makes it clear that teachers and school leaders need to change their practice by giving students the ability to choose and have some control of their learning, in order for an increase in student wellbeing to occur in New Zealand.

However, Osborne (2016) cautions that when implementing personalised learning in Innovative Learning Environments where more than one teacher teaches more than one class, it’s important that students form strong bonds with at least one teacher. This is because, “children make the most progress when they have a strong attachment figure in their lives” (Osborne, 2016). Osborne continues by saying that the advantage of having more than one teacher in a ILE is that students have a higher chance of finding a teacher to connect with, however this declines after student numbers in learning environments reach around 150 students.

Timetabling
Timetabling flexibility enables students to personalise timetables. This may mean that students try things that teachers have not seen yet. Many students are feeling frustrated and disengaged by the strict timetabling that exists in schools as an institution (Davidson C. N., 2011). Sam Levin states, “We want kids to learn how to learn, to be innovative, and to make change, to be able to tackle the nuanced and constantly shifting problems that the future presents? Don’t give them a voice. Give them our schools” (Levin, 2014). This is an ironic statement considering educators would say schools are for students. This highlights that the control is with educators, who because students are disengaged, haven’t captured how to excite students to learn.
The OECD agrees with Sam Levin in that personalised learning is displayed in flexible personalised timetables and “allows for deep learning” (OECD, 2015, p. 33). While the example given is a High School example, this could be applied to a primary school setting. This is being recognised in the New Zealand governments Education Legislation Bill (Ministry of Education, 2015b), to amend the 1989 Education Legislation Act to vary minimum school opening hours. The intent of the amendment is to allow schools to vary their timetabling within the hours required to be open for learning, to allow for timetable personalisation (Ministry of Education, 2015b).

Technology
Today, ILEs have the use of technology, which has changed dramatically since open-plan classrooms of the 1970s. If used transformatively, technology can revolutionise students learning and help personalise it (Grant & Basye, 2014). Personalised learning shifts education from the industrial era of schooling which aimed to fill students with knowledge; to now transform education whereby students learn what to do with knowledge when they find it. Bray and McClaskey (2013) acknowledge that technology has the ability to shift teaching to personalised learning which can “meet learners where they are, to teach them all in the ways that they learn best, and to facilitate optimal learning experiences for everyone, anytime and anywhere” (p. 13). Students no longer need to depend on the teacher for content knowledge; students can go to Google (OECD, 2015), instead students can “make decisions about what, how, when, and where to learn” (Grant & Basye, 2014, p. 93). Personalised learning of the future moves away from mastery of knowledge base, to knowing how to use knowledge and is skill based. Personalised learning is empowerment for both teachers and students, whereby they can be set free from traditional forms of learning where teachers were ‘the fountain of all knowledge’, and dictated what and how concepts were taught (Zmuda, Ullman, & Curtis, 2015). This leads to collaboration and globalisation, where the teacher and students within the walls of the classroom don’t have to be the only audience or consultants (Richardson, 2010). Technology allows them to reach a global audience and consultants within a personalised context.

The OECD (2015) acknowledges that even though there has been a significant increase in the use of technology in schools, technology has not revolutionised
learning environments. OECD (2015) examples of why technology hasn’t revolutionised learning environments can be from an insufficient infrastructure that doesn’t offer enough Wi-Fi speed, or could be due to a teacher’s pedagogy. For example, if paper is substituted by a computing device, the learning style hasn’t changed; if teachers continue to teach the same way they did in single cell classrooms in ILEs, the learning style stays the same. The Ministry of Education (2015) agree that without a change in teachers’ pedagogy in an innovative learning environment, the learning, motivation and engagement affecting student progress will not change.

**Personalised learning in practice**

Grant and Basye (2014) view personalised learning as transformative compared to individualised instruction. They view personalised learning as adaptive, involve students setting goals and organising their own learning, feedback, reflection, collaboration, is easier to implement with devices, and state: “One way to personalize learning is by designing experiences that allow students to make choices about what and how they learn” (Grant & Basye, 2014, p. 93). Reflection is a key component of personalised learning for teachers and students, especially in providing “the assessment of the ‘why’ and ‘how’ of learning” and identifying learning next steps (Ministry of Education, 2009a). The Ministry of Education encourage teachers to make regular time for reflections with their students as part of their teaching. Generally, personalised learning is viewed as students being in control of their own learning, which raises student engagement due to students feeling ownership and pride in their learning. Where a teacher is in control of the learning it lessens the student’s curiosity to learn. Teachers need to change from imparters of knowledge, to showing students how to learn, create the curiosity and thirst for what to do with the knowledge they find (OECD, 2015). People learn best by being active participants, not where the learning is dictated to them as spectators (Bolstad et al., 2012). However, giving more control to students changes the teacher’s role significantly to facilitator, adviser and coach (Cavanagh, 2014; Grant & Basye, 2014). An aspect of Toshalis and Nakkula (2012) research about student-centered approaches is shown in Table 2 as a continuum from left to right, about student motivation and engagement which shows how students can move from teacher directed learning to autonomous, self-managed, independent learning where students are intrinsically motivated. Table 2 shows that students can
be at the very left of the continuum where they lack motivation to engage in activities; to the other end of the continuum where they are intrinsically motivated to engage in learning activities. A description of the characteristics of each step along the continuum is noted. Table 2 also displays the perceived locus of causality, which relates to motivation and behaviour. The perceived locus of causality communicates the increasing levels of student internalisation and ownership of student learning as they progress through the continuum from left to right.

Table 2: Adaptation of Continuum

<table>
<thead>
<tr>
<th>Students experience</th>
<th>Heteronomy</th>
<th>Autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Self-determination</td>
<td>Amotivation</td>
<td>External Regulation</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Lack of intention; low perceived competence; low perceived relevance</td>
<td>Compliance; emerging salience of rewards or punishments</td>
</tr>
<tr>
<td>Perceived Locus of Causality</td>
<td>Impersonal</td>
<td>External</td>
</tr>
</tbody>
</table>

Source: Toshalis and Nakkula, 2012, p. 10

For students to be independent and self-managed; students need scaffolding to be able to fully personalise their learning. Toshalis and Nakkula (2012) explain that not all students have access to mentors who can model self-regulating strategies and so need to be taught. Toshalis and Nakkula (2012) highlight Zimmerman (1998) theory of four development stages to implement self-managed, independent personalised learners, which are: observation, emulation, self-control and self-regulated. The following is one platform educators could use to implement personalised learning, fostering independent learners who can self-regulate or self-manage.

Implementation construct

An emerging platform for educators to use for implementing personalised learning is Universal Design for Learning (UDL). “Universal Design for Learning (UDL) is a research-based set of principles to guide the design of learning environments that are accessible and effective for all” (CAST Publishers, 2016). UDL started out helping
educators include children with special needs in their classrooms. However, educators soon realised that UDL was a teaching approach that was helpful for all learners. The New Zealand Ministry of Education report about UDL supports this, “UDL involves planning and delivering programmes with the needs of all students in mind. It applies to all facets of education: from curriculum, assessment and pedagogy to classroom and school design” (Mitchell, 2010, p. 16.3). As Mitchell suggests, UDL affects curriculum, its delivery, teaching pedagogy and classroom design. UDL employs a personalised learning approach whereby the teaching focus changes from the curriculum, to the student (Meyer, Rose, & Gordon, 2014). Meyer, et al., (2010) explain that when using UDL the focus is on the student, with the curriculum supporting ways in which they can learn, and state: “When students encounter difficulty, the curriculum – not the learner – is assumed to be inadequate to meet the varied and diverse needs of learners” (Meyer, et al., 2010, p 129). UDL is built on three principals of learning which recognises that every child learns differently, eliminating learning labels. Therefore, the curriculum needs to be presented in different ways, to provide multiple ways for students to engage in their learning. Through this learner-centred lens, goal setting is introduced, assessments are challenged and teachers who are able to adapt are created. Goals in UDL place an equal importance on goals that are aligned with academic standards and personal goals that relate to enthusiasm and ability to self-regulate their learning. This way students can reflect on their own progress, not just teachers. Meyer et al., (2010) describes in depth about UDL giving students choices and a voice in a collaborative environment which involves teachers, students, peer mentoring; flexible groupings, rather than fixed groupings; and opportunities for every student to lead in some way. “Ultimately we want learners to be able to become self-directed, independent learners” (Meyer, et al., 2010, p135).

Professional learning is available in various forms for educators wanting to implement personalised learning through UDL, such as conferences, readings, and websites. For example, in 2016 the Australian conference called ‘Delivering Personalised Learning Summit’ and the UDL conference in New Zealand had experts talking about UDL. The Ministry of Education have a report evaluating and encouraging the use of UDL in developing new classroom environments and pedagogy (Mitchell, 2010). There is a beneficial resource for educators which offers professional learning about UDL and how UDL can be implemented at www.udlcenter.org.
CHALLENGES OF PERSONALISED LEARNING IN INNOVATIVE LEARNING ENVIRONMENTS (ILEs)

Are we repeating history?

Personalised learning in Innovative Learning Environments (ILEs) is grounded in history where open-plan classrooms operated in the 1960s and 1970s in New Zealand, Britain and America because of a move away from teacher-led classrooms (Cuban, 2004). The conclusions in the Report on Open Plan Education in New Zealand Primary Schools (1977) are very similar to how ILEs are being described today. For example, reported advantages to open plan learning spaces was that “it was valuable for sharing the work load, responsibilities, discipline, and planning” (Department of Education, 1977, p. 95). Teachers utilised their strengths and talents, and believed that open plan classrooms were working for student progress, achievement and for the welfare of children. Students could learn within flexible groupings, individual work, or ‘continuous self-paced’ work; which describes personalised learning. Cuban (2004) found that open education meant teachers were acting more as coaches.

The 1977 Open Plan Education report by the Department of Education, also concludes that there were the following issues with open plan classrooms: “students found them difficult to work in” (p. 94), students found more security in a ‘normal’ classroom, some classrooms did not fully adopt the open plan layout or situations, principals wanted “research findings on the effectiveness of open plan teaching” (p. 95) and wanted relevant teaching skills to be clearly identified. Very few beginning teachers, had any training to teach in open plan classrooms. Both principals and teachers shared concerns over teacher compatibility and the importance of training for teaching in open plan spaces. Teachers expressed that noise and distraction was a problem in the learning spaces and that there was a need for withdrawal rooms, better resource and storage areas, and special furniture. A problem mentioned in the Open Plan Report (Department of Education, 1977) by school principals was the lack of new teacher training, to prepare new teachers for teaching in the open plan classrooms. This seems foundational to a national educational system change, and yet is not mentioned in literature as to whether the tertiary programmes offering teacher qualifications, have these principals as part of their courses.
System constraints

New Zealand schools are being forced from a deficit type of thinking where the student was the problem for their education failures, to a strengths-based thinking where the system is being forced to see why it is failing students, and rethinking teaching (Bishop, 2005; Bolstad et al., 2012). Bolstad et al., (2012) describes the needed system change as reversing the education system “so that the system is built around the learner, rather than the learner conforming to the system” (p. 17). The new innovative environments being implemented across the country by New Zealand’s Ministry of Education is putting pressure to change the system thinking; the classroom design change suggests that this is the Ministry of Educations way of realising that the system needs to change from a traditional teaching approach to a teaching approach with personalised learning and the future in mind. Indeed, the Ministry of Education first called the new classrooms ‘Modern Learning Environments’ (MLEs) but have since changed the name to ‘Innovative Learning Environments’ (ILEs) in keeping with the OECD and international terminology (Ministry of Education, 2016d). Leadbeater (2004) highlights that many teachers are endeavouring to deliver a personalised teaching approach, but are constrained by the system they are working within. With the introduction of Innovative Learning Environments and personalised learning, the Ministry of Education is forcing New Zealand educators to look at the system to improve student success.

Teacher-student role change

According to Hattie (2003) students themselves make the biggest difference to student achievement in schools, with teachers being the next influence on student achievement by 30%. Therefore, the relationship and factors that influence teachers and students is important. Teachers and students may feel at a loss while they adapt to the new personalised learning teaching style. Especially when students are used to their learning being highly controlled by their teacher (Bolstad et al., 2012). Placing more control in the students’ hands, could challenge some teachers who may struggle at first with the shift in where responsibility and the control of learning lie. Bolstad et al., (2012) acknowledge that teachers’ and learners’ roles and power relationships need to be considered. Indeed, Frederick and Hummel (2004) highlight the importance of addressing teachers’ roles in personalised learning, as teachers not being able to
collaborate with students about their learning, was one of the reasons that the Keller Plan failed.

Personalised learning is in danger of being reinterpreted within teachers and schools present teaching paradigms, resulting in teaching practices experiencing minimal change (Bolstad et al., 2012). Teachers will also resist changing their pedagogy if personalised learning is perceived as students getting complete freedom and control of their learning, rather than viewing learning as a shared responsibility or collaborative approach between students and teachers (Bolstad et al., 2012). Hipkins (2014) explains that personalised learning is collaborative, it isn’t teacher directed or student directed, it is both.

(Bolstad et al., 2012) suggest that instead of seeing learning as ‘student-centred’ or ‘teacher-driven’; see learning as drawing on each other’s strengths to learn. The Ministry of Education (2015, 2016f) agree in their four-year plan, that education should be ‘learner-centred’. This changes the view of who can help with learning to include people from outside the classroom, such as parents and experts in the community or globally. The Ministry of Education have implemented Investing in Educational Success (IES) and Communities of Learning (COL), where local schools which include all levels of schooling, collaborate together to improve student achievement. Learning then becomes much more flexible.

**Leadership challenges in managing change**

Within New Zealand the key to change, is having leadership formulating a clear and unified vision. “Learning environments and systems do not change by themselves but need strong design with vision and strategies” (OECD, 2015, p. 19). New Zealand’s educational change is politically driven by the MOE which means that the finances and resources are available, through the controlled manner of MOE’s building process. The MOE refers educators to the OECD’s report *Schooling Redesigned towards innovative learning systems* (2015, p.28-32) which encourages personalised learning in all seven learning principles for teachers’ pedagogies within ILEs. The seven principles are:

1. learners being active participants who can talk about their learning;
2. co-operative learning;
3. learners’ motivations;
4. learning environments developed for individual differences;
5. challenging programmes that are hard but not stressful;
6. assessment;
7. cross-curricular learning that connects with student’s wider world.

The OECD (2015) states how crucial leadership is to lead change. “Having a theory of change is not enough as there needs to be an understanding and capacity to actually bring those changes about” (OECD, 2015, p. 21). Leaders need to have a deep knowledge of pedagogy, be ready to take innovative risks to break down “high boundaries that divide classrooms, schools and communities from each other” (OECD, 2015). Woolner et al., (2012) research found that school leaders knew that ILEs required a pedagogical change in teaching and learning, however the move to the new classroom did not always result in change and that change was dependant on a shared understanding of all educators. The Ministry of Education (2015) agree, that without a change in a teacher’s pedagogy in an ILE, the learning, motivation and engagement affecting student progress does not change. Therefore, leadership in change management is vital.

Underwood and Banyard (2008) research found that personalised learning was politically driven and that the following was important to reduce challenges when implementing personalised learning in schools: “To resolve these tensions, it will be necessary to define clearly what is meant by personalising learning, to be clear on the desired outcomes of education at the various levels” (Underwood & Banyard, 2008). Underwood and Banyard (2008) also stated that leaders needed to not only focus on their definition of personalised learning, but also the processes to implement personalised learning.

Bolman and Deal (2008), Busher (2006), and Fullan (2003), all discuss how unsettling change is for people. Grant and Basye (2014) agree, “Using technology 1:1 and personalised learning can unnerve people” (p. 104). Personalised learning changes what schooling looks like, and is different to what most current leaders, teachers and parents experienced when they went to school (Bolstad et al., 2012). When implementing change defensive actions or routines may appear. Educators may
espouse that personalised learning is happening within their ILEs, when in practice, due to confusion and differing interpretations of personalised learning; defensive routines or fear, personalised learning may not occur. For example, when there is a mismatch of basic assumptions, an organisation may espouse to be doing something such as personalised learning, but in reality may not necessarily be happening (Schein, 2010).

Argyris (1993) theory about defensive routines or actions may appear when both an organisation and its leaders do not wish to engage in the changes; conversely, when leaders within the organisation try to effect change, they may encounter defensive routines or actions from teachers, students and parents. Grant and Basye (2014) give a practical example of teachers who might use defensive actions: “Teachers who like an attentive audience or expect order may struggle with the change” (p. 104). However, for change to occur leaders should not resort to blaming resistors, but instead need to consider and ask those resisting, why there is resistance. Then leaders can create or co-create ways to make it easier for teachers to implement personalised learning (Knight, 2009). This supports a leadership style that operates in a personalised manner where leaders do not dictate change from the top (Woolner et al., 2012). Hattie (2003) highlights the difference between expert and experienced teachers. Expert teachers are identified as having “deeper representations about teaching and learning… combine new subject matter content knowledge with prior knowledge” (p.5) and could change lessons to suit students’ needs and goals. For leaders to affect change and implement personalised learning in their school, leaders should identify expert teachers to help with implementation as according the Hattie (2003), they would adapt first.

Frost (2009) highlights that fear can impede change. However, if a teacher understands the reasoning behind the changes, they are more likely to embrace the change, than resist it. Bissett (2014) states: “Everyone is at a different point of readiness, so professional development has to be personalised, responsive and start from a position of strength” (p. 23). For effective change to occur, for personalised learning to be adopted by educators in ILEs, the gap between knowledge and implementation, rhetoric and practice needs to be addressed by school leaders (Frost, 2009). For change to occur Bolstad et al., (2012), Grant and Basye, (2014) highlight
the importance of developing school systems that support professional development, as well as developing support from the wider public, which includes parents, by informing them about the changes and why they are necessary.

Ultimately as Fullan (2003) asserts, for complete reform to occur in education organisations, “the vast majority of people in the system must end up ‘owning the problem’ and be the agents of its solution” (p.23). Without the buy in from the majority of people in education organisations, externally developed school reforms will fail. (Fullan, 2003).

CONFIRMING RELEVANCE
The Open Plan Report (Department of Education, 1977) findings suggested more research was needed, especially with how student achievement was affected within these spaces compared to traditional classrooms. While scholars such as Dovey and Fisher (2014) state, “It has long been clear that student-centred pedagogies are seriously constrained by traditional classrooms” (p. 43), so far, there has been no further research in relation to the open-plan classrooms, that addresses school principal and teacher concerns expressed in the 1977 Open Plan Report, nor why open-plan classrooms went out of vogue and disappeared in New Zealand. Bissett (2014) research about good practice in New Zealand High School Modern Learning Environments supports this and states, “Despite this major change for New Zealand schools, I have so far located very little research into the rationale and perceived benefits, or otherwise, of the introduction of MLEs in the New Zealand context” (p. 26). My focus is on the pedagogy change; from traditional single cell practices, to personalised learning, that the Ministry of Education and OECD are hoping for in the ILEs. Today we are in a digital age which is influencing the re-emergence of personalised learning, but is causing educators to struggle to change pedagogies (Carneiro, Lefrere, Steffens, & Underwood, 2011). Personalised learning is not a new construct, however with there being confusion over personalised learning definitions, multiple interpretations of what personalised learning looks like, and challenges leaders face in implementing personalised learning in the new ILEs, the importance of this particular research is highlighted. I would like this research to be something educators can learn from in their own settings as they look at how other leaders and
teachers define personalised learning, what it looks like and what they are finding challenging about implementing personalised learning in ILEs in a New Zealand context.
CHAPTER 3: METHODOLOGY

Introduction
This chapter discusses the research design and methods of data collection and analysis employed in this research about the challenges leaders and teachers have with the implementation of personalised learning in New Zealand Primary Schools Innovative Learning Environments. Rigour, validity, trustworthiness and triangulation are examined. Ethical considerations such as informed consent, confidentiality and anonymity, cultural sensitivity and minimising harm to participants is explored.

SOCIAL CONSTRUCT
A social constructivist stance has been adopted in that subjective meanings will be reached through interaction with people in the context of their workplace (Creswell, 2002). Cohen, Manion, and Morrison (2013) discusses two concepts about social reality that underpin social research; ontology and epistemology. Ontology is about what people’s notions and beliefs are in relation to their experiences or culture, which they themselves may not even be aware of. Epistemology is about how people know that knowledge (Creswell, 2002). Both the researcher and the participants contribute to the research from their ontological and epistemological positions (Cohen et al., 2013). For example, one of my ontological positions, based on my personal experience and knowledge, is that personalised learning is encouraged as a teaching method in innovative classroom environments. However, my epistemology position comes from my experience as an educator in primary schools in that I have heard personalised learning referred to and understood in various ways by educators. The ontological and epistemological position influences the overarching research questions about school leaders and teachers understanding of personalised learning, what the challenges are and what personalised learning looks like when implemented in Innovative Learning Environments. This aligns with Bryman’s (2008) view when he states that, “An epistemological issue concerns the question of what is regarded as acceptable knowledge in a discipline” (p. 13). Therefore, the research questions derive from an ontological position of ‘what is’, and epistemological questions of how school leaders and teachers have acquired what they know. The following section describes the research design adopted for this research.
RESEARCH DESIGN

Interpretive approach
The nature of this research predominantly required an interpretive approach, to understand social actions in which there was to be no judgement by the researcher in terms of people’s values, which are neither right nor wrong, only different (Davidson & Tolich, 2003). Cohen et al., (2013) state that a key characteristic of interpretive methodology is that it is suitable for small scale research studies, such as this one. Creswell (2002) highlights the researcher’s role within the interpretive approach: “The researcher’s intent, then, is to make sense of (or interpret) the meanings others have about the world” (p. 9). The interpretive approach is to systematically analyse social action in natural settings to be able to conclude how people create and maintain their worlds, however unique or complex. The interpretive approach was used because it seeks out people’s opinions and documents constructed by people. When we are seeking people’s experiences, views or perceptions of the world they live in, the ‘data’ collected is inherently subjective and descriptive (Cohen et al., 2013) leading to the adoption of a qualitative methodology.

Weaknesses can be found in all research methods. Limitations of an interpretive methodology could be where leaders wield power over participants, or where studies lack recognition of external forces such as the Ministry of Education as a political force (Cohen et al., 2013). To overcome these limitations, careful thought about research design has been written under ethics, with the intent to reduce leaders or researchers power over participants; and recognise where political and external forces exist and discuss how much they play a part in the research.

Qualitative methodology
An endeavour of this study was to seek deep data within particular locations which contain meanings that could be interpreted; data which has richness and depth that could yield findings and could be transferred to other contexts. This follows Davidson and Tolich (2003) description of qualitative methodology with an interpretive approach. A qualitative methodology takes into account the multifaceted nature of human behaviour and has an ability to adapt (Davidson & Tolich, 2003). To find the answers to my research questions qualitative methods was used. This research does not
involve hypotheses or use statistics, instead the information collected was sorted by categories into themes using a process of thematic coding. Therefore, this study was not deductive, it was inductive by nature (Gray, 2004).

METHODS OF DATA COLLECTION AND ANALYSIS
When implementing the qualitative methods to gather data, it was important that the data could be read and analysed to identify patterns or themes (Blanche, Durrheim, & Painter, 2006). Therefore, the following two qualitative methods were used for this study: semi-structured interviews and document analysis.

Participants and sampling
Qualitative methodology looks at how people’s assumptions shape their perspectives. One of the researcher’s assumptions is that school leaders have a strong influence in affecting and implementing change in a school, hence why school leaders from each school were included in this research. To find and recruit a sample of three schools to interview, three school leaders and three teachers to participate in the study, I emailed 62 school principals in the Upper Harbour and North Shore of Auckland, who had students in Years 1-8, or part thereof. This area was selected because of its close proximity to the researcher’s place of residence. The schools were selected from the New Zealand Education Counts Directory of Schools as at 3 March 2016. The focus was on primary schools that were funded by the government and required to follow the New Zealand curriculum (MOE, 2007). The following types of schools were excluded from this study: schools that do not speak English due to the New Zealand Curriculum (MOE, 2007) in focus, specifically stating that it is for English speaking schools. Schools that speak Te Reo use a different curriculum that incorporates Maori cultural values and so were excluded from the study. Special schools were excluded; the focus is on mainstreamed schools. Private schools have also been excluded as “They develop their own learning programmes and do not have to follow the national curriculum” (Ministry of Education, 2016b).

The participants sought for this study were from three schools that indicated they had two key criterion to indicate interest in participation. The criterion was:

1. That the school had an innovative learning environment
2. That personalised learning operated within their school innovative learning environment.

Only three schools responded who met the criterion, indicated they had personalised learning operating in their ILEs and wanted to participate. I met with the school leaders to discuss what was involved with the research, giving them the information sheet for participants (Appendix A), interview schedule (Appendix B), organisation consent template (Appendix C) and individual consent form (Appendix D). Once consent was given from each school, the interviews were arranged with a school leader and one of the teachers implementing personalised learning in the ILE. The school leader and teacher were willing to offer documents for analysis which mentioned ILEs or personalised learning.

**Semi-structured interviews**

The semi-structured interview method was the best fit for this study because the goal of semi-structured interviewing was understanding (Fontana & Frey, 2005) and to collect data (Johnson, 2002). Vogt, Gardner and Haeffele (2012) describe semi-structured interviews as short targeted interviews of about 60 minutes in length, where the questions asked are of an evaluative research nature. Neuman (2003) explained that questions were to evaluate viewpoints and understandings about programmes and their effectiveness or worth. Pring (2000) elaborated this view by stating that questions find out what participants are doing, why they did it, what made them do it. I used semi-structured interviews because it gathered a depth of data needed for this study (Pring, 2000).

The structured part of the interview was the carefully thought out set of open-ended questions that was created beforehand called an interview schedule (Appendix B) (Bryman, 2008; Yin, 2014). Bryman (2008) describes how an interviewer can use the interview schedule during an interview: “Questions may not follow on exactly in the way outlined on the schedule. Questions that are not included in the guide may be asked as the interviewer picks up on things said by the interviewees” (p. 438). A semi-structured interview employs predetermined questions. I have adopted Cohen et al., (2013) formal approach which asserts that the interviewer shouldn’t be answering questions from the respondent and engage conversation, to limit bias, and could
actually cause counter-transference whereby the interviewer is projecting their own feelings, fears, and attitudes into the interview.

To gain participants views and reduce the influence of the researcher in the process, questions seeking opinions or views were open-ended questions (Creswell, 2002). Creswell asserts that by asking open-ended questions, the researcher can carefully listen to what the participants are saying about their context. By including in the interview schedule the question “Is there anything else you would like to add?”, it enabled me to capture everything the respondent wanted to say. Doing this eliminated the respondent adding vital information once the recording device was turned off, and the interview was officially over (Hinds, 2000).

Fontana and Frey (2005) expressed that it was important for the interviewer to take notes about the nonverbal cues communicated in four modes of nonverbal communication, which could not be communicated by an audio recording. The four modes of nonverbal communication are proxemics - the interpersonal space that people feel comfortable in, when with others; chronemics – the use of time, for example silences; kinesics – movement of the human body such as facial expressions, eye contact and gestures; and paralinguistic – includes volume, accent, pitch, fluency, and volume. Note taking is the interviewer’s subjective interpretations, it is here where the interviewer can add bias, feelings and motives to the interview process, consciously or unconsciously (Neuman, 2003).

A weakness of using semi-structured interviews is that people being interviewed are not neutral, because they have biases, feelings, motives that are all either conscious or unconscious (Fontana & Frey, 2005). The interviewer has a political agenda also, such as using the results to evaluate and improve the issue being studied. Vogt et al. (2012) affirms that the interviewer shouldn’t be surprised by any of the interview responses, as their answers are the participant’s views and opinions.

The semi-structured interviews were recorded to increase data accuracy and to reduce bias. Several writers (Bryman, 2012; Fontana & Frey, 2005; Neuman, 2003) advocate recording the interview so that the transcript can be analysed by using coding (Bell, 2010). The importance of the accuracy of the recorded interview transcript is crucial.
as it reduces bias (Hinds, 2000). Hence, one of the reasons participants were given a copy of the transcript to approve.

**Documentary analysis**

Documents were acquired and used for data analysis as part of multi-method triangulation to detect themes through coding, with an interpretive approach. The transcribed interviews were one form of documentation that was used for documentary analysis. However, to obtain documents of a secondary nature, official school documents pertaining to the school and subject being researched were sought. The obtained documents followed Bryman’s (2012) description of relevant documents, which weren’t produced specifically for the researcher, but were already produced previously by or for the participant, or by or for the participant’s school. School documents requested needed to mention Innovative Learning Environments and/or demonstrate personalised learning, or similar terms such as Modern Learning Environments or self-directed learning. Two types of documents created for the government were requested for analysis. These were Education Review Office (ERO) reports and school charters. ERO reports were included because they were reviews of the school and its programme quality (New Zealand Government, 2016). The reports were for school boards and the government, but made available to the public. School charters were included because each school must annually submit an updated charter to the government. The relevance of school charters to this study is that it is a detailed planning document that includes the school strategic plan and teaching programmes in detail (Ministry of Education, 2016a).

Published documents were freely available such as ERO reports, newsletters and pages from school websites. However, as (Wellington, 2000) highlights, some documents were closed, restricted or archived and needed to be requested from the school leader and teacher, to analyse. These documents were: school charters, curriculum planning documents, and student documents, such as teachers records of student achievement and examples of student documents mentioned by the teachers such as ‘Can do’s’.
Qualitative data analysis

The inductive stance of this study, meant the qualitative data was analysed using a thematic coding system called MAXQDA (VERBI Software, 2016) to identify convergence, patterns, groupings and themes. From the data, patterns and groupings can be presented and discussed (Bell, 2007; Lofland, Snow, Anderson, & Lofland, 2006). Simple quantification to establish frequency or strength of purpose was carried out by coding semi-structured interview transcriptions and school documents (Hinds, 2000). Thematic coding started out as initial coding to look for general themes. Focused coding followed initial coding, which focused on patterns that could be grouped together to form overarching ideas or propositions (Lofland et al., 2006).

Bryman (2012), Wellington (2000) suggested possible coding categories which fell under the following criteria: authenticity, credibility, representativeness and meaning or interpretation. Three broad categories for this qualitative analysis was drawn from the literature. The first was the understanding of personalised learning, second was the practice of personalised learning, and the third was the challenges of personalised learning in Innovative Learning Environments. Within these three broad categories, I searched for themes.

The other type of analysis used was memoing. When the researcher wrote down notes about their code categories, how they connect and can include notes from interviews (Lofland et al., 2006). Neuman (2003) warned that researchers who used this method needed to be aware of their own bias which could influence their memos.

When analysing the results, it was imperative that the reporting was ethical, in that the results needed to be accurate. Vogt et al. (2012) stressed that sound ethical research; was where questions were valid and answers were reliable. However, much more than this was considered to uphold ethics in this research and is outlined next.

VALIDITY

Validity is essential to compelling research, indeed if research is invalid, it is worthless (Cohen et al, 2013). Neuman (2003) defines validity as being truthful. Guba and Lincoln (2005) state “Validity is not like objectivity” (p205) and explain how for validity to be authentic, both method and interpretation needs to be examined. They state that
the common hallmarks of validity, authenticity, trustworthiness and rigour was fairness. Neuman (2003) highlights three ways that qualitative research is made valid, first plausibility; second, when there is plenty of data that is recorded accurately; and thirdly, using internal validity.

Plausibility asks: is the researcher investigating what they claim to be investigating? Davidson & Tolich (2003) concur stating: “Validity refers to the extent to which a question or variable accurately reflects the concept the researcher is actually looking for” (p31). Questions were tested for validity by carrying out Bell (2010); Hinds (2000) and Vogt et al., (2012) recommendations to pilot the semi-structured interview beforehand to avoid any misleading or ambiguous questions, ensuring that every question was valid by reflecting the aims of the research. To be plausible, Cohen et al. (2013) also suggests the researcher enlists pertinent people to participate in the study, but highlights in regards to validity that when people volunteer, a self-selection bias could occur. For example, in this study leaders and teachers who volunteered, could have been more positive and enthusiastic about the research topic than the leaders and teachers who didn’t volunteer, which could affect responses.

Data is only valid and authentic when it is captured with accuracy, displaying the various participant views, opinions, doubts, allegations and voices; if any of these are left out it creates a bias (Guba and Lincoln, 2005; Neuman, 2003). Cohen et al., (2007) describe this as descriptive validity where the collection of data is ‘objectively factual’. To increase accuracy and trustworthiness of data collection and reduce researcher bias the semi-structured interviews were digitally recorded, with detailed and accurate transcriptions. To enhance validity, the participants verified their transcripts.

Validity is increased when connections are made across or within the data, namely internal validity (Neuman, 2003). For example, the integrity of research means that inductive statements about concepts or theories, need to be validated with supporting evidence, either from the results of another semi-structured interview or from document analysis. Cohen et al. (2013) also suggest the researcher enhance validity by: avoiding poor coding; making statements beyond what the data shows, being discriminatory with the data and misrepresenting the data in any way.
Trustworthiness and integrity
Shenton (2004) points out the importance of peer review to strengthen a research projects trustworthiness. This thesis has had a highly qualified supervisor as a consultant, who gave constructive feedback throughout, raising the trustworthiness of this study. To enhance the credibility and trustworthiness of this study the researcher has examined previous research findings in the literature and related these findings to them. Transparency by the researcher in terms of outlining the methods used, approvals given and considerations of the research methods employed, aids in trustworthiness, credibility and integrity (Shenton, 2004).

Triangulation
The primary data from semi-structured interviews and secondary data from documentary analysis were analysed using multi-method triangulation (Cohen et al., 2013). Then adding further rigour to this study, multi-perspective triangulation was employed to compare perspectives between semi-structured interviews and document analysis. I was able to examine where the data converged from the various methods of data collection (Neuman, 2003; Yin, 2014). These methods of triangulation strengthened the trustworthiness and validity of research (Wellington, 2000). Triangulation is important because using more than one data gathering approach, meant that far more information could be gained; compared to only having one method of data collection; improving research integrity and reliability (Flick, 2007).

ETHICAL CONSIDERATIONS
The ethical standards in regards to how people were treated, to ensure that participants gave informed consent, had a right to privacy and were not harmed in any way (Wilkinson, 2001) were taken into consideration throughout my study. I endeavoured to ensure that participants did not feel obligated, manipulated or forced to participate in the study or research project (Vogt et al., 2012). Therefore, rewards and incentives were not used to attract participants, as this could have been seen as coercion. When conducting semi-structured interviews, there was a potential for harm if the questions were misleading or manipulative. The questions were carefully thought
out so as to not mislead, trick or manipulate the participant in any way to avoid causing harm.

Every effort to be ethical and avoid issues during my research was carried out. This included gaining approval from the Unitec Research Ethics Committee (UREC) to protect all human participants, including myself as the researcher, participants and Unitec. The UREC approved the following considerations: research design, the benefits of the research project; any risk of harm including anonymity, protection of disclosure and absence of deception; informed and voluntary consent; conflict of interests; social and cultural sensitivity. Once approval was granted by UREC I endeavoured to be as open, honest and transparent as possible by informing participants along the way. I also undertook steps to minimise harm which included a plan for confidentiality, anonymity and security of gathered data.

Informed consent

To gain informed consent and reduce the potential to cause harm, an information sheet was sent out ahead of the interview so that participants had time to consider what they were agreeing to and question the researcher for clarification, if desired. In keeping with Bell (2010), the letter outlined the intent, purpose, interview process and conditions. Giving the participants the information sheet helped to build clarity and trust, aiding the success of the semi-structured interview (Neuman, 2003).

The school leaders were also given an information sheet about the research study as well as a consent form for the research to be conducted in their school. Interview participants were asked to sign a consent form before the interview began. After the interview, the semi-structured interview transcript was given to participants to be verified, with the intention to reduce researcher bias, increase accuracy and obtain the final part of informed consent from the participant (Cohen et al, 2013). The participant had one week to make amendments to the transcript and approve the transcript. However, the participants were also informed that if they had not contacted me within a week of receiving the transcript, that I would take that as their approval.
Minimising harm

If a potential participant had been asked by their boss to participate, the person may have felt obligated to participate and could have felt stressed about how they might have answered their questions, especially if they were offering negative reflections on the research subject. To reduce the pressure teachers may have felt if their leader had approached them to participate, I requested from the school leader the teacher’s emails so that I could invite teachers to participate directly. To reduce the feelings of obligation, the adult consent form (Appendix D) also outlined the option that the participant could pull out up to two weeks after the interview. To reduce the negative impact for participants, they were able to select when and where the location of the interview was, this way participants didn’t need to travel anywhere and were familiar with their surroundings.

There was a potential for harm where the participant may have felt obligated or pressured to answer all questions in the semi-structured interview. To reduce stress and feelings of obligation, thereby minimising harm for participants, Vogt et al., (2012) recommendation was employed, to communicate at the start of the semi-structured interview that it was optional to participate; there were no right or wrong answers; participants could skip questions and stop at any time.

Confidentiality and Anonymity

If privacy and confidentiality was not adhered to, there was potential for harming a participant. Participants were also assured that their responses were anonymous, therefore any negative reflections on the subject of the research would not be made known to the school leader or anyone else except the researcher and their supervisor, who may read the transcript. Participants were also informed that to maintain their privacy and confidentiality, any referral to their school or person being interviewed within the research results or report, would be referred to as a data code instead of their name, and would not identified. Information shared by participants was only used for the research study for which it was intended and was not shared with others. The data will be stored securely at Unitec for 10 years and then destroyed by the researcher. The research findings were shared with participants by emailing the thesis online link from Unitec’s open source Research Bank.
SUMMARY: RESEARCH METHODOLOGY

Drawing on literature, this chapter has described the research design and methods employed for this research project. I have provided an explanation for assuming a social constructivist stance along with my ontological and epistemological positions. I have justified a qualitative methodology with an interpretive approach, and its weaknesses. Methods used to select schools and participants were clarified. The reasons for adopting semi-structured interviews and documentary analysis was elucidated and data analysis was discussed. The importance of justifying and explaining why and how this research study was valid included an explanation about plausibility, accuracy of data, internal validity, and other ways validity was enhanced such as trustworthiness, integrity and triangulation. Finally, ethical considerations to avoid harm to participants was presented. Data findings from semi-structured interviews and documentary analysis will be discussed and presented in the following chapter.
CHAPTER 4: FINDINGS

Introduction

This chapter is about findings from three Auckland primary schools’ implementation of personalised learning in their Innovative Learning Environments. After giving each schools description, the findings will materialise in two parts. First the findings from a document analysis using two document categories will be presented. Next the interviews from the leader and teacher of each school will be discussed under three categories. Within these categories the themes that emerged from across the three schools is presented. To keep the privacy of schools and participants, the following data codes outlined in Table 3.0 have been adopted.

Table 3: Codes of interview participants

<table>
<thead>
<tr>
<th>Schools</th>
<th>School leader</th>
<th>School teacher</th>
<th>Teacher teaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>School A</td>
<td>Leader A</td>
<td>Teacher A</td>
<td>Year 6</td>
</tr>
<tr>
<td>School B</td>
<td>Leader B</td>
<td>Teacher B</td>
<td>Years 0-2</td>
</tr>
<tr>
<td>School C</td>
<td>Leader C</td>
<td>Teacher C</td>
<td>Year 5</td>
</tr>
</tbody>
</table>

SCHOOL DESCRIPTIONS

All school leaders and teachers had been in their Innovative Learning Environments since their ILEs opened at their schools. Teacher A and the Leader B both had previous experience of being in other school ILEs. All schools provide various digital technologies for students and teachers to use such as touch screens and portable computing devices.

School A

School A was a decile 9, integrated contributing primary school, which meant it was a former private school that has been integrated in to the public system. The school had 360 students in Years 1-6, hence the school contributed to schools which provided education with Year 7 and above. School A moved their Years 2-6 students into their two storey ILE the previous year, they had almost been in it for a whole year.
School A had 185 students in Years 4-6 upstairs and 172 students in Years 1-3 downstairs. Each level had six teachers and two to four teacher aides. Teacher A referred to the main area twice as ‘the open space area’ and ‘this big open space’. Each level had three small glass rooms inside the main area where students could work quietly, or teachers could take small groups. The furniture was a key component of the ILEs at School A with desks and tables at various heights; children had cushions and bean bags available for use. Leader A stated: “All our furniture is on wheels. Everything’s moveable. We use barriers to break the space up into areas so you’re not looking down this long shafted tunnel” (Leader A., 2016). Teacher A had a different view to Leader A saying the reason why they had barriers was to “block areas off” and to absorb noise.

School B
School B was a decile 9, Full Primary school, which meant they had students in Years 1-8. The school had experienced rapid roll growth since having 40 students three years ago, to now having a roll of 230 students. School B have had their whole school operating in the innovative learning environment since it was opened three years ago.

All School B classrooms were on ground level and were interconnected with an indoor ‘road’. The teacher’s office was open and catered for multiple teachers to work inside. Off the large main room there were multiple break-out rooms of various sizes. For example, in School B teacher’s area, “We've got one large open space and then we've got two small break out spaces and then one large breakout space, which is really almost the size of an average classroom” (Teacher B., 2016). Some of the colours on the walls had been chosen from the Herman Brain Model; the activities within each room reflect one of the four model colours. The furniture was brightly coloured and able to be moved.

School C
School C was a decile 10, contributing primary school, which meant that they had students from Years 1-6. After Year 6 the students moved on and contributed to local Intermediate schools who catered for Years 7-8. The school had a roll of 847 students. Year 5-6 students had been in their ILE a year.
School C had three ILEs; personalised learning was implemented in two of these in a two storey building. The two ILEs were located in a double storey building “which looks like quite a traditional big building with a lot of glass” (Leader C, 2016), where approximately 120, Year 6 students were on the top storey; and 150, Year 5 students were on the bottom level. Each level was designed the same. They had one large room with “three different breakout spaces” (Leader C, 2016). Each room had a different colour and a different activity associated with them.

**DOCUMENT ANALYSIS FINDINGS**

School A and the teacher from School B were very helpful in showing and providing me with their supporting documents that were mentioned in their interviews. Both School B leader and teacher kept referring me to their school website for a lot of supporting documents which were available for anyone to access. School C were very open and enthusiastic about giving me the supporting documents during their interviews, however due to school holidays, sickness and demands that their school production placed on the educators following the interview, it took over six weeks to gather all School C documents. The following documents were obtained from each school to analyse:

1. School charter
2. Last two Education Review Office (ERO) reports
3. School website
4. Teachers planning

They were analysed under two categories: government documents and school documents. The categories were analysed with two themes: the use of personalised learning in ILEs and the description of personalised learning.

**Government Documents**

**School Charters**

All schools, and school boards are to prepare and submit a charter to the Ministry of Education each year. “Section 61 of the Education Act 1989 provides the required content of a school charter” (Ministry of Education, 2016). The government education
website describes a charter as a “key planning document” and must include, mission statements, aims, objectives, strategic plans, teaching and learning programmes, annual and long-term plans that align with the Government’s National Education Guidelines. School B Charter (2015) was available on their website, however Schools A and C’s 2016 Charters were available from their leaders, upon request. When analysing the school newsletters, a summary of the School C Charter (School C, 2016) was in a School C newsletter (School C, 2016).

All school charters analysed referred to personalised learning. School A (2016) and B (2015) charters referred to personalised learning seven times; and School C Charter mentioned it once when talking about how their senior students were excelling. “MLE pedagogy is embedded in the senior school. Students are excelling in a personalised learning environment” (2016). School A Charter (2016) referred to personalised learning as a way of implementing religious instruction, and as part of its strategic direction for teaching the curriculum in 2016, 2017 and 2018, plus personal goals for staff in 2016 and 2018. Personalised learning was mentioned in the following sentence, which was replicated all seven times.

Teachers set specific goals for Personal/Team Professional Learning, areas of school focus, school annual targets and for innovative practices in PL2L - personalised learning, future-oriented learning, transitions, diversity, coherence, & connectedness, the integrated use of devices and the development of innovative practices using a collaborative team teaching approach. (School A, 2016)

School B Charter (2015) had personalised learning listed as one of its school values and is part of two key questions which specifically ask educators how they could use personalised learning for students to learn and achieve at their school; especially Maori and Pacifica students; as well as students with specific learning needs. One of School B goals was dedicated to self-reviewing how effective personalised learning was at their school, for example, “Goal 4- Develop an auditing mechanism of how effectively we are personalising learning” (School B, 2015).

Education Review Office (ERO) reports

Education Review Office is a government department that regularly “report publicly on the quality of education provided in New Zealand schools” (New Zealand Government,
2016), called ERO reports. A focus of the reports is student engagement and participation. None of the ERO reports in the study referred to innovative learning or Innovative Learning Environments, but instead used modern environments, or 21st Century learning environments. The only ERO report in the study to mention personalised learning was School B ERO (2014) report, where it was referred to three times. The report described personalised learning as part of the school’s “modern learning pedagogy” (Education Review Office, 2014). The following exert is from both the body of the ERO report and repeated in the conclusion, it talks about how teachers support students to design their own personalised programmes: “Teachers and students work collaboratively in flexible, modern environments that complement the school’s learner-centred curriculum. Students are supported to be self-managing learners and active participants in designing their personalised learning programmes” (Education Review Office, 2014). The report continued confirming how “teachers work collaboratively to provide flexible and personalised learning programmes to meet students’ needs and interests” (Education Review Office, 2014). The School B ERO report (2014) described personalised learning in detail, and specifically referred to Teacher B’s younger age group as having collaboration, negotiation, self-management, goal setting and highly engaged learners.

School C ERO report (2016) referred to “modern learning expectations” and “modern learning pedagogy”. The report used the words ‘individualised’ instead of ‘personalised’ to portray how the curriculum was being delivered. School C’s ERO report (2016) was descriptive in showing what learning looked like, instead of using key words to sum up the learning activity, as in School B’s ERO report (2014b). For example, the following exert from School C’s ERO report (2016) described a personalised programme where students were self-managing their learning: “Children have greater choice and responsibility for what and how they learn. They do their own assessments, know their learning levels and choose their own learning programmes to meet their individual needs” (Education Review Office, 2016). Another similarity between the two school reports was when describing curriculum delivery and student learning, for example, School C ERO report stated “a community of learners’ approach that enhances student agency” (Education Review Office, 2016); which was similar to a learning centred curriculum being delivered collaboratively, in School B’s ERO report (2014).
The ERO reports for School A were written before they had moved in to their new innovative learning environment. The last ERO report was in 2014 and acknowledged that plans were underway to build new “Modern Learning Environments”; not Innovative Learning Environments. The report referred to students as “21st century learners”, and how the school was in a time of transition of implementing “new ways of teaching and learning in the 21st century” (Education Review Office, 2014a), even though we are already in the 21st Century. The new ways of teaching and learning were described in the report as students and teachers working collaboratively.

School documents: newsletters and websites

School newsletters and websites were chosen to be analysed because they were documents which the schools used to communicate with their parents and wider community. The importance of these documents being analysed was to see if and how the schools communicated to these key stakeholders about the learning that was carried out in their schools, with a particular focus on whether personalised learning in their Innovative Learning Environments was mentioned.

Each school sent regular newsletters to their parents, to inform them about school. These were available on their websites. The following number of school newsletters were available on the school websites and analysed, School A had 20, School B had 16, and School C had 21 newsletters. A MAXQDA12 (VERBI Software, 2016) search of every newsletter uncovered one mention of the term ‘personalised learning’ in one of School B’s newsletters about their school values; one of the values is personalised learning. Out of the 53 newsletters analysed, none of them mentioned the word innovative or innovation. However, School C did refer to modern learning six times in regards to their modern learning environment or block; and modern learning teaching practice. This is significant because Innovative Learning Environments were previously called Modern Learning Environments.

A website search for the terms ‘personalised learning’ and ‘innovative’ on School C website showed that they were not mentioned anywhere. Modern learning was only mentioned once when referring to the opening of the modern learning building in 2015.
The webpages under the heading ‘Teaching and Learning’ had a curriculum page that was very general, included a maths information evening slideshow and a report on student achievement which talked about results, their maths programmes and the research behind their maths programmes. The term ‘personalised learning’ did not appear on any of School A web pages, though individualised learning and differentiated learning was mentioned on two webpages. For example, children with special abilities were catered for with differentiated learning within their class programme, but didn’t elaborate further. Personalised learning was only apparent in the explanation of home learning, which showed that students had activity choice.

Reference to School A learning environments was described on their website home page as ‘suited’ to a particular type of learning, “The learning spaces are beautifully designed, very colourful and are suited to collaborative and innovative teaching and learning” (School A, 2016). Note that this doesn’t actually commit to the type of learning described. Information about how students and classes were taught, or the philosophy behind what and why they employ their teaching methods, was missing from School A website. There was no information for parents about the changes that may have occurred in teaching since moving in to their Innovative Learning Environments. There was limited information on School C website about the type of progressive learning they implement in their school. The following were not on the school website but were made available to me to analyse, Leader C’s PowerPoints shared at conferences and other schools; plus, school podcasts, articles and news items. Within these there was clear communication describing the distinction from traditional single cell, teacher owned teaching; to School C’s modern learning, student owned learning in the Innovative Learning Environments. These distinctions were not communicated on School C website.

School B website was an interactive open communication tool for educators to correspond with the community, parents and students. On the home page the school values were expressed clearly; personalised learning was one of the school values. There were videos about the way the school operated; why they taught the way they did and referred to current research. Education news and documentary links appeared on School B website and comments made about their relevancy to their school. Each
school area had a learning blog which was updated each week with current learning and pictures.

Charters and ERO reports were available on School B and C websites, but absent on School A website. School B had links to educational books and articles, the importance of these were referred to by Teacher B in their semi-structured interview. Teacher and student planning tools were not available for viewing on School A and C websites. All School B teachers planning was on a website page. The planning was detailed and showed the week overview, particulars about workshops, such as who attended, time taken, purpose, resources used, follow up activities and teachers who took each workshop. There were links to further learning and a synopsis about the teachers. The style of School B website was clear, easy to navigate and communicated an openness and transparency by the school educators.

**Documentary analysis: key findings**

There appears to be a level of confusion over the term personalised learning at the government level. For example, School B ERO report (2014b) explicitly mentioned personalised learning, the School C ERO report (2016) described their modern learning practices in the same way but didn’t refer directly to personalised learning. ERO’s reference in School A’s ERO report (2014a) about students being 21st Century learners was short sighted, as we are already in the 21st Century and was very general. This could imply that because the students are already in the 21st Century, they will learn whichever way they currently learn.

At a school level there would seem to be no commitment to personalised learning in Schools A and C, and a level of confusion about the term. For example, School A Charter (2016) mentioned personalised learning numerous times within a list of a plethora of teaching methods, which was replicated identically each time. With their website not mentioning personalised learning once, and instead using other terms which could be confused with personalised learning such as individualised and differentiated learning, it could be concluded that personalised learning didn’t occur. School C showed confusion with terminology, using the term ‘modern learning’, instead of ‘personalised learning’, which was reflective of the previous term used for
new school learning environments. If we only looked at the information on School C’s website it would seem that personalised learning was not evident or important, however, when looking at all other documents the school had publicly published, it paints a different story.

After analysing all documents, it was clear that School B had personalised learning embedded within their thinking and communication. Personalised learning was one of their school values. Regular reflections were carried out as to how effective personalised learning was. Personalised learning was mentioned more than once in their government and school documents.

**SEMI-STRUCTURED INTERVIEW FINDINGS**

The semi-structured interview data was analysed across all three schools and organised under three categories. The first was how schools understood the concept of personalised learning. The second category explored how personalised learning was implemented in Innovative Learning Environments. The last category analysed the challenges of implementing personalised learning in an innovative learning environment. Within each of these categories, themes emerged, which have been presented with verbatim data to provide evidence.

**Category one: Schools concept of personalised learning**

Upon analysis of the educators’ interviews, with regards to how school educators understood the concept of personalised learning, the following three themes materialised. The definition of personalised learning; the purpose of personalised learning and educators understanding about the Ministry of Education expectations to use personalised learning in Innovative Learning Environments.

1. **Personalised learning definitions**

All school leaders and teachers responded that they did have innovative learning in their environments. However, Teacher A wasn’t as confident about personalised learning happening in their innovative learning environment and appeared confused about what personalised learning was.
It's not totally, they (the students) can just do what they want to do. There is structure there. So it's not... if you’re looking for the really open school, open learning, then we're not, we're not that far on that, we’re probably on the continuum about half way. (Teacher A, 2016)

When asked to define personalised learning Teacher A defined personalised learning as involving peer teaching as well as children having choices and skills through explicit teaching so students could make those choices. Leader A had quite a different definition of personalised learning to Teacher A. Leader A’s definition was students having "self-directed, self-motivated learning, that will challenge the children and encourages them all the time to look at where they’re at and where their next learning is, personalising their goal" (Leader A, 2016). Leader A and Teacher A had different views of what personalised learning was, there was not a clear school definition of personalised learning and what it should look like at their school. Leader A kept wanting to refer to personalised learning as individualised learning.

Leader C’s definition of personalised learning was similar to Leader A. However, Leader C linked their definition against a backdrop of their school vision ‘to grow learners and strive for excellence’, extending their definition to include a few more elements of personalised learning by saying that their students need to be effective thinkers, communicators, self-managers and citizens. It (personalised learning) should have peer learning. It should be focussed on self-direction, self-motivation, student agency and I’m talking voice and choice. It should have teachers as the activators and facilitators, not the people teaching. (Leader C, 2016)

School B and C leaders and teachers had similar definitions by saying that personalised learning was when teachers were responsive to learners or acting upon student learning needs. Leader B explained that their definition constantly evolved because of the challenges personalised learning presented and the complexity of relationships, stating “I don’t think I will ever have one true definition. I think it will constantly change”. Leader B’s current personalised learning definition included collaboration and responsive teaching, and clarified what it was not: “Personalised learning is very much about the individual but not individualised. It's not kids in isolation but kids working together; staff understanding their personal needs and acting upon them” (Leader B, 2016). Teacher B reiterated that personalised learning
was a teacher-student negotiation and had similarities to Leader B’s definition of personalised learning when saying that it was teachers being able to be responsive to learners needs. However, student choice and student voice are key components of Teacher B’s personalised learning definition.

*Some people think personalised learning is just the students having choice and choosing, as opposed to student voice. But for me personalised learning is when you’ve actually designed it with that person in mind. So you’re doing it together. There’s an element of negotiation, there’s an element of just being responsive as well.* (Teacher B, 2016)

Like Teacher B’s definition, Teacher C’s definition of personalised learning included negotiation, responsive teaching, as well as student choice and voice. However, they expanded their definition of personalised learning to include co-constructing learning which was, “targeted learning, that’s specific to their (the students) exact needs, their style of learning. In my definition, personalised learning is, it’s personal to them (students), how they’re receiving it and then how they’re using it” (Teacher C, 2016).

All leaders and teachers interviewed came to their definitions from; prior or present experience, visiting other schools in Australia and New Zealand, readings and for Teachers B and C, professional development led by their leaders. Leader A stated that “Seeing it (personalised learning) in action in schools, and trial and error” has helped with their definition of personalised learning. Key readings and specific people had influenced the educators personalised learning definitions. Teacher B mentioned the book ‘enGauge 21st Century Skills: Literacy in the Digital Age’ (Burkhardt, et al., 2003); ‘Learning by design’ consultant Dr Julia Atkin from Australia; and the Whole Brain Model developed by Ned Herrmann. Teacher C said their TCOOL (Taking Charge of Our Learning) mats were a product of Lane Clarke’s influence. School C definition of personalised learning was shaped by John Hattie’s research and Mark Osbourne from CORE Education who helped facilitate them through the process of developing their pedagogy for their innovative learning environment. Leader C’s response detailed the process of finding their personalised learning definition:

*It was purposeful leadership to make a collaborative approach to our learning pedagogy. We immersed ourselves. We went and visited other ILEs (Innovative Learning Environments). We looked at other ILPs (Individual Learning Plans). We read what was happening around the world in terms of blogs, we read*
articles, looked at John Hattie’s research to see which learning pedagogy had the biggest effect size. The inquiry process where we immersed ourselves and then we stopped and thought about next steps, prototyped, then we did trialling. And we weren’t in the ILE at this time, but we still trialled the pedagogy we believed would work in there. (Leader C, 2016)

The preparation that School C did to decide what personalised learning was and how they were going to implement personalised learning in their new innovative learning environment was thorough and purposeful.

2. The purpose of personalised learning

Leader B, Teacher B, and Teacher A described the purpose of personalised learning as a change from traditional teaching ‘one size fits all’ pedagogy where “Everybody’s doing the same thing, based around the same theme” (Teacher B, 2016). Leader B expressed the purpose of personalised learning as a move away from the traditional approach of individualised learning and differentiated learning or streaming. All educators referred to the purpose of personalised learning as a style of learning that would change the way teachers taught from a directive, instructional style of learning; to a collaborative nature between students and teachers, which resulted in teachers changing to be activators, facilitators and pastoral carers. “It (personalised learning) should have teachers as the activators and facilitators, not the people teaching” (Leader C, 2016). The change in teachers’ style of teaching would also give students choice, a voice about their learning and opportunities to peer teach. School B educators stressed the importance of teachers having numerous conversations with their students to form positive relationships, to enable talk about learning.

Teacher A saw the purpose of personalised learning as a change from traditional teaching where students were focused on facts which Google can now provide, to teaching children skills; such as how to find and discern the quality of information. Leader A and Teacher C both saw the purpose of personalised learning as developing skills, such as self-management. Leaders A and B saw the non-traditional skills of reflection and collaboration being developed when utilising personalised learning.

The three school leaders and Teacher C all expressed that the purpose of implementing personalised learning in an innovative learning environment was to raise
student achievement. Leader B referred to John Hattie’s research, which concludes that the traditional methods of teaching have a tiny achievement effect size. This infers that Leader B sees the purpose of personalised learning as a way to increase student achievement with a great effect size. Leader C agreed stating, “So that's the whole purpose of it (personalised learning), so that the students can learn and achieve and reach their potential or exceed their potential and learn how to learn” (Leader C, 2016). Leader A concurs that the purpose of personalised learning was students progressing academically and not wasting time waiting for their teacher. “I think the purpose is that the children are not treading water and not wasting time at all. And they’re constantly moving themselves forward” (Leader A, 2016). Teacher C saw the purpose of personalised learning as learning, which implied that if students were learning, their level of achievement was progressing.

Making learning relevant and authentic so that students enjoyed learning and were engaged, was voiced by all the teachers as the purpose of using personalised learning in Innovative Learning Environments. Teacher C expressed that the reason for personalised learning, was that it helped students both now and in their future, “The purpose (of personalised learning) is to prepare them not just for the future but now. Now and the future. So it's engaging them” (Teacher C, 2016).

3. Educators understanding about Ministry of Education expectations
The teachers from all schools weren’t aware of any expectations the Ministry of Education (MOE) had about the use of personalised learning in Innovative Learning Environments. However, later when asked if there was anything else to add, Teacher C said: “So as far as I know, if you want to do a new building in school from now on, you have to build an innovative learning… modern learning environment with innovative learning practices” (Teacher C, 2016). The following response from Leader A revealed that they were not sure about expectations the MOE had about the implementation of personalised learning. On one hand Leader A believed the MOE did have a level of expectation about implementing personalised learning in Innovative Learning Environments, but on the other hand schools could decide their own expectations:

We had the ERO (Education Review Office) report two or three years ago, and they were looking specifically that the children were motivated and self-
directed. That the children owned their learning. I do think there are high expectations (from the government). Each school creates their own expectations based on how they interpret the National Education Guidelines. (Leader A, 2016)

Leader B was confident that the MOE placed no expectations about using personalised learning in Innovative Learning Environments.

_The Ministry cannot tell you how to run their school. So they can support what you're doing. They can look at your charter. They can put in different National Administration Guidelines. Or ask for things. However, it is up to the board as a self-governing school as to what personalised learning looks like._ (Leader B, 2016)

Leader B went on to state that when the Education Review Office did visit, they did see personalised learning taking place in their innovative learning environment. Leader B later acknowledged that as part of implementing personalised learning, teachers used “a range of different assessments, both formative and summative. Staff will use tools the Ministry require us to use” (Leader B, 2016).

Initially Leader C also said they weren’t aware of any expectations from the MOE about the implementation of personalised learning within their Innovative Learning Environments. “They (MOE) just had expectations around how innovative the environment was” (Leader C, 2016). However, Leader C continued to describe further interactions with the MOE about the teaching practice within their Innovative Learning Environments. One interaction referred to their confidence that the latest ERO report mentioned personalised learning, which it didn’t directly.

It is important to note the following: The MOE called new builds and renovations ‘Modern Learning Environments’ before adopting the term Innovative Learning Environments in recent years. The word ‘space’ was used in the interviews 70 times to describe the Innovative Learning Environments. ‘Modern Learning Environments’ was used to talk about Innovative Learning Environments 12 times; compared to the term ‘Innovative Learning Environments’ which was said just once. Either both leaders and teachers did not see their new learning environments as innovative, but a space to learn or a Modern Learning Environment; or alternatively did not use the term
innovative learning environment because they were confused about the reason the MOE changed the terminology from modern to innovative.

**Category one: Key findings**

There is not one common definition of personalised learning. Leader A wanted to keep referring to individualised learning where teachers constructed learning for individuals, while School B and C educators referred to personalised learning as students actively choosing what they learnt, giving them a voice. Leaders can be influential, as can be seen with School B and C teachers whose definitions were influenced by their leaders.

The educators unanimous purpose of personalised learning in ILEs was to move away from traditional styles of whole class single cell teaching; to skills based personalised learning, to raise student achievement. All teachers said the purpose of personalised learning was to make learning engaging, authentic, and relevant to their learners.

**Category two: Implementation of personalised learning**

The educator’s interviews were analysed in relation to how they implemented personalised learning within their Innovative Learning Environments (ILEs). The following four themes emerged: preparation, school organisation, student workshops and advantages of implementing personalised learning in ILEs.

1. **Preparation**

The preparation of the design and pedagogy for personalised learning in the new ILEs differed between schools. School A and C leaders both stated that their ILEs were designed for personalised learning and that a lot of research went into the build design. However, both leaders’ methods of research and who they included in their research were quite different. School A leaders did the research by visiting schools in Australia and read books. The leaders gave the architects a brief for design and “had discussions within our staff meeting” (Leader A, 2016). Teacher A was at the school and explained that they were not part of the building design process but did talk about how the furniture could be used to personalise students learning experiences. Teacher A showed that they were not completely on board with the new learning environment
as they also talked about how Teacher A and the students in their class enjoyed returning to the previous vacant classrooms to have their own space as a class.

How School C moved into their ILE was quite different to School A. Leader C researched, then collaboratively worked with the students and nine teachers who would be in the ILE, to design their environment within.

*I spent about a year and a half researching. This was about three years ago. What it could look like; what it needed to look like. And we went through quite a thorough process where I then took my nine teachers in to an inquiry in to what it could look like, what it should look like and through all of that process and obstacles, concerns, worries, fears, excitements that we had, it ended up resulting in how it looks. Even the colours were part of the collaborative and consultative approach, from the nine teachers, and also the kids. The parents didn't have input in to the design of the environment or the pedagogy, but the kids and the teachers definitely did. (Leader C, 2016)*

While Leader C talked about the collaborative approach to designing the ILE, Teacher C’s answer focused on the pedagogy behind the ILE design. Teacher C explained that the blue room was for collaborative work; the orange room was a maker space. The large open room had colours to define working areas within. The furniture was able to be shifted easily to form various formations. The furniture colours reflected the wall colours as “there was a lot research done into the colours and how colours affect people and how the colours stimulate” (Teacher C, 2016). Teacher C was the only person to give examples of how the ILE was purposefully built for personalised learning, for example,

*At the end we’ve got an orange and black space which is all lino. It’s got standing tables, and that’s the maker space. So if you’re someone who struggles with physically writing down a concept, you could show your learning by showing a 3D sculpture. So the space can be used to cater to the personal needs of the children. (Teacher C, 2016)*

Leader B was part of the design process of their ILE. The response from Leader B was non-committal about whether their ILE had been designed to implement personalised learning and asserted that personalised learning could be implemented in any environment. Teacher B answered with an insightful rhetorical question, “I think
it depends what you think personalised learning is. I think people think personalised learning is something quite different” (Teacher B, 2016).

2. School organisation
School B and School C, were similar in that they had personalised learning occurring in all of their curriculum subjects. They had home classes where the teacher was responsible for pastoral care and communicating with home class parents. The teachers from both schools collaboratively taught the curriculum to all the students in their area, students had lessons from other teachers, not just their home class teacher. School B and C implemented personalised learning in a shared collaborative style, but in different ways.

Teacher C explained, “We've got five, Year 5 classes in the bottom storey and four, Year 6 classes in the top storey” (2016), who each have an allocated space and teacher. Curriculum subjects are allocated during the day. At the start and finish of each day, and after lunch, they met in those spaces, called their ‘home space’. Students did not stay with one teacher for the day, they had workshops and personalised programmes that the students selected for each subject. Their ‘home’ teacher may not directly teach students from their home class very often, “I may not have taught them for a month on anything” (Teacher C, 2016). In contrast, Leader C stated that they adapted their programme so that the home teachers do teach their students during each week,

*But then we realised that you as a class group teacher didn't know a student as a mathematician or their literacy needs. So now we probably have 60% collaborative, and 40% class group time. And during that class group time you're getting to know each other and sharing your learning from the other 60% and conferencing with your teacher a lot. So we do a lot of reflecting goals with your class group teacher, they're like your pastoral care person.* (Leader C, 2016)

A concept School C did not adapt when they moved into their ILE was their use of differentiated learning, or streamed classes. School C used differentiated learning to create one Year 5 and one Year 6 class, called “Extension classes. The extension classes got to carry out personal investigations called Find it out Friday” (Leader C, 2016). The extension classes were operational before the school moved in to the
Innovative Learning Environments and was part of the traditional teaching method that they continued in their new learning setting.

School B were different from School C in that they collaboratively taught all the children in their area, all of the time. School B had their students stay with their teacher until they moved into the next learning area. Students moved to the next learning area when the student was ready, not necessarily at the beginning of a year, like other schools. Teacher B explains,

_We've got four spaces that are Years 0 to 2, 2 to 4, 4 to 6 and 6 to 8. So our design is that there is always going to have that crossover. We're never going to have just clear composite classes as such. For example, we've just had two of our Year 2s move to the next class, because we felt that actually that was the best place for their learning. So we don't wait until the end of the year. It's a conversation that could happen in week six of term one or whenever, because our focus is the individual child and where is the best place for them at that time._ (Teacher B, 2016)

Teacher B’s explanation showed that School B personalised more than their class programme. In Teacher B’s area, with Years 0-2, they started each day helping their students plan their day. The older age groups planned their whole week on Monday mornings. The youngest planners had two groups. The students who were new started out as wall planners. Once they mastered wall planning the students moved to board planning. The wall planners were more teacher directed because the teachers were modelling how to plan a day. Once the planning was completed, students were required to turn up to the workshops they selected, but could do their other activities in any order. Resulting in all curriculum subjects possibly operating at the same time throughout the day.

School A largely taught their own classes in their own assigned areas. Leader A and Teacher A had differing opinions as to how much personalised learning was taking place. Leader A stated that personalised learning was occurring in all curriculum subjects, conversely, Teacher A thought it “was occurring in Inquiry, a little bit in writing, but the worst was maths” (Teacher A, 2016). Both School A educators talked about goal setting, reflection and the use of learning buddies as part of implementing personalised learning. Otherwise, they talked very differently about how personalised
learning was implemented in their school, for example, Leader A went in to great detail about a writing rubric they had worked with their students to put in to language the students could understand, helping personalise their learning. Whereas, Teacher A went in to depth about how students were still largely teacher directed, which they felt was not “true” personalised learning.

3. Student workshops
All schools employed workshops as part of their personalised programme, each school delivery was unique. All schools used formal assessments to help teachers decide which skills they needed to include in their workshops. School B encouraged students to request workshops and learning activities. School C assessments were carried out, marked, and recorded by their students, not the teachers. Leader C explains why,

 Normally teachers sit, mark all the assessments, and decide on which activities they need to do next. You’ve done all the thinking as a teacher but that’s not a personalised self-directed approach. Now (at our school) kids are assessing themselves and looking at what the progressions are, saying, “here is where I’m at. That’s where I’m going to be heading’. (Leader C, 2016)

School A educators both described student selection for workshops occurred from formal assessments, but had differing opinions about their workshops. Leader A described personalised learning as happening in all classes because they were workshopping in all curriculum subjects, “I would say personalised learning is right across the curriculum because all the time we’re workshopping” (Leader A, 2016). At the end of workshops students were asked to decide what to do with what they had just learnt, giving students personal choice. Leader A described workshops as being responsive to students learning, in that students could leave the workshop once they understood the skills being taught. “Those who know will move off. No child should be sitting in a workshop saying, I know this” (Leader A, 2016).

Conversely, Teacher A said that for maths, reading and writing, teachers placed students according to ability in learning groups. The learning groups attended workshops. Teacher A found it quite difficult to talk about what they were doing, and sounded confused. School A practice of personalised learning wasn’t what Teacher A believed personalised learning to be:
Then we mix for spelling with cross grouping, which is a bit strange. Originally I thought the idea was that we didn't group according to ability. That was sort of a non goer, but that's the way we're tending to group, in ability for when we do spelling, when we do writing. Okay so I don't, it's just what's happened. I mean I quite like that we do group to ability, I find that easier, but I don't think that was the original plan of what we were supposed to be doing. (Teacher A, 2016)

When Teacher A talked about why ability groups weren't ideal for learning, it was said with confidence,

I think we were meant to be a bit more innovative with the way we group children and not get into that idea that all the children at a certain level should be in this group. The reasons were that there was no proof that ability grouping was any more beneficial. It was probably less beneficial because of children in the lower groups not getting the modelling from the children in the upper group, so that they could actually see what they were actually aspiring too. And I think self-esteem was a big one too. But that was just one of the things I noticed that we hadn't done. (Teacher A, 2016)

Next Teacher A elaborated how personalised learning was implemented better in the curriculum subject Inquiry, because first the teacher introduced the focus topic to the students. Then together they brainstormed open ended questions to explore and research. Then each student selected a question, a learning goal, and how they wanted to present their findings. The students would then have time to research their question, design their presentation and present it to a small group who would give feedback against their learning goal and skills learning rubric. The student would then reflect on their learning goal and conference with the teacher about their learning. Throughout the process the teacher would be responsive to students learning needs by facilitating workshops with students who needed help learning particular skills. Sometimes the workshops were led by other students, not necessarily the teacher.

Workshops at School B and C were a collaboration between teachers and students. Teacher B brainstorms with their students, each morning, when planning their day: “We'll probably generate a list of about five or six activities or ideas. And then from that they choose the thing that is relevant to them” (Teacher B, 2016). Like the older age groups in School B, School C teachers decide at the beginning of each week
which workshops they would offer, then make them available online. School C workshops could have 15 to 20 students at a time. The online registration for workshops restricted how many students could attend a workshop.

Both Schools B and C had a scheduled time in each day called responsive or independent teaching time. Which was where the teachers did not schedule a workshop but roamed around the students and worked with them on whatever they were doing, allowing teachers to respond to the personal learning needs right at that time and took spontaneous workshops, if needed.

Accountability of students
School B and C had systems to help students be accountable with their learning, particularly for students who were not participating in their workshops or programme. School A didn’t have a system to track who attended workshops. However, Teacher A said that there were some students who Teacher A had to keep an extra eye out for and when Teacher A remembered, asked to see what the students had been working on. In School B, Teacher B explained that students called “Wall Planners” had to have a teacher sign off the activities as they did them, while learning planning capability and self-management. Sometimes, students who were “Board Planners” had to go back to Wall Planning, because they hadn’t quite mastered self-management. School B’s regular reflection times, were a time that the teachers could see who was self-managing, and who wasn’t.

Teacher C described how initially they had a few children who didn’t go to workshops or complete their independent work. The teachers developed a system to keep students accountable, which reduced the number of children not going to workshops or not participating in independent work. School C used the Google sign in sheet as their tracking document to show who attended the lesson and any relevant notes. Leader C expanded that at the end of each workshop, students looked at the success criteria and reflected upon their learning, which could be discussed with their home class teachers in a conference on Fridays:

*They have a reflections box. So you as a teacher are always watching their self-tracking, but we as teachers also track their work in terms of sharing aha*
Teacher C said that there were only a few students “who need that support going forward to be independent self-motivated learners who use their initiative” (2016).

**Student reflection**

Self-reflection was an important part of implementing personalised learning. At School A, the students would set achievement goals, then when prompted by the teacher, would reflect on those goals to evaluate their learning. Teacher B shared that each day before each break, the students and teachers in each area got together to reflect on their learning, using open ended questions:

*If I'm leading the board planners, at the end of every block they'd come back and we'd do some reflection. We spend a lot of time doing reflection because it just really helps them to really evaluate what's been going on for them. So we often do sentence starters like, what was your biggest challenge? What was your trickiest learning? What was your biggest success? What did you find the hardest? (Teacher B, 2016)*

From these discussions, teachers and students could see how time was managed and areas that the students were doing well in, and learning areas which required more help.

**4. Advantages**

Leader A and Teacher A saw the advantages of using personalised learning in their ILE as the motivation to learn, because students were not learning something they already knew, instead they were being challenged. The result was independent learners because they were working in groups and “knew exactly what they were doing; knew where they were at, they could write their own goals” (Teacher A, 2016). Similarly, Leader B described the advantages of personalised learning as seeing all the students as learners who could talk about their learning. For example, “Most kids will be able to tell you exactly what they are doing, why they're doing it, how it impacts on them as a learner and what they need to learn next” (Leader B, 2016). Leader B was excited because it showed that the students had “real ownership” of their learning.
Teacher B saw a high level of engagement from students and teachers as an advantage of implementing personalised learning, because it “translates into greater degrees of progress and success” (Teacher B, 2016). Leader C agreed that the biggest advantage of personalised learning was, “Meeting students learning needs, resulting in high engagement. There was hardly ever kids who are non-engaged” (Leader C, 2016). Leader C said that often the reason for students who weren’t engaged was because of external factors influencing the child, such as “being sick, or something that's happened at home” (2016). Leader C listed six other advantages for implementing personalised learning in their school that related to students, teachers and parents:

1. The success that kids feel.
2. The teaching stress and workload has gone down because of the collaborative approach.
3. Teachers isolated feeling of when they’re not in an ILE, that's definitely reduced.
4. Teacher practice has lifted when there's a personalised approach.
5. The link with home was strengthened. When kids were working with Google classroom and Google doc and tracking themselves, kids could go home and talk about their next steps, instead of a teacher having to run an interview. That's definitely been a benefit.
6. Kids could talk about their learning, in a way that showed ownership of their learning, because of the personalised approach.
7. Students have said, “I love not hearing one teachers voice all day.

The sixth point about students having ownership of their learning aligns with Leader B and Teacher C views about the advantages of implementing personalised learning. Teacher C talked about Leader C’s seventh point, and felt that the students learning was highly catered for compared to when they were in single cell classrooms, due to a lot more options in an environment where they could learn from so many more people. For example, “They're not restricted to just learning from and experiencing learning with 32 other children, you know, day in and day out, with the same ones. They get to constantly be exposed to other people and other peoples thinking” (Teacher C, 2016). As a result, Teacher C expressed that the teachers felt less guilt than when in their single cell classroom teaching alone:
(Before) when I was with a group I could see someone was struggling and I could see a teachable moment that I just couldn’t get to cos I’m busy, cos your attentions divided. Now I know that kids are going to exactly what they need to learn, because it’s on their test, they’ve looked at it, they’ve assessed their test, they’ve analysed their gaps, then chosen their workshops and activities (Teacher C, 2016).

Another advantage in using personalised learning mentioned by all educators was student achievement. All school educators talked about the importance of student engagement, because they hoped that the students would achieve more and make progress with their learning.

Leader C had been tracking students’ Maths achievement for the last three years. The data showed comparisons with before and after personalised learning in the innovative environments, and the effect on students’ progress and achievement. Their findings showed that students with average maths ability, referred to as “middle” students, made the largest gains with the new pedagogy in the new environments, and gives reasons why.

To summarise my findings would be to say that the biggest shift is middle kids. So our kids that were achieving high, still are. And our students who weren’t tracking well towards the national standard, we did actually half that group in terms of maths. The biggest shift was the kids who were kind of meeting national standards and just above, are now well above. And it’s because they got to self-direct and self-manage and take a personalised approach to their learning that they’re succeeding much more. (Leader C, 2016)

Teacher A agreed that personalised learning helped students who were already doing well, succeed better, stating:

I would say for the children who are very motivated and independent it’s been fantastic because they just take things to the next level all the time very motivated and independent (students), love the challenge, and so they feel challenged all the time and that’s just the way that they work. (Teacher A, 2016)

However, Teacher A’s next comments questioned whether students who found learning difficult, had progressed in their new learning environment.
Category two: Key findings

There appeared to be two models of successful personalised learning taking place. Both models of personalised learning held similarities such as strong parent and community links, students directing their learning through planners or signing up to workshops, and an available teacher who roamed and helped students who were not with other teachers. Two schools had systems to keep track of students’ work and workshop attendance. Failure to track students by one school could impact negatively on students who avoided workshops or didn’t participate in the programme.

Every educator saw advantages in implementing personalised learning in their ILEs, such as teachers feeling less isolated in a classroom; teacher practice lifted; teacher stress and workload reduced; and students enjoyed learning from more than one teacher in a day. Educators expressed advantages for students was that they had feelings of ownership with their learning and had an element of control with their own learning, which lead to engaged students.

Category three: Challenges of implementing personalised learning

There were numerous challenges expressed by the teachers and leaders interviewed. Leader B believed there were a number of challenges when implementing personalised learning because “as soon as you move in to the realms of personalising learning, your job as an educator becomes very much harder” (Leader B, 2016). Leader B saw sustainability as a challenge for personalised learning. Leader C stated that along their journey of introducing new pedagogy in a new learning environment, they identified challenges as they rose and made them their goals, for example, “Whatever was our challenge became our next goal” (Leader C, 2016). The following identifies the themes that emerged from analysing the educator’s interviews about the challenges of implementing personalised learning in Innovative Learning Environments.

1. Environmental challenges

The first and biggest challenge that Leader A talked about was in regards to the noise. Leader A referred to the noise as an issue three times. Each time Leader A would talk about a different challenge, the noise issue would be revisited. Leader A shared that
children with learning needs, such as autism were negatively affected by a noisy environment, stating, “Some days it can be very noisy” (Leader A, 2016). Students affected by the noise could choose to go to a quieter small room, the library, staffroom, or outside to work. At times these children had a teacher aide to work with them. Teacher A talked about how parents complained about the noise, and thought that children on the learning disability spectrum may be finding personalised learning in their environment “very detrimental”, because of how loud the learning environment could get:

I know some of the mothers come in and say it’s too noisy for their child and they shouldn’t be working here and I think for children who are probably on the spectrum would find this sort of learning really difficult unless you have a quiet space, because everything we’re doing is not okay as far as noise levels. (Teacher A, 2016)

In School A, the noise level was not just a special needs issue, but an issue for all children and teachers. For example, Leader A said, “I think noise level. It’s something we’ve had to be very careful of… Noise level would have to be the big thing and reminding teachers to soften our voices in that big open space” (Leader A, 2016). Noise was a challenge for Teacher A when implementing personalised learning in their innovative environment, especially if one teacher did something boisterous at a time another class was doing something quiet.

Conversely, Leader C had a different view about noise being a challenge. A lot of visitors asked Leader C about the noise being a challenge, especially for children with special needs. However, Leader C shared how they do not have a problem with noise and that special needs students were thriving in their environment:

People say to me noise and special needs, but I can say, hand on heart, I’ve got a video of one of highly autistic boys just excelling in that environment. And, if you have APD, Auditory Processing Disorder, you still have it whether it’s in the 30 kids’ classroom or whether it’s in with the 120 kids. And actually we find the environment suits them a little bit better because they can go in to the glass rooms and they shut the doors and you can’t hear the noise. Where in a single cell classroom you can still hear everything. So we’re actually finding it a lot better, and they’re putting their FM systems down. So it’s actually supporting our special needs. (Leader C, 2016)
Interesting to note that special needs students at both School A and C who found the noise challenging in the Innovative Learning Environments, encountered the same solution which was to withdraw to quieter spaces. However, each school shared different outcomes, one was viewed as a success and the other a challenge they were working through.

A few other environmental factors were mentioned. Teacher B talked about the growing student numbers in their class as a challenge to implement personalised learning in their innovative learning environment. Teacher A mentioned that students got distracted from learning in the open space, but there were some desks against the wall for students to use, to minimise distraction.

2. Coping with change
The school leaders talked about teachers’ resistance to change as a challenge for implementing personalised learning in their Innovative Learning Environments. Leader B said that when teachers were confronted with change or something new in teaching, there was some resistance. Leader C held similar views, explaining that a challenge for them initially was teacher resistance, hence why they gave their teachers the option to opt in. Leader A also acknowledged that their teachers were at different stages with embracing the change in teaching pedagogy. Leader A shared how uncomfortable the change could be for teachers moving from a ‘boss’ mentality to a collaborative mentality:

If you want to be the holder of all the knowledge and the holder of all the information and if you want everybody to look at you with big starry eyes, and you’re boss, and the children are all going to do what you want, when you say and how you say. Then this isn’t going to work. Because you will see children leading the class. It’s giving away your control, which can be very scary for some people. (Leader A, 2016)

The challenge for Teacher A is that everyone had different ideas on what personalised learning was, making the implementation of personalised learning challenging. Teacher A has found working with other teachers in an open space difficult, “Fitting in with other people and allowing all their attributes to shine through as well. And also being able to make compromises and all those things, that can be challenging”
Like Teacher A, Teacher B found working collaboratively with other teachers challenging, sharing that there was a need for effective communication and both teachers needed to be organised, prepared and meet deadlines. Leader A stated, “We've had to have lots of meetings about being highly organised” (2016). Teacher A agreed that they had more meetings than before implementing personalised learning in the innovative learning environment.

Leader C, Teachers A and B, conveyed that teachers lack of knowledge also created challenges to implementing personalised learning in their innovative environments. Leader C stressed the importance of school leaders leading professional development so that all teachers had the same pedagogy, principles and a shared understanding of what personalised learning was and how personalised learning would be implemented. Leader C explains the process they went through:

That's why it's been so successful here because we went through a two-year process. It wasn't like we just we got a brand new building and moved in and bought new furniture, it was a really rigorous learning approach as educators as to how is this going to work? (Leader C, 2016)

Teacher A agreed with Leader C, stating, “There's not much point in a new environment if you haven't actually thought about the way you're teaching or the way children are learning”. A challenge for Teacher B was that they believed teachers saw personalised learning differently, and that the various interpretations of personalised learning caused confusion. Teacher B gave an example of a school that had an innovative learning environment called the Centre of Innovation:

'Centre of Innovation'. What does that actually mean? Is that just a name that you've just come across? I think there's a danger that innovative learning gets thrown about, personalised learning, modern learning environment. I think it can be quite dangerous and I think it can lead to confusion of what it is that we're actually about or what we're trying to do. (Teacher B, 2016)

Teacher C shared how their first challenge in their new environment was taking the leap to put their collaborative personalised programme and new teaching pedagogy in to action. Initially when they first moved in to their new building they used traditional pedagogy by teaching their own classes. What they found was “The environment didn't work. The space didn't work. The behaviour declined” (Teacher C, 2016).
However, once they started their collaborative personalised programme, student behaviour improved, and so did the engagement of teachers and students. Teacher C stressed the importance of establishing a modern pedagogy such as personalised learning in the Innovative Learning Environments:

*But when the building is being used for modern practice, and personalised learning, that's when it works. So we never have your old single cell mentality in this space because then it just doesn't work. So if you've got the beautiful building you could have the best modern learning environment that you could possibly think of, but unless the practice is happening, then we just found that it absolutely fell to pieces. So that's huge. The practice inside, that's important.* (Teacher C, 2016)

The new Innovative Learning Environments didn’t work for teachers and students if single cell pedagogy and teaching continued to be used.

Students were challenged in the following ways by the implementation of personalised learning. The first challenge Leader C mentioned was when new students who had only experienced traditional learning environments, transferred from other schools or countries to their school. The new student would feel overwhelmed at first because of the distinct change in learning style. A challenge Leader A talked about was when given a choice of activities, the students were choosing soft or easy options, instead of choosing an activity that might challenge them. To steer students towards selecting a challenging activity, their worksheets were carefully designed. The worksheets had x number of activities the students must do, and then a number of optional activities called “Can do’s”. School B and C also had “Must do’s” and “Can do’s”, for the same reason. Personalised learning in School C’s ILE was a success for their students, but Leader C added, “It doesn’t suit everybody, but single cell classrooms and traditional teaching doesn’t suit everybody” (2016).

Keeping parents informed was a challenge for School C. Teacher C talked about the challenge of bringing parents on board and informing them about how they were teaching, which was different to how their parents were taught:

*Some of the challenges are keeping the parents with us on the journey, cos the way they were educated was completely different…We’ve done a lot of work at our school. Lots of information evenings. So that we have 99% of parents rolling*
with us and they can see all the bonuses. And it's a challenge and we have to continue to work it through with them. (Teacher C, 2016)

Leader C mentioned that “Parents lack of understanding” was a challenge and needed to be led strategically, stating “you need to be strategic in the way you take the parents on this journey” (2016).

3. Practical challenges

Tracking what children were doing was a challenge for the teachers in School A. They needed to make sure they were not just focusing on the students who were loudest, or not on task, but also those who were capable and got on with their work. Leader A explains, “Whereas you've got to train yourself that every child, deserves some part of your time. No matter how motivated, or highly skilled they are, they still need you and so that's a challenge” (Leader A, 2016). Teacher A agreed with Leader A and found tracking students programme participation difficult, especially those children who weren’t self-motivated, or found the environment and learning challenging. Teacher A explains:

For children that find learning difficult and find noise difficult and getting themselves organised difficult, you really have to still have them on your radar all the time, because in this big open space they just go, they're hiding. Which makes it a bit tricky. I actually have to mentally tell myself that I've got to check on these kids and find where they’re at, what they're doing each day. Otherwise they would just fall through the system. I find that these children the most difficult to keep track of because we move from group to group, and things are changing. And it's pretty dynamic. And these kids will then just I don't know. They just hide. They stay under your radar. (Teacher A, 2016)

Teacher A explained that to help track these students they implemented accountability systems where particular students had to show the teacher their work and had learning buddies, however there were not checklists to record when they attended workshops.

Working out how to track their students programme participation and progress was a challenge School C educators said they worked through and were always refining. As a result of working through these challenges School C was the only school who had tracked their students’ progress since before moving in to their new surroundings and
implementing personalised learning. They were the only school who could show that the change to personalised learning made a significant positive difference to students’ achievement.

Teacher A shared concern about whether students with learning difficulties progressed in their innovative learning environment. Teacher A also found standardised testing a challenge, because standardised testing conflicted with their personalised learning focus which centred on goal setting and stated:

\[ O \text{ for the assessment. I find that quite tricky sometimes because we're sort of all over the place and probably because I have been so used to doing the standardised type testing and now it's not really relevant and so it's hard for me to get my head around, well besides the whole school does standardised testing so we have too, but really I should be looking at the students’ goals. We should see whether students are moving on with their goals which is really more relevant to them with their personalised learning. } \text{(Teacher A, 2016)} \]

Teacher A preferred to reflect on each student's personal learning goals and assess how they were progressing with those, over standardised testing.

The challenges Teacher B experienced was around reporting to the National Standards. Teacher B shared how some students might not have been at the academic National Standard in a curriculum area, but had fantastic self-managing and relationship skills, which School B valued:

\[ \text{And that's the sad thing in a way, because a child could be really struggling in reading and hasn’t met the national standard for maths. And yet gosh they can manage their time so well, and are beautifully collaborative and have got all those skills. So it's really difficult because our parents find it hard because we really try pushing the value in that, because they're the skills that make the whole person and help you to be successful. } \text{(Teacher B, 2016)} \]

Part of the challenge for Teacher B was keeping parents informed about all aspects of personalised learning and aspects such as self-management which help contribute to student success.

School B had been operating for three years, the leader said that with a growing cohort, it had been difficult to determine what effect personalised learning had on
student progress and achievement within their innovative learning environment, but did know that all students were making progress; some students thrived and some students found learning challenging; but all students liked going to school each day to learn. School B teacher explained how sometimes they could be quite disappointed in the students’ progress and sometimes expected more progress than occurred. Other times the students made “huge progress shifts”.

Timetabling was a challenge for all schools. School C educators found that extra activities which took away a class at a time and teacher release time (CRT) was a challenge fitting in to their timetable. Leader C explains:

> You get school assembly, swimming and then Millennium wants to do swimming lessons with each class group which takes them out for a half hour over a day. And then you’ve got this collaborative learning practice and then you’ve got people who want to do CRT and it doesn't work. That timetabling has definitely been a challenge, still is. (Leader C, 2016)

The reason that timetabling was a challenge was because “traditional systems aren’t supporting what we’re doing now” (Leader C, 2016). Examples Leader C gave were, reporting to parents and the use of teacher release time.

Teacher B expressed a couple of teaching challenges. The first was how it was a challenge to find the balance between explicit teaching and responsive teaching:

> I do feel like you have to get the balance right. So yes you can be responsive and yes you can follow children’s ideas and passions and yes, you know things might come up here and everywhere, but at the end of the day I've got to balance that with my explicit target teaching. (Teacher B, 2016)

The second teaching challenge Teacher B raised was in regards to there being at times a high demand on teachers. For example, Teacher B explained that the students made the biggest progress in reading when instead of sending printed books home, the teachers made personalised reading books for each child. This example brings to light Leader B’s concern about whether personalised learning can be sustained.
Category three: Key findings

The key findings for the challenges that the educators faced within their Innovative Learning Environments related to coping with change and a practical challenge of timetabling.

The challenge talked about by all leaders was teacher resistance to a change in teaching pedagogy to personalised learning within an ILE. Teachers working with combined classes needed to collaborate to successfully work, which was a challenge because it required positive teacher relationships with a lot of communication via meetings, being organised, and compromise. Taking the leap to teach collaboratively was described as scary and one of the biggest initial challenges.

Practical challenges faced by schools was timetabling, whether this was balancing explicit and responsive teaching; working out how to fit outside programmes into their personalised programme; or class activities conflicting with other classes in regards to noise.

CONSOLIDATED FINDINGS

This was the first research project I have undertaken and was delighted by such a great response from both leaders and teachers from all three schools that participated. I am grateful for their co-operation, openness, honesty and the time they took to be interviewed and the great efforts they went too, to supply the requested documents. The categories and key findings that have emerged from documentary analysis and semi-structured interviews are summarised in Table 2.0. The following includes a triangulation of the data and a brief explanation about the consolidated findings.

There appeared to be confusion over terminology. The analysis of government documents from the three schools revealed a confusion over the term personalised learning, and what it looked like. The semi-structured interviews revealed that there was not one common definition of personalised learning. Some educators expressed concerns about the term ‘personalised learning’ being a confused term. Educators’ use of the term Modern Learning Environments instead of Innovative Learning Environments, indicated that they did not see the importance in the term differences,
nor why the government changed the term of new learning environments from 'modern' to 'innovative' learning environments.

The first category and themes about educators’ definitions of personalised learning, impacted how personalised learning was implemented in their ILEs and the challenges they faced. The underlying and prerequisite challenge was that all educators within a school needed the same understanding of what personalised learning was and what it looked like. Where school leaders and teachers didn’t have a shared understanding, they ran into more challenges than schools with the same teaching pedagogy.

Personalised learning was embedded in School B documents and semi-structured interviews. For example, the teaching programme, their school values, the way they moved children between year levels and the way they shared information via their website. The other two schools had a bit of work to do to fully embed personalised learning, because of the absence of communication about implementing personalised learning in their ILEs in their school communication documents, such as newsletters and websites. From the interviews and documents, School A needed to decide on which personalised learning model to use, then develop and implement it as a shared pedagogy.

Two models of personalised learning emerged, either at specific curriculum times or where multiple curriculum subjects were operating at the same time. The similarities between educators when defining personalised learning or describing its implementation in the ILEs, was when students were part of co-constructing their learning through selection or choice, and involved collaboration, goal setting, reflection, self-management; which all gave students a voice. All schools used workshops as a key tool to teach skills. Where personalised learning was implemented collaboratively by teachers across multiple classes, students attended workshops and had independent programmes, as well as a roaming teacher who could be responsive to learning needs at that moment. Tracking students’ attendance and participation in the programmes was a challenge School B and C had overcome, but something School A appeared to still find challenging.
Teachers working collaboratively was a challenge talked about or addressed by all educators. Where a school hadn’t completely adopted a collaborative personalised learning pedagogy in their new innovative learning environment (ILE), they fell back to familiar and old teaching pedagogies and taught in a single cell type of teaching. This caused more challenges for teachers, students and parents, than those who changed their teaching pedagogy in the new environments. For example, challenges such as noise and reduced student behaviour were described as problems. Educators described obstacles to implementing personalised learning as resistance to change and timetabling.

The schools that did collaboratively teach with personalised learning in the ILEs, appeared to have more advantages than disadvantages when adopting the new personalised learning approach. Some advantages described by educators was that teacher accountability and practice rose, teachers stress, workload and feelings of isolation reduced. Students enjoyed having control and ownership of their learning, which resulted in engaged students who successfully achieved, especially the average to above average students who could go at a pace where they weren’t held back by the teacher dictating the pace of learning.

However, I think a first step for teachers changing from a single cell classroom pedagogy to a personalised learning pedagogy in an ILE, is to transition to personalised learning like School C first, where students were selecting their work within a curriculum subject time. Then once that was working well, explore whether teachers and students wanted to move to School B’s personalised programme model where all curriculum subjects might occur at the same time, due to students designing their personalised programme for the day or week. If I had had more resources and time, I would have liked to have heard the parents’ perspectives about what they thought about the change to personalised teaching in the ILEs. I would have also liked to have found out from students their opinions about the implementation of personalised learning in the ILEs.
<table>
<thead>
<tr>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Document analysis</strong></td>
</tr>
<tr>
<td>There appears to be a level of confusion over the term personalised learning at the government level.</td>
</tr>
<tr>
<td>There seems to be no commitment to personalised learning, and a level of confusion about the term in two schools.</td>
</tr>
<tr>
<td>Personalised learning was embedded in all School B documents.</td>
</tr>
<tr>
<td><strong>Semi-structured interview categories</strong></td>
</tr>
<tr>
<td>How schools understand the concept of personalised learning</td>
</tr>
<tr>
<td>There is not one common definition of personalised learning.</td>
</tr>
<tr>
<td>Purpose of personalised learning in ILEs was to move away from traditional styles of whole class single cell teaching; to skills based personalised learning, to raise student achievement.</td>
</tr>
<tr>
<td>Implementation of personalised learning in Innovative Learning Environments</td>
</tr>
<tr>
<td>Two models of personalised learning emerged.</td>
</tr>
<tr>
<td>Failure to track student participation in workshops or the programme could have detrimental effects on student achievement.</td>
</tr>
<tr>
<td>Every educator saw advantages in implementing personalised learning in ILEs.</td>
</tr>
<tr>
<td>Challenges of implementing personalised learning in an innovative learning environment</td>
</tr>
<tr>
<td>Teacher resistance to change their teaching pedagogy within an ILE</td>
</tr>
<tr>
<td>Practical challenges faced by schools was timetabling</td>
</tr>
</tbody>
</table>
CHAPTER 5:
DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Introduction
Chapter five will present the discussion of the key findings from the previous chapter, against a literature backdrop. The framework will be focused around the three main research aims: the concept of personalised learning; the implementation of personalised learning in Innovative Learning Environments; challenges of implementing personalised learning. Within these headings the key findings that emerged from the data, will be presented. Conclusions, recommendations and limitations of the study will conclude the chapter.

THE CONCEPT OF PERSONALISED LEARNING
In my study, when defining personalised learning, the common descriptors used by all teachers interviewed and one school leader, was that personalised learning had the aspect of student choice and voice. Both educators from two schools included in their personalised learning definition that teachers were responsive to learners needs. Two leaders and two teachers, with a representative from each school, included self-directed or self-managed learning, plus peer learning as part of their definition of personalised learning. The summary of educators personalised learning definitions included: student choice and voice, teachers being responsive to learner needs, peer learning and self-directed, self-managed learners. These descriptors confirm the Bolstad et al., (2012) definition of personalised learning where “students are involved in the key aspects of decision making” (p. 20). At face value the educators’ definitions look like Leadbeater’s (2006) example of deep personalisation, where teachers relinquish some control so that students get to participate in the creation of their learning.

School B educators both mentioned Dr Julia Atkins as being influential in their personalised learning definitions, especially in relation to the importance of positive relationships as part of personalised learning, and explores who controls learning. Atkins (1994) explains what happens when personalised learning is used, “The locus of control over the learning moved from being dominated by the teacher towards a partnership in which the student experienced a far greater sense of ownership of the
learning” (Atkin, 1994, p. 7). School B and C embrace Atkins (1994) shared control of learning with the way that they implement personalised learning, such as giving students ownership with their learning through being active participants with their use of assessment and activities by using choice, voice, and reflection. This also resonates with Leadbeater (2006), Bolstad et al., (2012) and Bray and Mcclaskey (2013) notion of deep personalisation by teachers sharing the control of learning with the students.

IMPLEMENTATION OF PERSONALISED LEARNING IN ILEs
Deep personalised learning described by Leadbeater (2006) is the ultimate goal for educators to reach:

Personalised learning starts from the premise that learners should be actively, continually engaged in setting their own targets, devising their own learning plans and goals, choosing from among a range of different ways to learn. (With) New approaches to assessment. (Leadbeater, 2006, p. 111)

The Universal Design for Learning (UDL), Technology and the Herrmann Brain Model are tools schools are using to implement deep personalised learning.

Personalised learning: deep versus shallow
Personalised learning in Innovative Learning Environments can be examined against Leadbeater (2006) definitions and descriptions of shallow and deep personalisation. My study discovered that two schools, B and C, were successfully using deep personalised learning in their schools by being learner-centered which involved student choice and voice, responsive teaching, students being self-directed and self-managed, peer learning, goal setting and reflection. These two schools moved to deep personalised learning when teachers could guide and support learners to become independent learners who took ownership of their learning through choice, voice, goals and reflection. What separates deep personalisation from other forms of teaching, such as individualised learning and differentiated learning or shallow personalisation, is who has control, teachers or students. For example, if the teacher decides the groups, as in School A, then this is teacher-led or teacher-centered which is shallow personalised learning.
Applying Leadbeater’s (2006) description of deep and shallow personalisation of learning to the schools in this study, School A seem to have the desire to use personalised learning in their innovative learning environment but appear to be giving lip service to implementing personalised learning at the moment. Instead School A are using differentiated learning where teachers ability-group students by determining which groups the students will learn in and the activities the students should do. School A have the start of shallow personalisation evident, with goal setting being part of their programme and some teachers offering students choices about which activities they can do after a lesson.

School C could risk operating in shallow personalisation which Leadbeater (2006) calls mass-customisation, in that the teachers are deciding the activities and the students choose which activities they do. Leadbeater (2006) states that learners need more than choice for deep personalisation to occur, they need voice; the opportunity to co-create their learning; includes goals and reflection; teachers who can guide and support them to be self-managed. However, School C would appear to be operating at a deep personalised learning level because they devote a dedicated teacher to be responsive to students needs each lesson and enable students to carry out their own assessments. School C also demonstrate deep personalisation by placing high importance and dedicating time to conferencing with the students to get feedback and suggestions for future lessons each week. School B demonstrates deep personalisation by teachers and students co-constructing their learning at the beginning of the day or week and also have times where teachers are scheduled to have responsive learning time. Plus, School B educators have regular evaluation and reflection time with their students each teaching block about the learning that has just occurred, so that teachers can respond to the learners’ feedback and needs.

**Tools for implementing personalised learning**

Even though School B and C implemented two different models of personalised learning, neither schools mentioned that they followed UDL, however they displayed all aspects of UDL in operation. For example, activities in Schools B and C were designed with various types of learners in mind, students have choice and voice in their learning activities enabling flexible groupings, peer mentoring, collaboration and
students who are self-directed, independent learners are evident. Another example of UDL in School C was when students assessed themselves and set new learning goals.

The single cell classrooms are described by Bolstad et al. (2012) and Leadbeater (2006) as a constraint for teachers wanting to change their style of teaching to a personalised approach. The Ministry of Education requirements to update new and refurbished classrooms to Innovative Learning Environments is enabling an environment of change in the education system. Bishop (2005) and Bolstad et al., (2012) hope that this will change schools to a strength based thinking where the students are not blamed for failing, instead the system is the problem. This is in line with Universal Design for Learning (UDL) which focuses on the curriculum delivery being the problem when students fail, leading to teachers being adaptable and reflective (Meyer, et al., 2010).

Technology is incorporated in to School C personalised learning programme. For example, programmes were used where multiple people could work on a document at once. Available workshops were online for all students to sign up; multiple teachers and students could collaboratively work and track participation. School A demonstrated adaptive technology as part of their personalised maths programme, but needed to embrace the way School C used technology to track their students learning. Technology has advanced, is continually changing and enabling how schools implement personalised learning; compared to the past when open plan classrooms were in vogue and the Personalised System of Instruction was around (Frederick and Hummel, 2014). The adaptive nature and collaborative ability that programmes offer on technological devices today, makes implementing personalised learning in these open plan, Innovative Learning Environments easier to implement to a deep level of personalisation (Bray & McClaskey, 2013; Grant & Basye, 2014; OECD, 2015). The engage document which is “Based on two years of study” (Burkhardt, et al., 2003, p. 12) and referred to by School B educators supports this. The Burkhardt, et al., (2003) document explains how research shows technology enables personalised learning, leading to greater student engagement and achievement. Burkhardt, et al., (2003) support the importance of sharing the research about the use of technology for implementing personalised learning to help them understand and embrace the
changes in teaching, and state, “It is important to demonstrate this research link to teachers, thereby encouraging them to incorporate technology into the mainstream of student learning” (Burkhardt, et al., 2003, p. 10). School A and C are examples of how the use of technology supports Burkhardt, et al., (2003) research and shows that using technology for learning can also drive change; enabling personalised learning.

School B educators used The Whole Brain Model by Ned Herrmann as a part of the way they implemented their personalised learning programme. The Model breaks down the way people think into four quadrants: blue-analytical, green-practical, yellow-experimental and red-relational (Herrmann Global, LLC, 2016). School B had activities and questions in the four quadrants to help personalise the learning for their students. School B teacher explains, “In our space some of our curriculum areas have the colour that relates back to the Herrmann Brain model and the kinds of things they’ll be doing in that area” (School B teacher). Teachers and students in School B could see if the learning was personalised for everyone by checking student activities covered all four quadrants of the Herrmann Brain model. However, critics of brain dominance models such as the Herrmann Brain Model caution the use of these due to research that has found our brains use both sides of our brain hemispheres to think. Hines (1987) highlights how educationalists who try to limit the brain hemispheres to specific activities such as creativity, are too simplistic within ‘modern neuroscience’ and refers to such theories as myths by stating, “No evidence is presented to show that these ‘brain dominance measures' measure anything related to the differences between the two hemispheres. In other words, no evidence of validity (of hemisphere dominance) is presented” (Hines, 1987, p. 604). Meneely and Portillo (2005) brain research supports Hines findings. These scholars present ‘lateralisation’ which suggests that both brain hemispheres are used at the same time for creativity and thinking. Hence, educators must use the Herrmann Brain Model with caution, never as a tool to define students learning, but to help explore their learning, such as the way that School C uses the Herrmann Brain model to help implement personalised learning.
Advantages
All educators talked about the numerous advantages in adopting personalised learning in their ILEs, which far outweighed the disadvantages. For example, School C leader’s advantages were that teacher stress and workload decreased; teachers didn’t feel isolated; teacher practice lifted; the link with home strengthened; students could talk about their learning and especially liked not hearing one teacher’s voice all day. The advantages talked about by Leader C has strong similarities to the key advantages in open plan spaces of the 1970s, which was that teachers utilised their strengths and talents, as well as being able to share “the work load, responsibilities, discipline, and planning” (Department of Education, 1977, p. 95). The implementation of personalised learning displayed by Schools B and C had more similarities to the 1977 Open Plan Education Report, which was the use of flexible groupings and ‘continuous self-paced’ work.

In this study, the main reason educators had for using personalised learning was to improve student achievement. School C could show that since adopting personalised learning in their ILE there was an improvement of academic achievement, especially in the average to above average students. This aligns with the findings from the meta-analysis study of PSI, which found that students who used PSI achieved significantly better than those not in the programme (Frederick and Hummel, 2014). The Department of Education, 1977 Open Plan Education Report findings also found that teaching in open plan classrooms were working for student progress, achievement and for the welfare of children.

CHALLENGES OF IMPLEMENTING PERSONALISED LEARNING
Literature and the data from this research confirm that there are challenges in implementing personalised learning in ILEs. The significant practical challenges are discussed, along with the challenge leaders face when managing change.

Practical challenges
The importance of teachers having a scaffold for students to become independent learners came out of the research data and supported by Toshalis and Nakkula (2012); Meyer, et al., (2010); Zimmerman (1998). The research data from this study showed that it was vital that teachers tracked students, but also had a system where those
students who weren’t participating fully in the programme were closely supported to become independent learners. The students that would need teacher support were students who choose workshops or tasks too easy for them; wouldn’t choose workshops at all; or were experiencing no progress in achievement. For personalised learning to be implemented successfully, teachers need a system to help these students make good choices and become independent learners (Toshalis & Nakkula, 2012). An example of this was School B whose students started out as wall planners and progressed to board planners. If any board planners weren’t self-managing their learning they would go back to wall planning where they would get teacher support until they could move back to being able to having a go at self-managing board planners again. This would require conversations with the students and may result in the curriculum delivery changing or adapting to help engage the learner.

Noise was identified as a problem by School A educators, however School A were at the beginning stages of adopting personalised learning and were still using many single cell teaching pedagogies. On the other hand, School B and C who have deep personalised learning operating in their ILEs both shared that noise wasn’t a problem. School C leader shared that one way students coped with the noise was to work in one of their small rooms within the ILE. Having withdrawal rooms for learning was something that teachers requested in the 1977 Open Plan Education report to reduce their noise problem, showing that the Ministry of Education have considered some of the past requests to address challenges in an open plan learning environment.

Managing change
School leaders play a significant role in leading change. The OECD states: “Learning environments and systems do not change by themselves but need strong design with vision and strategies” (OECD, 2015, p. 19). School B and C educators demonstrated that their leaders had led, and are still leading, their teachers and students in a collaborative process to develop a shared vision about what personalised learning is and what it looks like in their school. School C especially demonstrated their process of change, as they moved from a single cell environment and pedagogy, to a personalised learning approach in a ILE. To be able to implement personalised learning whereby teachers are co-constructing students learning, educators must examine power relationships and issues of control (Atkin, 1994; Frederick and
Hummel, 2014; Hipkins, 2014; Bolstad et al., 2012). School B and C showed that the power relationships had been addressed by the personalised learning models they were using by moving to a learner-centered approach. One of the reasons the 1960s Personalised System of Instruction (PSI) failed, was the reluctance of educators to move from a teacher-centered approach to a learner-centered approach to learning (Frederick and Hummel, 2014). Hipkins, 2014; Bolstad et al., (2012) agree that today there needs to be a move from a teacher-centered approach to a learner-centered approach and suggest leaders acknowledge and address the teacher’s and learner’s roles; as well as power relationships, when implementing personalised learning. “School leaders need to drive change, taking on new, collaborative roles” (Burkhardt, et al., 2003, p. 11). From what School B and C teachers said about their leaders, School B and C leaders did indeed lead by example and explored their own power relationships while they drove change through collaboration. Presently, School A demonstrate what Schein (2010), OECD (2015), Woolner et al., (2012) research warns about in terms of leaders having the theory of change without bringing about the actual changes in to practice yet. This was shown by School A leaders and teachers not having a shared understanding about the changes necessary, and the teacher-led model largely employed.

School leaders felt that they had choice about whether they implemented personalised learning in their schools; even though the change to personalised learning in ILEs is being politically driven (Underwood & Banyard, 2008; State Services Commission, 2016; Education and Science Committee, 2008; Kaye, 2015; Maharey, 2006a; Ministry of Education, 2006, 2007a, 2008, 2009, 2015). All three schools in this study wanted personalised learning to be implemented. To reduce challenges in effecting change, reducing defensive routines and resistance, Underwood and Banyard (2008) expresses the importance of school leaders developing a shared vision by clearly defining what personalised learning is and what it looks like. School B and C leaders demonstrated this by developing a shared vision with their teachers, and has had ongoing professional development for both schools. Before School C moved in to their ILE, before they moved to personalised learning as part of a student-centered model, and before they began to teach collaboratively; School C leader employed Knight (2009) change management suggestion to not blame resistors. Instead School C leaders took a lot of time to consider and ask resistors why or what they were resisting.
so that the rest of the team could collaboratively identify their next challenge to tackle. “Whatever was our challenge became our next goal” (School C leader, 2016). This way School C educators developed a shared understanding and vision. School C’s method to address resistors concerns or fears, support Frost (2009) and Bissett (2014) notions to effect change whereby people’s fears are addressed; leaders acknowledge everyone begins change from different places of readiness; and displays various levels of responsive leadership, and employs a strength or solution focused leadership stance.

The importance of including parents as part of the change management can be seen by School B informing parents about changes with transparent, open communication on their website, through publishing teachers planning and a plethora of online communication about why they teach the way they do and include the research behind it. To fully effect change Bolstad et al., (2012), Grant and Basye, (2014) stress the importance of bringing on board all stakeholders, which includes parents, about changes made and why the changes are necessary. Schools C educators both expressed that “Some of the challenges are keeping the parents with us on the journey” (Teacher C, 2016). School C could learn from School B, by utilising their communication tool via their website to help bring parents on board with the teaching changes they have undergone in introducing personalised learning in their ILE. Especially when there are so many documents publicly published about the changes School C are making in adopting a personalised approach to learning.

CONCLUSIONS
There is very little research in New Zealand about the implementation of personalised learning within Innovative Learning Environments in primary schools. At a political level personalised learning is being encouraged in the new Innovative Learning Environments around New Zealand. This study will contribute to this area of research and possibly help educators who read the research findings to learn about the concept of personalised learning, how it is implemented, and challenges facing educators when implementing personalised learning in Innovative Learning Environments. Hence, the purpose of this research was to answer the following research questions…
1. How is the concept of personalised learning understood and espoused by New Zealand primary school leaders in relation to teaching in Innovative Learning Environments?

2. In what ways is personalised learning implemented in New Zealand primary schools?

3. What challenges New Zealand primary school teachers when implementing personalised learning within Innovative Learning Environments?

From my study it can be concluded that leaders must take certain actions to assure the effective implementation of personalised learning in Innovative Learning Environments. The way in which personalised learning is understood and practiced has to be shared across all stakeholders. An implication of this conclusion for practice is that the leader must develop a shared vision. Within this vision there has to be a common meaning adopted by the school. Everybody, teachers, students and parents, must work with a common definition of personalised learning. It is clear that the concept of personalised learning each school adopts affects how personalised learning is implemented.

The second implication for practice is that leaders and teachers must agree about how personalised learning will be implemented. Two models of personalised learning were found that operated at a deep level of personalisation. School B model of personalised learning was where students planned their whole day or week enabling more than one curriculum subject to operate at one time. School C model of personalised learning occurred within set curriculum times. Both models shared the same key features of UDL. For example, both personalised learning models had a scaffold to help students become independent learners, students directed their learning through selecting workshops, tracking programme involvement through technology and reflective discussions.

The third implication for practice is that change has to be managed collaboratively. Adopting Knight (2009) and School C’s approach to a collaborative style of leadership
where resistance thinking is encouraged in discussion, and enables the topic of resistance to be their next challenge or goal, creates a style of leadership which helps address and reduce teachers fears and anxieties about change (Frost, 2009; Bissett, 2014). Bringing these challenges in to the open both requires and develops a high trust environment, displays responsive and solution-focused leadership, acknowledges that people start in various places of change readiness. These steps will reduce the likelihood of defensive behaviours, which could cause the change to never be fully implemented (Argyris, 1993). Knight (2009) and School C’s approach supports a leadership style that operates in a personalised manner where leaders do not dictate change from the top (Woolner, McCarter, Wall, & Higgins, 2012). By adopting a leadership style that is collaborative, brings resistant thinking and challenges in to the open will help leaders and teachers to agree on how to implement personalised learning effectively.

RECOMMENDATIONS
The following are some recommendations for school leaders to help them implement personalised learning in their Innovative Learning Environments.

School in study recommendations
School A could move into a deep level of personalisation by leaders developing a shared vision and understanding of personalised learning with their teachers, students and parents. Additionally, School A could reflect whether they have developed some defensive routines (Argyris, 1993) that is holding them from moving them to a deep level of personalisation. Which according to Fullan (2003) can only occur once the majority of teachers take ownership of the change needed. School A educators could also learn from Hattie (2003) who suggest that the leaders identify expert teachers who would adapt first and help support the changes desired.

To help bring parents on board and help understand how their children are learning, a recommendation to School A and C is to follow School B’s example in utilising their website to communicate to their parents and community about the way they are teaching, and the research behind why they have adopted the personalised style of
learning in their ILEs. Especially when there is already so much publicly published about School C and their teaching methods.

**General recommendations**

1. That leaders employ a collaborative leadership style that encourages people to express their concerns and fears, which can become next challenges or goals, so that a shared vision of what personalised learning is, can be developed.
2. Decide which personalised learning model or structure of implementation the school might like to start with.
3. Include a robust tracking system to monitor participation in the programme, such as the wall and board planners in School B.
4. Recognise that reflection and conferencing is part of the timetable.

One of the things that schools can do to successfully administer personalised learning is to continually self-reflect, to ensure a movement from shallow to deep personalised learning is occurring.

**STRENGTHS AND LIMITATIONS OF THE STUDY**

The strength of this study has contributed new insights to the literature of implementing personalised learning in Innovative Learning Environments in New Zealand primary schools. This qualitative study of three schools, and the results from the analysis of document and semi-structured interview data has been discussed in light of relevant literature to reveal what personalised learning is, how to implement personalised learning and its associated challenges. Hopefully, educators can gain insights and apply the key findings, conclusions and recommendations to their own situations in education settings where personalised learning is implemented, or about to be implemented.

A limitation of this study was the relatively small sample size of three leaders and three teachers from three schools. If had more time I would have increased the number of schools researched so that I included schools in the wider Auckland area and possibly the rest of New Zealand. I would have also gained student or parent perspectives to gain another stakeholders perspective. Only getting one teachers view from each school meant that I might have got the most positive view about implementing
personalised learning in their ILE. Selecting schools with only Innovative Learning Environments limited this research as there may be teachers practicing personalised learning in collaborative single cell environments.

**Areas for further research**

One of the findings from the 1977 Open Plan Education Report was that teacher training for beginning or new teachers, did not prepare them to teach in open plan classrooms. Recent literature and research did not reveal whether tertiary teacher training institutions are currently preparing new teachers to teach effectively in the new Innovative Learning Environments. This would be something that could lend itself to more research, and would be especially helpful to school principals who are embracing personalised learning in Innovative Learning Environments and employing beginning teachers.
REFERENCES


Leader, A. (2016, June 1). (E. Tolmie, Interviewer)

Leader, B. (2016, June 2). (E. Tolmie, Interviewer)


Teacher, A. (2016, June 1). (E. Tolmie, Interviewer)

Teacher, B. (2016, June 5). (E. Tolmie, Interviewer)


INFORMATION SHEET FOR PARTICIPANTS

Title of Thesis:
The implementation of personalised learning in primary schools’ Innovative Learning Environments within New Zealand

My name is Emma Tolmie. I am currently enrolled in the Master of Educational Leadership and Management degree in the Department of Education at Unitec Institute of Technology and seek your help in meeting the requirements of research for a Thesis course which forms a substantial part of this degree.

The aim of my project is to
4. To explore how the concept of personalised learning is understood and espoused by New Zealand primary school leaders in relation to teaching in Innovative Learning Environments.
5. To investigate ways in which personalised learning is implemented in New Zealand primary schools.
6. To investigate the challenges facing teachers who implement personalised learning in Innovative Learning Environments.

I request your participation in the following way. I will be collecting data using an interview schedule and would appreciate being able to interview you and one of your school's teachers at a time that is mutually suitable. I will also be asking you to sign a consent form regarding this event. The interview venue will be at your school or place of your choosing, and the duration of the interview will be 60 minutes. You will be provided with a copy of the interview transcript to check for accuracy and will be asked to verify this within a week of receipt of the transcript.

I will also be collecting data from documents that mention personalised learning, or Innovative Learning Environments or Modern Learning Environments and would appreciate your cooperation in supplying these. Documents might be, but not limited to, curriculum planning documents, school newsletters, annual reports, student documents and innovative learning environment documents.

Neither you nor your organisation will be identified in the thesis. I will be recording your contribution and will provide a transcript for you to check before data analysis is undertaken. I do hope that you will agree to take part and that you will find this participation of interest. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology.

My supervisor is Professor Carol Cardno and may be contacted by email or phone. Phone: (09) 815 4321 ext 8406 Email: ccardno@unitec.ac.nz

Yours sincerely

UREC REGISTRATION NUMBER: (2016-1029)
This study has been approved by the Unitec Research Ethics Committee from (25 May 2016) to (24 May 2017). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
APPENDIX B – Interview Schedule

INSTRUMENT: INTERVIEW SCHEDULE FOR LEADERS AND TEACHERS

Title of Thesis: The implementation of personalised learning in primary schools’ Innovative Learning Environments within New Zealand

RESEARCHER: Emma Tolmie

Interviewee: ___________________________  School: ___________________________  Date of interview: __________________

First research aim: To explore how the concept of personalised learning is understood and espoused by New Zealand primary school leaders in relation to teaching in Innovative Learning Environments.
1. How many years have you had Innovative Learning Environment?
2. Can you describe what your Innovative Learning Environment look like?
3. Is personalised learning happening in your Innovative Learning Environment?
4. What expectations have the Ministry of Education placed about the use of personalised learning in your Innovative Learning Environment? If so, can you tell me what they are?
5. Has your Innovative Learning Environment been designed for personalised learning?
6. As a school leader/teacher, how would you define personalised learning?
7. How did you come to this definition?
8. What is the purpose of personalised learning?
9. How important is it to have personalised learning in Innovative Learning Environments?

Second research aim: To investigate ways in which personalised learning is implemented in New Zealand primary schools.
10. How is personalised learning implemented in the innovative learning space(s)?
11. What does personalised learning look like in the Innovative Learning Environment?
12. Which curriculum subjects use personalised learning?
13. What are the advantages of using personalised learning in the Innovative Learning Environments?
14. What are the disadvantages or challenges of using personalised learning in the Innovative Learning Environments?
15. What effect, if any, has personalised learning had on student’s level of progress and achievement within Innovative Learning Environments?

Research aim three: To investigate the challenges facing teachers who implement personalised learning in Innovative Learning Environments.
16. What challenges do you experience when implementing personalised learning in Innovative Learning Environments?
17. Is there anything else you would like to add?

Thank you for taking the time to see me. Here are my contact details should you want to discuss anything further. I will get a transcript of this interview to you within 15 days for your approval. Emma Tolmie  emma.tolmie@gmail.com  0273757353
APPENDIX C – Organisation consent template

**Template** – to give to the school principal to use if desired for their organisations permission.

**LETTER PROVIDING ORGANISATION’S PERMISSION TO CONDUCT RESEARCH**

[Organisation’s letterhead]

Date
Address letter to: [provide your name and address]

RE: Master of Educational Leadership and Management

THESIS TITLE: The implementation of personalised learning in primary schools’ Innovative Learning Environments within New Zealand

TO WHOM IT MAY CONCERN

I have been given and have understood an explanation of this research project and I give permission for research to be conducted in my organisation. I understand that the name of my organisation will not be used in any public reports.

Signature

Name of signatory:

Role of signatory:
APPENDIX D - Individual consent form

CONSENT FORM – ADULT PARTICIPANTS

RE: Master of Educational Leadership and Management

THESIS TITLE: The implementation of personalised learning in primary schools’ Innovative Learning Environments within New Zealand

RESEARCHER: Emma Tolmie

Participant’s consent

I have been given and have understood an explanation of this research and I have had an opportunity to ask questions and have had them answered. I understand that neither my name nor the name of my organisation will be used in any public reports. I understand that I will be provided with a transcript of the interview for verification within one week of its receipt. I also understand that I may withdraw myself or any information that has been provided for this project up to two weeks after the return/confirmation of my verified transcript.

I agree to take part in this project.

Signed: __________________________________________

Name: __________________________________________

Date: __________________________________________

UREC REGISTRATION NUMBER: (2016-1029)

This study has been approved by the Unitec Research Ethics Committee from (25 May 2016) to (24 May 2017). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Full name of author: Emma Tolmie

Full title of thesis/dissertation/research project ('the work'):
Implementing personalised learning in New Zealand primary schools' innovative learning environments

Practice Pathway:

Degree: master of Education Management and Leadership

Year of presentation: 2016

Principal Supervisor: Dr Carol Gerotho
Associate Supervisor: Professor Josephine House

Permission to make open access
I agree to a digital copy of my final thesis/work being uploaded to the Unitec institutional repository and being made viewable worldwide.

Copyright Rights:
Unless otherwise stated this work is protected by copyright with all rights reserved.
I provide this copy in the expectation that due acknowledgement of its use is made.

AND

Copyright Compliance:
I confirm that I either used no substantial portions of third party copyright material, including charts, diagrams, graphs, photographs or maps in my thesis/work or I have obtained permission for such material to be made accessible worldwide via the Internet.

Signature of author: 

Date: 18..1.11....2016
Declaration

Name of candidate: Emma Tolmie

This Thesis entitled: 'Implementing personalised learning in New Zealand primary schools' innovative learning environments'

is submitted in partial fulfillment for the requirements for the Unitec degree of Master of Education Management and Leadership

Candidate's Declaration

I confirm that:

- This Thesis represents my own work;
- The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
- Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee. Research Ethics Committee Approval Number: 2016-1029

Candidate Signature: __________________ Date: 17 November 2016

Student number: 1387132