A study of teachers' understanding of learning, judgement of learning, and use of data.

Submitted by

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Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award of this or any other higher education institution. To the best of my knowledge and belief, this thesis contains no materials previously published or written by another person except where due reference is made. All research procedures reported in this thesis received the approval of the University Ethics Committee.

Signed:

Vicki Thorpe

Date: 14 March, 2016

Acknowledgements

Abstract

The impetus for this study was a concern for the way in which teachers understand learning, how they judge learning, and their use of learning data to improve student learning and teacher practice. This concern stems from anecdotal evidence that suggests that judgement of student learning is understood by many teachers to be assessment of specific learning content, and the use of data viewed as evidence to indicate student performance against curriculum standards. Following a review of the literature, it became apparent that in order for a teacher to be able to confidently and effectively use student learning data to improve their teaching, they first need to have a clear understanding of how students learn. It also showed that teachers need to understand how students learn and develop to be able to judge learning and development progress. With this knowledge, teachers can not only choose more relevant and effective student learning data-generating strategies, but they can more ably analyse data, and apply it in improving their teaching practice, and student learning and development. The researcher's interest in teachers understanding led to the following question:

What beliefs do some teachers hold about how students learn, the judgement of student learning, and the use of learning data for the purposes of improving student learning and teacher practice?

Given the focus of this research, an interpretative theoretical perspective was adopted, in which a constructionist epistemology was the theoretical framework that underpinned the research design. The lens of symbolic interactionism was used to explore how the participants define, and act on their beliefs. This perspective was reinforced by the methodology of case study which was used to

explore some teachers' beliefs and was bounded by the teachers, school Leadership Team and the Curriculum Leader[1] from one Brisbane Catholic primary school.

The findings suggest that school leaders and teachers need co-constructed and shared understandings of beliefs about how students learn, and associated principles for learning; collaboratively shared and socially constructed knowledge, and common understanding of the judgement of student learning and development through assessment of, for and as learning; and a clear purpose, with deep meaning and shared understanding of the use of data to provide evidence to determine the progress of student learning and development, the effectiveness of teacher practice and leadership of the school.

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[1] The Administration in this study refers to the Principal and the Assistant to the Principal Administration (APA). It does not include the Assistant to the Principal Religious Education (APRE). The Curriculum Leader in this school is not considered a member of the Leadership Team.

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List of Abbreviations

AITSL:	Australian Institute for Teaching and School Leadership
APA:	Assistant to the Principal Administration
AYP:	Adequate Yearly Progress
BCE:	Brisbane Catholic Education
EQ:	Education Queensland
GCSE:	General Certificate of Secondary Education
IBE:	International Bureau of Education
IEA:	International Association for the Evaluation of Educational Achievement
ICILS:	International Computer and Information Literacy Study
ISLDS:	Improving Student learning and development Survey
KLA:	Key Learning Areas
MCEECDYA:	Ministerial Council for Education, Early Childhood Development, and Youth Affairs
MCEETYA:	Ministerial Council on Education, Employment, and Youth Affairs
NAPLAN:	National Assessment Program Literacy and Numeracy
NCLB:	No Child Left Behind Act
OBE:	Outcomes-based Education
OECD:	Organisation for Economic Co-operation and Development
Ofsted:	Office of Her Majesty's Chief Inspector of Schools
PD:	Professional Development
PIRLS:	Progress in Reading Literacy Study
PISA:	Program for International Student Assessment
QCAA:	Queensland Curriculum and Assessment Authority
QCAR:	Queensland Curriculum Assessment and Reporting framework
QCAT:	Queensland Common Assessment Tasks
QCT:	Queensland College of Teachers
QSA:	Queensland Studies Authority [2]
QSCC:	Queensland Schools Curriculum Council
STIE:	Support Teacher Inclusive Education
TIMSS:	Trends in International Mathematics and Science Study
UNESCO:	United Nations Educational, Scientific and Cultural Organisation

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[2] Queensland Studies Authority was replaced by the Queensland Curriculum and Assessment Authority (QCAA) on July 2014.

Chapter One - Introduction to the Research

Learning results from what the student does and thinks, and only from what the student does and thinks. The teacher can advance learning only by influencing what the student does to learn (Simon, 2001).3

This quote by Herbert Simon (2001) emphasises the need for teachers to know and understand how students learn in order to influence and measure the advancement of their learning and development. It is an expectation by many education authorities that this science of learning and instruction is integral to 21st century teaching (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010).

1.1 Introducing the Research

The Australian Institute for Teaching and School Leadership (AITSL, 2014) outlines a number of professional standards that teachers should endorse and enforce to meet the requirements and expectations to be a registered teacher in Australia. One of these professional practice standards (Standard 5) is for teachers to assess, provide feedback, and report on student learning (AITSL, 2014, pp.1-2). This standard refers to teachers' proficiency in interpreting student data relevant to processes of student learning. To be recognised as highly accomplished in this area, teachers are expected to work with colleagues to use data from internal and external student assessments for evaluating learning and teaching, and to be able to identify interventions and modify teaching practice (AITSL, 2014).

The participants in this study are the teachers, school Leadership Team and the Curriculum Leader from one Brisbane Catholic Education (BCE) primary school in the Archdiocese of Brisbane.

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[3] Herbert A. Simon was one of the founders of the field of Cognitive Science, Nobel Laureate, and University Professor (deceased) at Carnegie Mellon University, Pittsburgh.

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A BCE guiding principle outlines that schools and teachers need to be data-oriented, data-informed, and data-activated. They maintain that:

Brisbane Catholic Education (BCE) is committed to:

- being learner-centred

- improving students' learning outcomes

- making data-informed and evidence-based decisions.

Through our cyclical review and validation processes, teachers and school Leadership Teams are making *continuous* as well as *episodic decisions* that affect the learning outcomes of individual learners and groups of learners. To make wise routine and strategic decisions, we need to gather, analyse, and use data. This does not require everyone to become statisticians – but it does require everyone to be more *data-oriented*, *data-informed*, and *data-activated*. Our commitment is to the best pedagogies and learning outcomes possible. Our initial focus on *'pedagogical accountability'* will lead to the *'political accountability'* that is expected of all schools and sectors. What we assess, how we assess, and how we are seen to use the resultant student learning data reveals, and reinforce what we actually value. We value the best possible outcomes of learning for ALL students (Brisbane Catholic Education [BCE], 2014, p.2).

In light of these expectations and guiding principles from AITSL and BCE, and my experience working as a Curriculum Leader over considerable time and across a number of BCE schools, the impetus for this study was drawn from a pragmatic concern for the way in which teachers understand learning, how they judge learning and the use of learning development data to improve student learning and teacher practice. This is supported by AITSL (2014) and defined in Standard 1 of the Australian National Standards for Teachers: *Know students and how they learn* (Australian Institute for Teaching and School Leadership, 2014, para.1). This expectation relates to teachers' knowledge, practice, and professional engagement in relation to expanding their understanding of how students learn using research and workplace knowledge.

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In Chapter 2, the study identifies the context of the research by exploring the changing landscape of educational accountability, and the requirement for teachers to use data to inform their teaching practice and the development of student learning. This context commences with placing the researcher in this research in Section 2.2.1. The chapter continues by providing the broader international context of educational reform in Section 2.2.2; the Australian Context in 2.2.3; Queensland's context in Section 2.2.4 and the Brisbane Catholic Education context is outlined in Section 2.2.5. Chapter 2 also defines the research in Section 2.3 with the research problem. The purpose of the research is outlined in Section 2.4, and the chapter concludes with the overarching research question to be investigated in this study in Section 2.5: *What beliefs do some teachers hold about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning and teacher practice?*

Chapter 3 builds on Chapter 2, and provides a review of the literature on teachers' understanding of how students learn, the judgement of that learning and the use of learning data to inform their teaching practice and improve student progress. This chapter is divided into sections structured around the identification of four main concepts. The literature review regarding teachers' understanding of learning draws on a wide range of literature to discuss in Section 3.2 teachers' beliefs about how students learn, and in 3.3 researchers' theories of how students learn is considered by drawing on their proposed principles for learning. Teachers' judgement of learning is the focus of the review in Section 3.4, while Section 3.5 examines the literature on the use of learning data and is expanded to include development data. Each of these four sections led to a sub-research question. They are:

1. What beliefs do teachers in one BCE primary school hold about how students learn?

2. What principles of learning do these teachers base their beliefs upon?

3. How do these teachers judge student learning and development?

4. How do these teachers use learning and development data to inform their teaching practice and improve student learning?

The identification of these research questions guided the data collection, analysis and interpretation within this study.

The design of the research is outlined in Chapter 4, with Section 4.2 discussing the theoretical perspective. Consistent with the nature and focus of this study's overarching research question and recommendations by O'Donoghue (2007), and Crotty (1998), constructivism was chosen as the research paradigm. Moreover, the research methodology, symbolic interactionism (Blumer, 1969) was selected as it supports this research paradigm. This section is followed by an overview of the qualitative and quantitative research methods employed in Section 4.3. Here, individual interview and focus-group interviews are identified as data-collection methods, along with the development of a survey that is supported by the interview data and research literature. A description of the participants, the Leadership Team, Curriculum Leader and teachers is provided in Section 4.4, where one school within Brisbane Catholic Education is discussed. Section 4.5 details the iterative process of data analysis and interpretation that is termed first, second and third order interpretation (Neuman, 2007, p. 160). First Order interpretation is from the perspective of the participants being studied; Second Order interpretation stems from the perspective of the researcher, and involves eliciting the underlying coherence or sense of meaning in the data; while Third Order interpretation involves assigning general theoretical significance to the data. Trustworthiness of the study is addressed in Section 4.6, followed by ethical considerations in Section 4.7.

Chapter Five begins the two-stage research design of "exploration" and "inspection" (Charon, 2001, p.208) typical of symbolic interactionist studies. This design provides the researcher a process with which to collate the data and then identify specific issues for further investigation. In line with this approach to the research, Section 5.2 details the development of a survey through the process of bringing together the relevant literature from Chapter 3, as well as data gathered from semi-structured interviews with members of the school's Leadership Team - Principal, Assistant to the Principal (APA) and Primary Curriculum Leader. These data sources

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are used to develop open-ended, qualitative questions and constructs that were used to develop the Improving Student learning and development Survey (ISLDS – see Appendix 6). This survey was used mainly as a qualitative tool to support the second stage of the study, by providing the researcher with issues for discussion during the focus group interviews.

Section 5.3 reports on the use of the ISLDS. Themes emerged that attached specific meaning and significance to the data. Section 5.4 concludes this chapter by detailing issues for further discussion in the next stage of the study, the Inspection Stage discussed in Chapter 6.

In Chapter 6, inspection of issues is categorised under the four sub-questions of the study: *Beliefs about how students learn* in Section 6.2; *Principles for learning*, in Section 6.3; *Teacher judgement of learning* - Section 6.4 and *Use of learning and development data* in Section 6.5.

In order to shed light on the theoretical perspective of these findings in Chapter 6, Chapter 7 develops and discusses issues and associated findings in relation to the research literature. In the review and synthesis of the findings, this chapter discusses these issues aligned with the existing literature, in Section 7.2 as Third Order interpretation thus contributing to a more sophisticated understanding of each sub question of the study. Section 7.3 outlines the theoretical propositions and contribution to theory. In Section 7.4 limitations of the study are identified, and Section 7.5 concludes the research with recommendations for future study.

This study differs from other research in that it provides insights as to why teachers do not use data more effectively when there currently exists data in a variety of formats in schools. The use of data that may better inform them of their learners, meaningfully evaluate planning for learning, assist in adapting or modifying curriculum to improve their pedagogical practice and, above all else, improved progress in student learning and development.

Whilst there has been research conducted in this field, this study adds to the currency of knowledge by exploring this issue from interconnected and interrelated tenets of teaching and learning, as outlined in the sub-questions of the study. Previous research has addressed each or

some of these tenets collectively, however this study explores these tenets holistically, rather than

a dissection of parts, to shed light upon the research question.

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Chapter Two - Identifying the Research Problem

2.1 Background

The impetus for this study was a concern for the way in which some teachers understand learning, how they judge learning and the use of learning data to improve student learning and teacher practice. This concern for student learning has come about through an international shift in greater accountability in all aspects of public life, which has in turn affected the demand for greater accountability in education. The consequence of this accountability has been an effort to improve the efficiency and effectiveness of student learning progress in schools. Section 2.2 clarifies the research problem that underpins this study, by situating it in the larger educational context pertaining to international, national, state, and systemic levels. The research problem is then identified and defined in Section 2.3. The purpose of the research is outlined in Section 2.4, and the chapter concludes with the overarching research question to be investigated in this study in Section 2.5.

2.2 The Research Context

2.2.1 Personal context

My commitment to education has spanned over 36 years working for Brisbane Catholic Education (BCE), which oversees the administration of 137 schools with 70 000 students on behalf of the Archdiocese of Brisbane. The archdiocese is located in the south-east corner of Queensland and extends to Childers in the north, the Gold Coast to the south and west to Gayndah.

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Figure 2:1:

Archdiocese of Brisbane, 2014

I began my teaching career as a classroom teacher and then after 14 years moved into the role of teacher-librarian. This role required a deepening of my knowledge and understanding of curriculum across all learning areas in order to work collaboratively to provide support for classroom teachers in planning and resourcing. This led me to pursue the role of Curriculum Leader, thus expanding my collaborative support role to working across a number of primary schools in the Brisbane Archdiocese. The primary focus of my Curriculum Leadership role was, and continues to be, improving the development of student learning through supporting and developing improved teacher pedagogy and practice.

The curriculum is foundational to student learning and teaching in schools, and an integral component of the teaching and learning of this curriculum is the judgement of student learning. In

order to judge the progress of student learning, assessment strategies are used as an ongoing part of the teaching and learning process, and are of importance to Principals, teachers, parents, and students. In my early teaching career, there was limited guidance from the Leadership Team in the area of assessment and reporting. Much of what was assessed and reported on was drawn from the teacher's own judgements of the quality of student work informed by their own professional standards and tools of assessment. Such assessment and reporting was designed to judge student knowledge, understanding and skills. There was no compulsion to indicate how progress was going to be measured, or over what time frame. There were no systems in place for the sharing of student learning information from one year to the next or the requirement for teachers to be informed by previous judgements of student learning through assessment and reporting to cater to individual student learning needs. Teachers designed their own techniques for judging student achievement based on the state curriculum, made judgements about the quality of student work, determined student placement, promotion and program, and explained their decisions to parents (Earl, 2006). My current field of experience suggests that little has changed since I began teaching, as I regularly see evidence of similar assessment practices being employed today.

Notwithstanding these personal observations, the pressures of political, social, and professional expectations surrounding the judgement of student learning have indeed changed in more recent years. The changing face of education over the past ten to twenty years has seen the introduction of large-scale standardised testing and a focus on continuous student improvement in all schools. The education sector in many westernised countries is considered a high priority, as it has the critical and ultimate responsibility of preparing national human resources readily responsive to these changing conditions:

> The movement of countries in embracing the principles of economic rationalism is considered the dominating influence of recent educational change and aspires to guarantee the quality of human resources in preparation for the new economic world order through

ensuring efficiency of operation, visible evidence of increased productivity, and an unambiguous system of accountability (Lam, 2001, p. 351).

What has naturally followed is an international shift in accountability, and as education is seen to be publicly accountable, and knowledge is seen to be the driver of economic growth, governments have increased their control in the field of education to improve the efficiency and effectiveness of schools (Lingard, Martino, Rezai-Rashti & Sellar, 2016). To this end, it is assumed that the gathering of comparable data, and the subsequent analysis of this data, provides governments who wish to be competitive in the world market place with information regarding the productivity of its educational workforce. This position was evident in 2006 when the then Premier of Queensland, Peter Beattie stated,

> If we don't change, we won't create the jobs of tomorrow. Unemployment will rise and once again we will start exporting our brains interstate and overseas. If we don't change, our standard of living will – for the worse. We must move with a new spirit of enterprise and new programs in our education, culture, and industry, or we stand still and fall back. We have the willingness to do this. We need the skills as well. All of us have a responsibility to contribute our talents, our labours and our ideas – for the benefit of our great State. (p. 1).

This call to change and to compete productively within the world market place creates an educational dilemma for schools. The government's perspective sees assessment results of centralised testing as a high stakes indicator of the effectiveness of the education system (Kim, 2012) and a gauge to determine comparative success in a globalised economy.

Not surprisingly, the nature of the judgement of student learning through assessment, according to current political, social and professional expectations is as important as the results, since student assessment is seen as not only the end result but, more importantly, the starting point for discussions about how to enhance learning (Earl, 1999). Moreover, Moss and Brookhart (2009) indicate that since continuous improvement in student learning is integral to the teaching and

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learning process, being able to judge that this continuous improvement is actually occurring becomes essential. However, in order to be able to judge that improvement of learning has occurred, the teacher first needs to have an explicit awareness of what constitutes student learning (Australian Institute for Teaching and School Leadership [AITSL], 2014). To judge learning and development, teachers must have an awareness of the basic elements of student learning, and then know how these will change as the student improves their level of learning. Then, to actually make these judgements, the teacher needs to be able to assess the degree of change in these basic elements that has occurred during a specified period of teaching and learning (Presseisen, 2008). It is here that the selection and use of relevant and effective data-gathering strategies can make an important contribution towards revealing whether or not such changes have occurred. Moreover, these data can provide invaluable feedback to the teacher about the suitability and appropriateness of their teaching practices. Hence, such data can make an important contribution towards the transformation of teaching that results in improved student learning.

Yet, what has become evident to me through my experience of working with teachers, is that such data gathering strategies that measure student learning progress is seldom considered when planning for the enhancement of student learning. Many teachers that I have observed begin planning by selecting what they consider to be an appropriate unit of work for students to learn throughout a specified learning period, with very little attention being paid to learning to inform them about their cohort of learners. Also, anecdotal evidence would suggest that little consideration is being given towards the use of strategic data-gathering strategies at various stages during the specified learning period in order to determine the degree of student learning improvement and the suitability and appropriateness of the teaching practice itself. My experience is supported by Popham's (2006) view that, "What most of today's educators know about education assessment would fit comfortably inside a kindergartener's half-filled milk carton." (p. 84)

Whilst this statement may be exaggerated, this study was interested in exploring its tenets. As a result, this study explores the impact on teaching of current expectations about the judgement

of learning through the use of assessment strategies that seeks to achieve continuous improvement in student learning. The research is located in one Brisbane Catholic Education primary school, and is focused on exploring how teachers in this school understand how students learn, and the use of learning and development data as a means for monitoring and adapting their teaching to more readily judge student learning and development and, thereby, improve student learning.

My connection with the school stemmed from a past working relationship with the Principal in another school environment. Through this established rapport, I sought consent to conduct the study in his current school. Whilst I was employed by Brisbane Catholic Education as Curriculum Leader across two other schools at the time of conducting the research, it was important to explore the changes in a school's context where teachers were not influenced by the researcher. In my role as Curriculum Leader, I had for many years promoted to teachers the significance of using data to inform student learning and development. Whilst teachers agreed and supported this notion, it became evident that there was limited use of data to inform them or their students of development in student learning, despite calls for increased accountability and data to provide evidence of learning progress by government and the BCE system. These dichotomies have led the researcher to explore the reasons for this within one BCE school context, to investigate whether teachers' perceptions are changing, as the broader international context is changing, and if teaching and learning in Brisbane is changing with it.

2.2.2 The Broader International Context of Educational Reform.

Prior to the 1980s, education systems implemented curriculum with an input, or process approach, with little emphasis upon the interpretation of results. Schools followed syllabuses, and planned teaching and learning accordingly. However, judgement of student learning through assessment and reporting of what had been learnt, for the most part, was only the concern of schools and parents. Public examination was the domain of secondary schools, and its sole purpose was to ascertain the aptitude of students entering the workforce or tertiary education.

Education in the late 1980s and throughout the 1990s presented a global dimension and a new era for education. "The globalization of trade and services couched education in the language of the market in which education became a weightless product connected to enhancing human and social capital" (Vongalis-Macrow, 2005, p. 3). The rise of competitive global economies, employability, and economic productivity became priorities in many developed countries. What followed was an international shift in public accountability and, as education is seen to be publicly accountable, and knowledge is seen to be the driver of economic growth, governments increased their control over education and looked to improve efficiency and effectiveness in schools. This increased governmental control introduced a radical shift in transforming education from a closed system that was process-oriented with a role-based approach, to an open-system, outcomes-oriented and goal-based approach (Lam, 2001). The basis for the change came from debating the greater validity and effectiveness of an outcomes-orientated approach compared to a process-orientated approach; the former was perceived to be easier for governments to assess the quality of education provided by teachers and schools (Ball, 2003; Lam, 2001; Rizvi & Lingard, 2010).

Furthermore, this approach brought about the inception of centralised assessment in the early 1990s, and in England this was seen by way of the introduction of Ofsted [Office of Her Majesty's Chief Inspector of Schools] and in the USA, the "No Child Left Behind Act" of 2001 (Torrance, 2011). As members of the Organisation for Economic Co-operation and Development (OECD), many developed countries looked for testing mechanisms to examine their educational systems to ensure economic efficiency and competitiveness was being achieved. As Matters (2006) explains:

> The demand to improve decision making through data occurs because we are living in an age of accountability facilitated by new technology. But we should understand that accountability in education has not come about simply because we can collect and analyse data more easily. Accountability has become critical because today's globalised economy means that companies can invest anywhere that is politically stable and that has a skilled, productive workforce. Anywhere. To beat their competitors, companies must go to those

locations that afford the best mix of skills and productivity. To keep jobs and to maintain current living standards, governments need to constantly improve the skill levels and productivity of their existing workforces. But to guarantee that future living standards are maintained, those governments must also ensure that today's students are educated to the highest achievement standards possible. And schools must be held accountable for that achievement if those standards are to be met. (p. 3)

In holding schools accountable for improved educational efficiency, the governments of Great Britain and the United States enacted educational policies that emphasised assessment and accountability through standardised testing. Hursh (2005) made the comparison between these two countries:

In the United States, standardised tests were first introduced at the state level in the early to mid-1990s, with some states (New York, Texas, Florida) requiring that students pass one or more standardised tests in order to graduate. School scores were published and often used by parents to select schools. The NCLB [No Child Left Behind Act] required that standardised tests be given initially in Maths, Reading, and Science in Grades 3 through 8, and by 2007-08 in Grades 3 through 12. Schools were required to make 'adequate yearly progress' (AYP) and all students were to achieve proficiency by the year 2014. Schools failing to make AYP, faced numerous consequences, including losing students, funds, and potentially, the privatisation of the administration of the school, or the school as a whole.

In Great Britain, standardized tests were introduced as part of the Education Reform Act of 1988, as a means of "measuring the performance of pupils at the end of four Key Stages, but also to make it possible for market forces to operate by providing a currency of information which would fuel competition between schools" (Broadfoot, 2002, p. 142). The act also included the introduction of the General Certificate of Secondary Education (GCSE) exam at the end of Key Stage 4. The publishing of league tables promoted the comparison of schools. (p. 6)

This trend of market accountability has continued in many developed countries as policy makers have adopted testing as a favoured method of assessment, in part because it is believed that it constructively addresses a broad range of educational problems. The International Association for the Evaluation of Educational Achievement (IEA) has conducted international testing from 2000, including the Program for International Student Assessment (PISA) of 15 year olds in school in most OECD countries; Trends in International Mathematics and Science Study (TIMSS) for Years 4 and 8; Progress in Reading Literacy Study (PIRLS) for Year 4 students and the International Computer and Information Literacy Study (ICILS) for Year 8. The majority of these tests are conducted in a five-year cycle and reports are prepared for each country participating in the tests. In 2012, 510 000 students from all 34 OECD countries and 31 partner countries participated in PISA testing, representing more than 80% of the world economy. This number has doubled from the first PISA assessment in 2000.

As a result of increasing international testing, a "corporate approach" (Malcolm, 1999, p. 78) to accountability became more prominent in the education sector, and was supported by the advent of the postmodern constructivist theory of outcomes-based education (OBE)[4] that subsequently brought about "an approach to managing curriculum control, curriculum design, assessment and reporting, teachers and accountability, change and innovation" (Malcolm, 1999, p. 78).

Prior to these reforms, schools used an industrial inputs approach to curriculum, and judgement of student learning through assessment, and reporting. The teacher was considered the font of all knowledge and students the receptacles that merely needed to be filled up often referred to as the 'deficit model' (Day, C. 2000; Lieberman & Grolnick, 1997; Retallick, 1997). An outcomes-oriented education resulted in a shift to an outputs approach.[5] Judgement of student

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[4] Outcomes-based education (OBE) adopts a constructivist, developmental approach to education. There is the emphasis upon the personal and intellectual qualities of student understanding, dispositions, and capabilities, rather than subject knowledge (Donnelly, 2007).

[5] An outputs approach collects a variety of school outcome measures to capture different dimensions of student achievement. These can range from school capital, school environment and institutional variables, technical efficiency, standardised testing results and other measures of quality educational performance (Kang & Greene, 2002).

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learning using this approach, required the demonstration of skills learnt in terms of what students 'know, understand and can do'. The assessment and reporting methods required were complex, as teachers needed to provide multiple opportunities for students to demonstrate intended outcomes of learning. For reporting, teachers need to gather data to indicate the outcomes demonstrated by each student so as to be able to judge and justify the levels achieved by the student. These requirements, along with the appropriate use of data that results from centralised, high stakes testing, are now an accepted expectation in the professional practice of teachers (Klenowski & Wyatt-Smith, 2011). From an educational perspective, judgement of student learning through assessment is valued as feedback and data can be used as evidence to improve student learning. "The purpose of national assessment has shifted from influencing school practice, to being the currency for accountability," (Earl, 1999, p.4). This international context has strongly influenced accountability measures in education to the extent that teachers are now expected to not only assess student learning more strategically, but also regularly and explicitly use data to provide evidence of student learning.

2.3   The Australian Context

The Australian education systems have experienced a growing emphasis on student learning accountability through the use of data about student learning. "The Commonwealth Government is worried by a decline in our relative standing internationally in educational performance and the potentially negative impacts on international competiveness and the economy…" (Shaddock, 2014, p. 1). As early as 1997, all State, Territory and Commonwealth Education Ministers agreed on a national goal which stated that "every child leaving primary school should be numerate and able to read, write and spell at an appropriate level" (Ministerial Council for Education Early Childhood and Youth Affairs, 2000, p. 2). The criteria for national benchmarking was outlined by the Ministerial Council on Education, Employment and Youth Affairs (MCEETYA, 1999). Each state was responsible for devising the tests aligned with their own state syllabuses, and in disseminating assessment data to parents, schools, systems, and education authorities.

While each state was embarking on educational initiatives concerning assessment, the Melbourne Declaration on Educational Goals for Young Australians (2008) proposed a national curriculum. The introduction of the National Assessment Program Literacy and Numeracy (NAPLAN) in 2008 was the government's first step towards the introduction of a national curriculum and national accountability measures in education. The NAPLAN data is designed to monitor and report on progress towards the achievement of national goals and targets at various points of schooling, and to provide the evidence base to underpin future policy reforms and improvements.

These reforms have taken further shape with the establishment in 2009, of the Australian Assessment and Reporting Authority (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2009) as the new independent statutory authority of the Australian Government. For the first time in Australia's history, there is a means for making educational comparisons across states and some means for drawing conclusions and making national decisions. Consequently, this rapid increase in the use of data in the Australian education arena has impacted across states and systems. The Ministerial Council for Education, Early Childhood Development and Youth Affairs (Ministerial Council for Education Employment Training and Youth Affairs, 2008) has endorsed target setting as a means of expressing aspirations and providing motivation, guidance, support and monitoring for continuous school and system improvement. National targets are to be developed with two purposes in mind: to drive improvement in school and student outcomes, and to provide an indication of how the States and Territories are performing in relation to the relevant national goals. The current position is that the responsibility of the judgement of student learning through the assessment and reporting of the Australian Curriculum is devolved to each state and territory. This devolved responsibility as separate from curriculum and pedagogy is contrary to recent educational literature that advocates the need for the judgement of student learning through assessment needs to be an integral part of the learning and teaching process. As Timperley (2008) states,

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Where achievement problems are entrenched, possibilities for improved outcomes may become apparent only over time, as teachers see evidence that students can acquire new knowledge and skills when taught differently. Higher teacher expectations of students come from seeing improved outcomes – there is little evidence to suggest that they can be developed independently of such improvement (p.5-6).

The Australian Government, in response to the growing importance of the international belief that education should be publicly accountable and the driver of economic growth, has for the first time in its history legislated a National Curriculum and national standardised testing. This has had a flow-on effect with targeted funding for national initiatives such as the Smarter Schools National Partnerships Project, the Australian Government Quality Teacher Program, the Aboriginal and Torres Strait Islander Education Action Plan and the Australian National Standards for Teachers to raise professional standards. These professional standards implemented by the Australian Institute for Teaching and School Leadership (AITSL) outline seven standards that detail elements of what is considered high quality teaching. Standards, and elements of the standards that are particularly pertinent to this study are:

Standard 1: Know students and how they learn

Standard 2: Know the content and how to teach it

- 2.3 Curriculum, assessment and reporting

Standard 3: Plan for and implement effective teaching and learning

- 3.6 Evaluate and improve teaching programs

Standard 5: Assess, provide feedback and report on student learning

- 5.1 Assess student learning

- 5.2 Provide feedback to students on their learning

- 5.3 Make consistent and comparable judgements

- 5.4 Interpret student data

- 5.5 Report on student achievement (AITSL, 2015)

These national standards for teachers along with increasing amounts of data from the national assessment instruments to make comparisons of student, school and state and territory performance to improve efficiency and effectiveness in schools has impacted states, systems, schools and classroom teachers. Arguably, in such a data affected environment, it is the responsibility of principals and teachers to ensure that this data is of direct benefit to learning and teaching processes, and thereby, limiting its negative outcomes (Shute & Kim, 2014).

2.3.1 The Queensland Context

In the mid-1990s, the state of Queensland saw the introduction of syllabuses in eight key learning areas that were driven by an outcomes-based focus (Donnelly, 2007). From 1998 to 2001, Education Queensland commissioned a team of researchers from the University of Queensland to conduct an extensive observational study of classroom practices. The Queensland School Reform Longitudinal Study[6] (Queensland Government Department of Education, 2001) was the result of this research and was considered to be the benchmark for improving productive approaches to pedagogy and assessment. While the research recommendations for improving assessment and reporting were the key foci for the Queensland Government, a number of concerns and criticisms were raised in the research report about outcomes-based education:

- the excessive number of outcomes teachers were expected to cover;

- the lack of specificity of the outcome descriptors in providing sound knowledge, understanding and skills in the various subject disciplines;

- assessment and reporting of levels that were not specific to each year/grade level;

- the curriculum not being reflective of the needs of students and teachers

  (Donnelly, 2007, p.183).

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[6] A team of researchers from the University of Queensland were commissioned by Queensland's Department of Education and Training to focus on issues of pedagogy, assessment and school organisation. The observation of approximately 1000 classrooms examined the links between classroom practices and student learning. The principal concerns related to perceived low levels of pedagogy in Queensland classrooms.

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In 2000, Education Queensland (EQ[7]), in response to the Queensland School Reform Longitudinal Study, introduced *New Basics* with trials across 38 schools in Queensland (Queensland Government, 2013). This *New Basics* program was founded on a reconceptualist model that aimed at organising curriculum around three message systems - curriculum, pedagogy, and assessment. Teachers were involved in moderation to assess student performance that reported on Years 3, 6, and 9. As a result of these curriculum developments during this period, Education Queensland had two different curriculum approaches being undertaken by schools across the state: outcomes-based curriculum and the *New Basics* framework.

Consequently, in 2006, the Queensland government instigated a new round of curriculum development. The Queensland government, in the redevelopment of the curriculum, maintained that accountability measures were to be clearly defined by stating that: "for the first time in Queensland's P-10 years there will be rigorous, comprehensive assessment against defined standards that will be comparable across schools" (Queensland Department of Education & the Arts, 2005, p.2).

The focus of comparable standards across the state was a strong influencing factor in the development of *Essential Learnings*, introduced in 2008 by the Queensland Studies Authority [QSA] (Queensland Government, 2013). These *Essential Learnings* were embedded into the Queensland Curriculum Assessment and Reporting (QCAR) framework, which began in trial form in 2006 and extended to full implementation in 2008. This new program was not designed to

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[7] This Department of Education has been variously titled. Prior to 1996, it was called The Department of Education. In 1996 it became Education Queensland. In 1998 its name reverted to Department of Education. From this time, confusion seems to reign with Education Queensland (EQ) being used by many to refer to state schools only (DETA, October 2008). However, in 2004, the Department of Education was renamed the Department of Education and the Arts (DEA). Following the state election in September 2006 the name was again changed to the Department of Education Training and the Arts (DETA). Then it became the Department of Education and Training (DET) following the 2009 election. In 2012 the name changes again to the Department of Education, Training and Employment (DETE).

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replace the outcomes-based syllabus documents, but to promote greater comparability across Queensland schools and was centred on the measurement of student achievement against agreed standards. In addition, another measure of accountability, Queensland Common Assessment Tasks (QCATs) was introduced in Years 4, 6 and 9 with the intention of collecting comparable data in the form of common assessment tasks, and to assist teachers with understanding the moderation of data. These tests were in English, Mathematics, and Science, but in 2014 these tests were abandoned.

Furthermore, the notion of consistency of teacher judgement was introduced to provide the opportunity for teachers to use moderation techniques to compare and contrast samples of student work and reach agreement on standards of student learning. This shift from the previous performance-based assessment of *New Basics*, and the demonstration of student learning outcomes in the Key Learning Area (KLA) syllabuses, to standards-based assessment in *Essential Learnings*, was for Queensland was historically the precursor to the Australian National Curriculum announced by the Australian Federal Government in 2010. However, this meant that students in Queensland were being subjected to standards-based assessment from 2008 in the form of National literacy and numeracy testing by the Federal government in Years 3, 5, 7 and 9, and Queensland Government's testing of common assessment tasks in Years 4, 6 and 9.

The Queensland education context has seen the introduction of many initiatives and changes over the past 14 years. One of the most significant changes being, the demands by the state government for increased accountability measures. These measures used to indicate improved standards have seen an ever-increasing demand for schools and teachers to explicitly provide data in order to compare schools across the state (Klenowski & Wyatt-Smith, 2011).

2.3.2 The Brisbane Catholic Education Context

Although Brisbane Catholic Education (BCE), as a non-government education authority, receives much of it's funding from the Federal Government, it continues to be reliant upon the Queensland State Government for approximately 23% of its income (Brisbane Catholic Education,

2015). There are conditions that surround this financial support that "include educational and financial performance and accountability requirements" (Harrington, 2011, p. 8). Hence, the State government's initiative to introduce outcomes-based education in 1997 was supported by BCE, and led to the provision of curriculum support services to schools that promoted effective pedagogy to improve student learning outcomes. BCE was a strong advocate of lifelong learning principles, and initially promoted the attributes of the learner principles as outlined in the Queensland Schools Curriculum Council (QSCC) syllabus documents. However, as Education Queensland began to grapple with *New Basics*, BCE recognised the need to develop its own Learning Framework, which would give direction and focus for all schools in the system based on the values and beliefs of Catholic education underpinned by an outcomes-based approach. Hence, this BCE Learning Framework (Brisbane Catholic Education, 2002) formed the basis for teachers' curriculum planning, assessment, evaluation and reporting processes.

While the BCE Learning Framework provided principles for learning, there was also a need to ensure some form of standardisation and consistency in assessing and reporting of the learning outcomes. In the mid-1990s, BCE engaged teachers in formal "consistency of teacher judgement processes" (Brisbane Catholic Education, 2008), a moderation process. This approach was built upon the practice of teachers collaboratively working together at the intra-school and inter-school levels to develop teachers' assessment practices and make consistent and comparable judgements about students' achievement (Brisbane Catholic Education, 2008). This moderation process, which occurs each year, has been modified and refined over the years, however, it is still implemented and valued by teachers and schools within BCE.

With the advent of Essential Learnings in 2006, and establishment of the Queensland Curriculum Assessment and Reporting (QCAR) framework, legislation by the Queensland Government mandated a number of requirements related specifically to the reporting of student progress and achievement. As a result, schools were required to provide parents with Queensland

Studies Authority (QSA[8]) reports on standardised Year 3, 5, 7 and 9 literacy and numeracy testing. Schools had to provide an opportunity for the child and parents to meet with the child's teacher at least twice a year and provide written reports to parents twice yearly, indicating the standards measured against the grade level achievement levels for each learning area. This was to be reported using a five-point scale and the requirement that schools must, at a minimum, offer to provide information on a child's achievement relative to the child's peer group (Brisbane Catholic Education, 2006).

BCE complied with many elements of this legislation. It advised its schools to report to parents using a five-point scale to describe achievement against the levels in the KLA syllabuses, but not as quartile reporting of student achievement within a class, as was the case with many Education Queensland and independent schools (Brisbane Catholic Education, 2006 p. 5). The Queensland Government also legislated that schools were required to make public the aggregate data of the Queensland Studies Authority's - Years 3, 5, 7 and 9 Literacy and Numeracy tests on their school website (Brisbane Catholic Education, 2006, p. 6).

In 2007, QCAR introduced Queensland Common Assessment Tasks (QCAT's) in English, Mathematics, and Science to be administered in Years 4, 6, and 9. These assessment tasks were to be implemented, marked, and moderated against standards based on the Essential Learnings. Initially, this type of judgement of student learning was adopted only by a small number of BCE schools involved in the trials. However, the government requirement was to implement QCATs for all schools by 2009, and BCE devolved this decision to individual schools. Many BCE schools opted not to participate.

Although BCE bound by State and Federal Government funding has conformed to mandated requirements, there was an ad hoc approach by schools in using these assessment tasks. As a system, BCE, although accountable to government agencies, has some autonomy, and has valued

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[8] The Queensland Studies Authority (QSA) was replaced by the Queensland Curriculum and Assessment Authority (QCAA) on July 1, 2014.

and continues to value and support consistency of teacher judgement processes as one means of judging student learning and development.

In more recent years, with the advent of the Melbourne Declaration on Educational Goals for Young Australians in 2008, and the introduction of the Australian Curriculum since 2010, BCE continues to provide support and guidance for schools and teachers. They introduced a *Model of Pedagogy*[9] based on current constructivist and humanist theories of learning as a guide for schools and teachers to improve their teaching practice. This initiative by BCE can be accessed by teachers via their school portal and has been available to all BCE schools since 2012.

2.4 The Research Defined

The impetus for this study was a concern for the way in which teachers understanding learning, how they judge learning and use of learning data to improve student learning and teacher practice. Data can be gathered to provide information about the development of students' social, emotional, academic, behavioural, and psychological progress, and also in the form of general information. Internal school assessments or mandated assessment by external authorities provides data about student learning progress. From my observation of my colleagues, the what, when, where or why of how learning and is gathered and interpreted, is an area of confusion and uncertainty for teachers.

There is already an abundance of data generated about students and schools that is supplied to principals, teachers, and parents. The supply of data seems to be built on an assumption that those who receive such reports have the capacity to effectively interpret statistical measures, terms, and representations. There is some evidence that the reality may be different (Pierce & Chick, 2010). This could be attributable to teachers' beliefs about the use of learning data for the purposes

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[9] The BCE, Model of Pedagogy is based on evidence identified by a number of academics and researchers. In particular it draws significantly on John Hattie's research, Visible Learning (2009) and the visible learning and teaching story outlined in Visible Learning for Teachers (2012).

of improving learning. Changing these beliefs requires changing prior assumptions about the purposes of assessment information (Timperley, 2008). If teachers are not clear on how learning data can constructively and proactively improve learning, and they are not part of the process of deciphering the results, then changing their assumptions about its purpose is unlikely.

Many teachers with whom I interact hold the view that data generated by centralised testing is limited to 'snapshots' of student performance. Many are of the opinion that the information received is relatively unsophisticated, generic, and only slightly more detailed than the information given to parents. Jones and Egley (2007), in their research of 708 upper elementary teachers in Florida, found that "nearly all teachers surveyed believed state - mandated testing led to impeding students' learning or had no effect on student learning at all" (p. 238). For belief to change, teachers need to use the data that is available to them to create meaning that accurately informs them about the students they teach:

> A process of human interpretation and creating meaning has to happen to change data into information and ultimately into workable knowledge. Creating knowledge involves much more than sharing data. Data and information, on their own, have no meaning. Turning them into knowledge is a human process that involves taking on a 'social life'. They become valuable when they are shared and debated and applied in a social context. Both giving and receiving knowledge are critical to improvement (Earl & Fullan, 2003, p. 392).

Improvement can be enhanced by creating knowledge from the analysis of learning data required by teachers to develop 'assessment literacy'. As (Popham, 2009) argues:

> Because assessment-literate teachers will typically make better decisions, and because we want students to be better taught, it should be obvious that today's teachers must acquire more assessment literacy - and the sooner, the better (p.6).

Through the improved assessment literacy practices of classroom assessment and standardizing testing, teachers may be better positioned to make informed decisions and judgements about student learning progress. These decisions would lead to adapting curricula to

cater for individual difference both in cohorts of students or the class as a whole, as well as adapting, improving and/or modifying teacher practice.

In summary, there currently exists data in a variety of formats in schools that may better inform teachers of their learners, meaningfully evaluate planning for learning, adapting or modifying curriculum or improving pedagogical practices. Some teachers carry out their day-to-day work as though educational testing were somehow peripheral to their teaching practice (Popham, 2006), whilst others consider testing central to their teaching practice.

The Research Problem

Some teachers lack an understanding of how students learn, the judgement of student learning and the use of learning data for the purposes of improving student learning and teacher practice.

2.5   The Research Purpose

The purpose of this research is to explore some teachers' beliefs about how students learn, the judgement of student learning and the use of learning data for the purposes of improving student learning and teacher practice.

2.6   The Research Question

What beliefs do some teachers hold about how students learn, the judgement of student learning and the use learning data for the purposes of improving student learning and teacher practice?

Clarification of the research problem, purpose and questions obtained from this review of the research context guided the researcher into the literature review provided in Chapter 3.

Chapter Three - Literature Review

3.1 Reviewing the Literature

The purpose of this chapter is to provide a review of the literature on what is currently known about teachers' beliefs about how students learn, judgement of student learning and the use of learning data for the purposes of improving student learning and teaching practice. The definition of the research problem and purpose in the previous chapter, provides the context to begin exploring the research literature. In searching contemporary literature surrounding the research problem, it became clear that this issue was far wider reaching and more complex than originally anticipated. In researching empirical evidence about teachers' beliefs and practices in the use of learning data for the purposes of improving student learning, four main themes were identified:

1) Teachers' beliefs about how students learn

2) Principles for student learning

3) Teachers' judgement of learning

4) The use of data to improve students' learning and teaching practice

These four themes provide the framework for the literature review. Section 3.2 explores the literature surrounding teachers' beliefs about how students learn, followed by Section 3.3 with a search of contemporary literature about how students learn. Section 3.4 identifies some of the literature about how teachers' judge student learning and Section 3.5 teachers use of learning and development data. Section 3.6 provides a synthesis of the literature by generating a conceptual framework for the exploration of these themes.

3.2 Some Teachers' Beliefs about how Students Learn

Demonstrating knowledge and understanding of research into how students learn and implications for teaching is part of a teacher's professional responsibility, according to the

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professional standards outlined by Australian Institute for Teaching and School Leadership [AITSL], (2011). These policy standards outlined by AITSL have important implications for teachers today, with the expectation that the competencies outlined denote best practice to meet and maintain teacher registration standards criteria.

Many sources for these personal beliefs are posited in the literature as being attributed to one's upbringing, a reflection of one's life experience and to results of socialisation processes in schools (Chan, 2001; Nespor, 1987; Raths, 2001; M. Rosenfeld & S. Rosenfeld, 2008). The conceptions that teachers hold are complex and eclectic, with wide variations even when teachers share a commitment to similar educational practices (Clark & Peterson, 1986). Some of what teachers learn about teaching is through their own experience as school students, experiences that have been referred to as 'apprenticeship of observation' (Nespor, 1987; Raths, 2001; Stuart & Thurlow, 2000), and/or through their observational apprenticeship as pre-service teachers.

Empirical research methods cannot measure what is tacitly held in teachers' minds, so the criteria for this measurement should include the relationships between what teachers actually do in their classrooms, which is the process of their teaching and what happens to their students in terms of their learning (Fang, 1996). This process product model recognises that teacher beliefs not only affect student behaviour and performance, but also their own behaviour, which in turn impacts on student learning. Consequently, they are closely intertwined. In outlining their policy, the National Board for Professional Teaching Standards (2007) maintain that effective teachers act in the belief that all students can learn, and that as teachers, they can make a difference. Teachers, who hold this interventionist theory or disposition towards helping to improve learning, utilise effective teaching practices which lead to improved student performance and self-esteem (M. Rosenfeld & S. Rosenfeld, 2007). In contrast, teachers who blame the learner for his or her inadequacies attribute student difficulties to permanent deficits which detract from student success (M. Rosenfeld & S. Rosenfeld, 2007).

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Teacher beliefs differ in their implicit understanding of the nature of teaching and consequently they act in different ways to foster learning. An empirical study that focussed on the effect of beliefs of teachers on student learning was conducted by Jordan, Lindsay, and Stanovich (1997) from which they documented 'support the learner' and 'blame the learner' perspectives. In the context of linguistic interactions, they looked at the differential position of instruction by teachers who taught exceptional students and at-risk students in the general classroom. What they discerned was that those teachers with 'blame the learner' perspectives needed to expand their skill repertoires to enhance their current ways of teaching in order to meet the needs of all students in their classrooms. The teachers with 'support the learner' perspectives were more able to orchestrate academic interactions of higher-order thinking, and facilitated learning defined by students' understanding of concepts. Whilst this research, focussed on teachers' beliefs about learning and their subsequent interactions with students, it was not evident that it evaluated improved student learning achievement in light of 'support the learner' or 'blame the learner' viewpoints. According to Kagan (1992), the challenge at that time, was "for researchers to provide evidence that certain beliefs and reflections are related to desirable student outcomes" (p.65).

This gap in the research was identified in an empirical study by M. Rosenfeld and S. Rosenfeld (2008) who conducted a qualitative research study with 234 elementary and middle school teacher participants, to explore further this construct of teachers' beliefs and their effect on student learning. The aim of the research was to sensitise teachers to their own and their colleagues learning characteristics, and, in identifying these, ascertain how these might affect them [teachers] as learners. Through measuring the teachers' perceptions of a 'weak' student, pre -test data was used to identify teachers with 'support the learner'- interventionist beliefs or 'pathognomonic' beliefs (from the word 'pathology') to 'blame the learner for his illness'. The term 'pathognomic' was used by Jordan, Lindsay, and Stanovich, (1997) and describes teachers' beliefs that "attribute student difficulties to permanent deficits in the student, which detracts from student success" (M. Rosenfeld & S. Rosenfeld, 2008, p. 246). M. Rosenfeld and S. Rosenfeld (2008) used five

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different tools to have teachers understand themselves as learners in lengthy professional development sessions. They then conducted a post-test on the teachers' perceptions of a 'weak' student. The results of this empirical research indicated a significant increase in teachers' 'support the learner' beliefs, as well as the need for teachers to examine the validity of their own personal beliefs about student learning. The change in beliefs is outlined in Table 3.1 below, where two teachers indicated a substantial shift in their thinking about what constitutes a 'weak' student.

Table 3:1:

Examples of teachers who developed interventionist (support the learner) beliefs after professional development

	Beliefs before PD	Beliefs after PD
Participant 96: teacher candidate	A weak student has difficulties in absorbing certain material [pathognomonic], he gets low grades [operational], and he doesn't reach his potential [operational].	A weak student doesn't succeed in his studies [operational] because the way he learns doesn't match the school framework [interventionist]. For example, he gets low grades on tests maybe because he's not good at paper and pencils tests, and he needs different ways to apply his learning [interventionist].
Participant 47: experienced teacher	A weak student has low intelligence [pathognomonic]. He wants to learn but doesn't have the ability [pathognomonic].	A 'weak student' doesn't 'transmit' like the teacher [pathognomonic]. Every person has a different learning style and in most cases, the teacher doesn't teach the way the student knows how to learn, so there's a 'short-circuit' [interventionist].

(M. Rosenfeld and S. Rosenfeld, 2008, p.256)

Whilst this study indicated an attitudinal change in beliefs of the teacher participants with regard to a 'weak' student, the research did not indicate that there were further observations made of teacher practice in the classroom after their professional development sessions. Such data would then have indicated whether their changed beliefs impacted their pedagogical practice. It was not indicated that pre- and post-testing data of student achievement was gathered and analysed. These

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two data gathering procedures might have established more definitively whether the change in teacher beliefs improved student learning and development.

Learning is often assessed at the endpoint in the learning cycle, and measures what a student has learnt – what they know, can do and understand. However, in today's complex world, new ways of thinking about knowledge and knowing is necessary to provide high quality, diverse learning experiences for students (Brownlee, Exley, Walker, Whiteford, & Woods, 2012). Within a social constructivist framework, learning is not seen as merely transmitting knowledge or ensuring that students meet learning outcomes, but assists students in deeper understanding and higher order thinking. With this in mind, Berthelsen, Brownlee, and Schraw (2011) call teachers to "facilitate student learning by supporting students to actively construct knowledge". If teachers' personal epistemologies are sophisticated as Brownlee et al., (2012) suggest, then deeper approaches to learning tend to reflect constructivist approaches. Teachers who base their beliefs on this approach have students "make links to prior knowledge, connect ideas and evaluate information" (Berthelsen, et al., 2011, p. 25). For students to be the constructors of their own knowledge, they need to focus on the processes and strategies of learning. This has implications for teachers' beliefs about the nature of knowledge, the teaching and learning process and the opportunities provided for learning (Jordan et al., 1997; Smith & Shepherd, 1988). Teachers who believe learning and knowledge are to be transmitted, tend to use far more teacher-directed approaches. They provide few student-led or interactive opportunities with very few occasions afforded for peer-supported learning or reflective metacognitive practices (Jordan et al., 1997; Smith & Shepherd, 1988).

Teachers who, on the other hand, see themselves more as 'tutors' guiding and supporting the learning of students in deepening their understanding of concepts, meanings and metacognitive practices, have the belief that learning is a responsibility to be shared with the student (Jordan et.al, 1997). Teachers who hold these beliefs are considered to be far more responsive to meeting student

needs, and are thus able to engage students in higher order thinking and are more focussed on students' academic progress.

While Jordan et al. (1997) and M. Rosenfeld and S. Rosenfeld (2008) found in their empirical research that there were some teachers who recognised the need to share the responsibility of learning with their students, they also found that there were those who did not. It has been widely acknowledged that teachers' beliefs appear to be resistant to change (see for example, Jordan et al., 1997; Pajares, 1992; Chan, 2001), and this is believed to be related to their implicitly held personal epistemologies about teaching and learning. Pajares (1992) found teachers' beliefs to be a 'messy construct' as much of the research is drawn from inference as beliefs are often tacit and difficult for teachers to articulate (M. Rosenfeld & S. Rosenfeld, 2007). As beliefs are grounded in emotional and evaluative domains rather than knowledge, and intertwined with ever changing and unanticipated classroom environments and life histories, it is difficult for teachers themselves to verbalise and make explicit their beliefs (Nespor, 1987). It is through teachers explicitly recognising their personal beliefs or epistemologies about how students learn that will enable them to effect changes in identifying problems in their teaching, improve their practice and adopt new approaches that are more aligned with current research about how students learn (Chan, 2001). These beliefs can be influenced by their own experiences and/or observations.

Teachers making explicit their beliefs about how students learn may not necessarily lead to improved teaching practice, as evidenced in the empirical OECD study of the Netherlands (Van Cooten & Van Bergen, 2009). Teachers in this study indicated student-oriented beliefs, but their reported teaching practices more often reflected subject matter orientations.

While reviewing the literature, the incongruence between teachers' beliefs about how students learn and their teaching practice was often highlighted. This literature when aligned to the research problem led to the first research question:

What beliefs do teachers in one BCE primary school hold about how students learn?

3.3   How Students Learn.

There are many aspects of learning that are difficult to measure, or even beyond measurement as learning takes place anywhere, anytime, anyplace. Moreover, learning is not precise, linear, or simple to understand, let alone measure. Learning is an extensive and complex process and many theories are drawn from diverse areas of educational, developmental, cognitive, social and clinical psychology in order for it to be fully explored and understood (Illeris, 2007). There are various schools of thought regarding learning eclectically sourced from the approaches of humanism, behaviourism, cognitivism, essentialism, perennialism, progressivism, constructivism and postmodernism.   In recent time, the approaches of humanism and constructivism have impacted upon Australian and international education. Whilst there has been a focus on improved academic achievement, there is the recognition that learning is "interconnected across cognitive, physical, social and emotional domains" (Duchense, McMaugh, Bochner & Krause, 2013, p. 237).   This interconnectedness, drawn from humanist and constructivist approaches, focuses on the development of the 'whole' person, and views humans as goal-directed agents who actively seek information. Students come to formal education with a range of prior knowledge, skills, beliefs and concepts that significantly influence what they notice about the environment and how they organize and interpret it. This, in turn, affects their abilities to remember, reason, solve problems, and acquire new knowledge. It is now known that very young students are competent, active agents of their own conceptual development who are able to set goals, plan and revise ideas (Bransford, Brown & Cocking, 2000). It is also evident that many existing school practices and policies are inconsistent with what is known about contemporary learning (National Research Council, 1999; Masters, 2013) and can be seen to draw from earlier teacher-driven approaches to learning. A set of core principles drawn from recent research on contemporary learning approaches can provide a framework for discussion about how students learn.

3.3.1 Principles for learning

In order to understand how students learn, the literature maintains that fundamental principles need to be understood. The literature surrounding this issue was limited. However, Graesser, Halpern, & Hakel (2008) developed twenty-five cognitive principles for learning, but nonetheless, it was recognised by Graesser (2009) himself, that it was important to incorporate motivation, emotion, discourse, social interaction, personality, development and neuroscience (p.259). Ambrose et al. (2010) synthesised these principles by Graesser et al. (2008) based on their definition of learning. They define learning "as a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning" (p.3). From this definition they developed seven principles based on research that they believe teachers need in order to bridge the gap between research and practice, and teaching and learning. These principles based upon what they term the "science of learning" and the "science of instruction" include:

- recognising students' prior knowledge

- supporting students' organisation and application of knowledge

- encouraging students' motivation to learn

- scaffolding students' level of mastery of learning

- providing support for students' goal – directed practice and feedback

- recognising students' developmental level

- guiding students to become self - directed learners

    (Ambrose et al., 2010, pp. 4-6)

The International Academy of Education, in collaboration with the International Bureau of Education (IBE), a division of the United Nations Educational, Scientific and Cultural Organisation (UNESCO), also developed principles as an organised whole with each principle supporting the other, aligned to learning theories from various areas of psychology (International Academy of Education, International Bureau of Education, 2001). These twelve psychological

principles summarise some of the important results of recent research on learning relevant to education today. They attempt to integrate research sourced from diverse areas of psychology, including educational, developmental, cognitive, social and clinical psychology. This research opted to utilise this framework presented in the above-mentioned document, as it draws more clearly from social constructivist theory, although this study synthesises and explores the principles in more depth and breadth in relation to the literature about how students learn.

Active Involvement: "Learning at school requires students to pay attention, to observe, to memorise, to understand, to set goals, and to assume responsibility for their own learning development. These cognitive activities are not possible without the active involvement and engagement of the learner" (Vosniadou, 2001, p.8). This principle of learning is a synthesis of learning from a constructivist perspective, and educational theorists such as Dewey (1997a, 1997b), Piaget (1932, 1967), and Vygotsky (1978, 1986), although from diverse origins, share a common emphasis on learning and development. Constructivist learning can be understood as "meaning not given to us in our encounters, but given by us, constructed by us, each in our own way, according to how our understanding is currently organised," (Iran-Nejad, 1995, p. 16). Much of constructivist theory is based on Piagetian epistemology (Confrey, 1990; Iran-Nejad, 1995; Kamii & Randazzo, 1985; von Glaserfeld, 1995), and coalesces around the idea that students' active engagement with their environment, leads them to the construction of meaning and to learning. Cognitive development and conceptual change occur as a result of interactions between existing cognitive structures and new experience (Iran-Nejad, 1995). Constructivist methodology challenges the previously held traditional belief that students are born as, "blank slates" on which the record of experience is gradually impressed. "Constructivism encourages educators to recognise the value of the knowledge and experience that students bring to the learning, and to provide experiences that help students build on their current knowledge of the world," (Dushesne et al., 2013, p.212). Through learning by organising information, exploring the learning environment, conducting learning activities and monitoring their own learning, students are

responsible for regulating and monitoring their own learning development (Iran-Nejad, 1995). This principle of learning maintains a deep understanding of content and processes of cognition around concrete problems, rather than passive assimilation of knowledge purveyed by a teacher standing in front of the classroom as the 'fountain' of all knowledge. This principle recognises that students are capable of making their own decisions and judgements about what types of knowledge are required (Elmore, Peterson & McCarthy, 1996). In accepting this view that students are creating their own knowledge, it is therefore reasonable to consider that students are capable of constructing their own view of reality. This learning is the active framing of personal meaning rather than the framing of someone else's meaning (Vey, 2005). This is not to preclude the teacher in the learning process, who still needs to support the learner in accessing the knowledge they require, as well as teaching the specific knowledge required for students to progress their learning.

Personal learning, according to constructivist theory, emphasises the student's capacity and their readiness to learn. This approach to learning signifies the importance of the process of learning and not the product. The reality for the student is the process of actively constructing meaningful representations, perceptions, and realities that students actually experience while engaged in exploratory activities (Vey, 2005).

Social Participation: Learning is considered to be a social activity, and active involvement in learning implies the construction of knowledge through collaborative efforts with shared objectives and challenges. As Salomon (1993) states, "the mind rarely works alone" (p.47). The social environment as described by Vygotsky (1978), includes tools, cultural objects, and people working together as agents in developing the human thinking process. This theory of developmental psychology focuses on the zone of proximal development (Vygotsky, 1978), that refers to the learner increasing in competence as they move through learning with the aid of others (Bransford, Brown & Cocking 2000). The student as a novice learner begins by learning something being scaffolded by others in their community of learning. As their level of competence improves, they become independent and are ready to move on to the next new learning experience. This form

of guided participation (Salomon, 1993), through socially distributed knowledge and understanding, provides the scaffolding for the student to achieve independent learning. "Knowing how to work with others, and how to build on the knowledge and experiences of diverse people who bring different perspectives to the thinking and reasoning process, can help students expand their thinking and explore new approaches to learning," (Duchesne et.al, 2013, p. 214). This social participation in learning can lead to intrinsically motivated students who are driven by involvement with others, curiosity and a continual search for understanding (Oldfather, West, White, & Wilmarth, 1999).

Meaningful Activities: Participation in activities that are built around real-life, authentic contexts, that are culturally relevant, and situate knowledge in a deep and meaningful way, is referred to in conceptual research literature as situated cognition (Brown, Collins & Duguid, 1989; Greeno, 1998; Lave & Wenger, 1991; Salomon, 1996). The significance of situated cognition brings into alignment learning activities in which knowledge is developed with participation and involvement in situations that can co-produce knowledge through the activity (Brown, Collins, & Duguid, 1989). Cognitive psychology prior to the 1970's, focussed on describing the mental changes that occurred in an individual through stages of development. Piaget's (1950) well known stages of cognitive development focussed on biological maturity as the prerequisite for learning. Recent cognitive studies however, maintain that learning is seen as an indistinct, continuous, life-long process resulting from individuals acting in situations where they engage in cognitive activities (Brown et al., 1989). As Darvin (2006) states, "People do not live in isolation, and they only rarely learn in isolation. Complex cognitive practices such as those involved with problem solving and literacy can only be discussed when one considers the settings where they are taking place (p.398).

The fundamental principle of this learning theory emanates from Whitehead's (cited in Brown et al., 1989) distinction between the mere acquisition of inert concepts and the development of useful, robust knowledge. The analogy used to highlight this concept compares the use of

mathematical tools where algorithms and routines can be competently used in isolation, but when applied in a real-life context, the learner is often unable to transfer their knowledge and understanding to the new context.

The connectedness within a real-life context that assists the transfer of knowledge and understanding is significant, in that value and meaning go beyond instructional activities that have limited or little value outside of the school environment. The greater the authenticity of learning is commensurate with the greater connection to larger social contexts. Much of what is undertaken in schools is seen as a hybrid of ordinary practices that occur within broader society. If, however, students work on a problem that they can see as connected to their personal experience or a contemporary issue that concerns them, then they are able to experience problem-solving in real world contexts (Brown et al., 1989; Duchesne et.al, 2013; Newman & Wehlage, 1993; Salomon, 1993). As Vosniadou (2001) attests, "people learn when they participate in activities that are perceived to be useful in real life and are culturally relevant…" (p. 9).

Relating New Information to Prior Knowledge: "Learning seen as new knowledge is constructed on the basis of what is already understood, believed and experienced," (Vosniadou, 2001, p.12). This view sees learning as conceptual change and not as a cumulative process of gaining knowledge and experience. There is much debate as to how prior knowledge can improve learning. Some theorists maintain that as prior knowledge can be flawed, this can create conflict in the learning process. If, however, prior knowledge is seen as providing flexible building blocks for learning, then new learning does not replace prior learning - rather new knowledge re-uses prior knowledge to adapt to the new context or experience.

Research evidence suggests that both adult and child learners do not relate new input to similar content encountered in the past, even though they can see relationships between the present and previous contexts if prompted (Pressley et al., 1992). For students, this lack of connection between new and prior knowledge can lead to less understanding, learning and memory than would occur if the new materials/tasks were analysed in relation to what is already known. It is proposed

that student thinking and connection-making can be increased by highlighting the links between new knowledge and what is already known by asking the student questions regarding the new content. Deeper reflection of prior learning can be achieved by encouraging students to generate answers to questions about the learning to be covered (Pressley et al., 1992). According to Hall and Burke (2004),

> To learn well, the learner benefits from the chance to apply the new learning. It assumes that before ideas become usable for interpreting new situations, for solving problems, for thinking and reasoning, and learning generally, learners must have the opportunity to play around with what they have learned in order to make it their own. They need the chance to question it, elaborate it and apply it in purposeful contexts, especially everyday life situations. Otherwise, the knowledge may remain inert – recallable only when cued by teacher questioning or by a test (p.6).

"To play around with what they have learned in order to make it their own" (Hall & Burke, 2004, p.6), learning can be successfully embedded when participating in peer-to-peer reciprocal questioning and answering. When students work in co-operative pairs, those who explain, learn more than those who listen and check for errors (Pressley et al., 1992). Working collaboratively in pairs and small groups can help students to develop their skills and conceptual understandings (Wood & O'Malley, 2007). In collectively solving a problem, each student will have their own pre-determined ideas about what is likely to happen. It is through dialogue with others, and voicing differing ideas and opinions, that leads to deeper understanding and the consideration and revision of prior knowledge and thinking, and therefore the development of more elaborate explanations.

This principle of learning has been challenged, as a student's prior knowledge maybe fundamentally flawed. This tension or learning paradox (Roschelle, 1997) can be viewed as both necessary and problematic, but rather than dismissing prior knowledge, it can be restructured through increased experience and knowledge to resolve any anomalies (Roschelle, 1997; Vosniadou & Brewer, 1992). Resolving anomalies brings about conceptual change which occurs

slowly, and involves a complex restructuring of prior knowledge to encompass new ideas, findings and requirements (Roschelle, 1997). Such a learning environment invites students to ask: How do I learn? How do I solve problems? How do I think things through critically? Am I aware of what I believe? What would it take to convince me otherwise? As prior knowledge differs in quantity and quality, it is important for learners to be engaged in authentic learning contexts that have either personal relevance and significance, or a stake in the outcome to be motivated to restructure their prior knowledge (Dole & Sinatra, 1998).

Being Strategic: The minds of young students can be described as complex cognitive structures which develop in stages, and involve different cognitive schemes (Bransford, Brown & Cocking, 2000). Students at an early age are active learners who are predisposed to set goals, plan and organise. Cognitive development involves the gradual acquisition of strategies for remembering, understanding, and solving problems (Bransford, Brown & Cocking, 2000). Using these strategies as a tool, a plan, or method can assist in accomplishing a task. Often, more than one strategy is required to undertake a task, and research indicates that successful learners use a range of different strategies depending on the task. Through the teaching of cognitive and metacognitive strategies, students are able to improve their ability to process information and therefore improve their repertoire of learning strategies (Beckman, 2002).

Strategies that can significantly improve learning include: remembering; rehearsal, repeating items over and over, which improves rote recall; elaboration, which improves retention; summarisation, which improves recall and comprehension; clustering or chunking information, which organises disparate pieces of information into meaningful units; visualisation; verbalisation; making associations; scanning and using mnemonics, a device for remembering such as the first letter, or rhyme, rhythm or music (Beckman, 2002; Bransford, Brown & Cocking, 2000). When strategies such as these are explicitly taught as tools to assist understanding, reasoning, memorising and problem solving, it has been found that learning is more effective across learning domains (Vosniadou, 2001).

Engaging in self-regulation and being reflective: A strategic learner who uses metacognition (thinking about the thoughts and factors that influence your thinking) and self-regulation, has the ability to orchestrate his or her own learning to plan, monitor success, and correct errors (Bransford, Brown & Cocking, 2000; Vosniadou, 2001). The teaching of metacognitive strategies needs to be integral to the subject matter that students are learning and they often take the form of an internal conversation (Donovan, Bransford, & Pellegrino, 1999).

Students can be explicitly taught a range of metacognitive strategies. There are many strategies that can be utilised to assist improved learning, including: the ability to predict outcomes; explain to oneself in order to improve understanding; noting failures to comprehend improvement; activating background knowledge; planning ahead and apportioning time and memory (Donovan et al., 1999; Bransford, Brown & Cocking, 2000; Beckman, 2002). These practices have been shown to increase the degree to which students transfer knowledge to new settings and events (Donovan et al., 1999; Lin & Lehman, 1999; Palincsar & Brown, 1984; Scardamalia, Bereiter & Lamon, 1994).

Transfer of knowledge was the focus of a study by Palincsar and Brown (1984) to improve students' reading comprehension. The technique of reciprocal teaching was employed, where the teacher modelled metacognitive strategies to assist students to explicate, elaborate, and monitor their understanding as they read. This model, using the Vygotskian (1978) principle of the zone of proximal development, used metacognitive strategies modelled initially by the teacher; through practice and discussion the students were supported until they were employing them independently.

The use of metacognitive strategies enables the learner to reflect on their learning, as well as to develop insights into their own learning abilities, therefore building a personal learning schema (Bransford, Brown & Cocking, 2000; Beckman, 2000). It is argued that if students lack insight into their own learning abilities, they can hardly be expected to plan or self-regulate

effectively (Bransford, Brown & Cocking, 2000). This form of metacognitive self-reflection and sense-making are considered to be significant components in effective knowledge integration.

These knowledge integration processes include the learner expanding their repertoire of ideas, distinguishing between ideas, making links between them and identifying weaknesses in their current knowledge (Linn, Eylon & Davis, 2004). As these strategies develop with age and experience, students are able to use them more effectively, flexibly and across a broader range of contexts (Bransford, Brown & Cocking, 2000). Students, when drawing on a repertoire of flexible metacognitive strategies can expect to:

> trust their own minds; know there is more than one way to do things; acknowledge their mistakes and attempt to rectify these; enhance their memory; increase their learning; increase self-esteem; have a sense of power; become more responsible for their own learning; improve accuracy and completion of work; develop and use a personal study process; know how to try; be more engaged (Beckman, 2000, p. 3).

Learning to transfer knowledge and understanding: All new learning involves transfer based on previous or prior learning, but what is more important is the learner's ability to extend what has been learnt in one context to new contexts (Bransford, Brown & Cocking, 2000). Transfer of learning is best viewed as an active, dynamic process rather than a passive end-product of a particular set of learning experiences. Eraut (1997) explains the concept as transfer from one situation to another very similar situation that may require only trivial amounts of further learning, but transfer from one learning context to another, or to a situation not previously encountered, may require deeper learning and concentrated effort (Eraut, 1997).

This active view of transfer is different from more static views, which assume that transfer is adequately reflected by learners' abilities to solve a set of transfer problems right after they have engaged in an initial learning task (Bransford, Brown & Cocking, 2000). This view is substantiated by Illeris (2007), who draws upon, and extends the conceptual research of Eraut (1997) by using the four categories of learning, knowledge, transfer and application. The first category refers to

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cumulative learning, where repetition-oriented knowledge can be used in the same learning situations. The second category of assimilative learning relates to knowledge oriented towards application to the subject, and can be used in situations that bring the subject in question to the fore, for example, using a theory, or principle. The third refers to accommodative learning that draws upon knowledge with understanding and interpretation which can be flexible and applied within a broad range of relevant contexts. Finally, transformative learning is where the learning can bring about personality changes or changes in the organisation of the self. The outcome is therefore not something to be remembered and recalled, but something that has become part of the person.

Mastery of the original subject is another factor that influences a person's successful learning transfer. Without an adequate level of initial learning, transfer cannot be expected. In learning new concepts, it can be difficult to learn with understanding at the start. Time is needed to explore underlying concepts and to generate connections to other information. This is evidenced in a famous study comparing the effects of 'learning a procedure' with 'learning with understanding'. In this case:

> Two groups of students practiced throwing darts at a target underwater. One group received an explanation of the refraction of light, which causes the apparent location of the target to be deceptive. The other group only practiced dart throwing, without the explanation. Both groups did equally well on the practice task, which involved a target 30 centimetres under water. But the group that had been instructed about the abstract principle did much better when they had to transfer to a situation in which the target was under only 10 centimetres of water. Because they understood what they were doing, the group that had received instruction about the refraction of light could adjust their behavior to the new task (Bransford, Brown & Cocking, 2000, p.14).

The amount and kind of initial learning is important in the development of understanding, expertise, and the ability to transfer knowledge. Opportunities to use knowledge to create products

and benefits for others are particularly motivating for students, and knowledge is more likely to be transferred to different contexts (Bransford, Brown & Cocking, 2000). Learners who are able to choose, adapt, and invent tools for solving problems in real life contexts are more capable of facilitating transfer and flexibility. There is general agreement in the literature that these metacognitive practices increase the degree to which students transfer to new settings and events (see for example, Linn & Lehman, 1999; Palincsar & Brown, 1984; Scardamalia et al., 1994; Bransford, Brown & Cocking, 2000; Vosniadou, 2001).

Taking time to practice: The time and practice required to move from novice to expert in any area of learning can be quite considerable depending upon the complexity of the task. In all domains of learning, the development of expertise occurs only with major investments of time. The amount of time it takes to learn material is roughly proportional to the amount of material being learned (Bransford, Brown & Cocking, 2000). Although many people believe that 'talent' plays a role in who becomes an expert in a particular area, even seemingly talented individuals require a great deal of practice in order to develop their expertise (Bransford, Brown & Cocking, 2000).

A well-known empirical study by Chase and Simon (1973) of world-class chess masters, estimated that the amount of time dedicated to practice was 50 000 to 100 000 hours to reach that level of expertise and they relied on a knowledge base containing some 50, 000 familiar chess patterns to guide their selection of moves. Much of this time involved the development of pattern recognition skills, plus knowledge of their implications for future outcomes. This application of metacognitive strategies is what separated the masters from the novices in their study.

In the same way, students as novice learners require enough time to process information. Bransford, Brown and Cocking (2000) found that "on one particular task it took 3rd graders, 15 seconds to integrate pictorial and verbal information; when given only 8 seconds, they could not mentally integrate the information, probably due to short-term memory limitations" (p.58). The implication is that learning cannot be rushed, as the complex cognitive activity of information

integration requires time. This has significance for learners in school settings who are often faced with tasks that do not have apparent connection, meaning, or logic related to the real world. It may be difficult for students to learn with understanding at the beginning of experiencing a new concept, and they may require extended time to explore underlying concepts and to generate connections to their prior knowledge. According to Bransford, Brown and Cocking (2000):

> attempts to cover too many topics too quickly may hinder learning and subsequent transfer because students (a) learn only isolated sets of facts that are not organised and connected or (b) are introduced to organising principles that they cannot grasp because they lack enough specific knowledge to make them meaningful (p.56).

According to some educational psychologists, young students and adult learners have approximately the same mental capacities. It is knowledge acquisition and the development of metacognitive strategies and processes that sets them apart. This is supported by research that suggests that experts differ significantly from novices, and adults from students, in the cognitive strategies they bring to problem solving, and that differences can be operationalised and taught (Vosniadou & Brewer, 1989). So, if students are to develop the knowledge and strategies required for tackling complex problems, then providing time for multiple and repeated opportunities to implement these processes would lead to greater independence and self-regulated learning. This can be further aided when there are multiple opportunities to observe others engaging in thinking activities. "Learning is a complex cognitive activity that cannot be rushed. It requires considerable time and periods of practice to start building expertise in an area" (Vosniadou, 2001, p.23).

Developmental and individual differences: Classrooms are filled with diverse learners who differ culturally, cognitively, with different prior learning experiences, learning dispositions, gender, aptitudes, readiness, abilities, interests and talents. Therefore, quality learning and success for all learners is necessary as we think, learn, and create in different ways (Tomlinson, 2000). New evidence emerges regularly to support the premise that not all students learn in the same way (Guild, 2001; Fischer &Rose, 2001; Green, 1999; Subban, 2006). For this diversity to be

accommodated, there are a number of considerations that need to be taken into account for each child to be a successful learner.

Identifying students' learning styles and accommodating these can assist them to achieve better results academically and improve their attitude towards learning (Green, 1999; Silver, Strong & Perini, 1997; Tomlinson, 2000). Empirical studies have found that students' performances are significantly better when they are instructed through learning style approaches where they feel that their individual strengths are being accommodated (Fine, 2003). Dunn, R. and Dunn, K. (1978, 1992a, 1992b) proposed one of the most widely used approaches to learning styles. They maintain there are twenty-one different factors that define a person's learning style. Some of the most significant being:

- environmental (sound, light, temperature, design)

- emotional (motivation, persistence, responsibility, structure)

- sociological (self, pair, peers, team, adult, varied)

- physical (perceptual, intake, time, mobility), and

- psychological matters (global/analytic, hemisphericity, impulsive/reflective)

(Dunn & Burke, 2005/2006, p.1)

Supporting students' learning style by considering all factors, whilst also scaffolding and supporting the areas that need developing, individual differences of learners are accommodated and learning is more successful.

Creating motivated learners: Student motivation is used to explain the degree to which students invest attention and effort in various pursuits, which may or may not be the ones desired by their teachers. Student motivation is rooted in students' subjective experiences, especially those connected to their willingness to engage in learning activities and their reasons for doing so (Brophy, 2010). For learning to be effective, it must engage the learner by making connections with their lives and positively influence their levels of motivation (Coleman, 2001; Guild, 2001; Hall, 2002; Sizer, 1999; Strong, Silver & Perini, 2001; Subban, 2006).

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Motivation to learn can be viewed as both a cognitive and an emotional response. Those who purport that it is a cognitive response maintain that students need to develop and use generative learning strategies (Brophy, 2010). That is, they need to process information actively, relate it to their existing knowledge and make sure they understand it. Students need to see the value of what they are learning, be stimulated by it, whilst being supported in how to go about learning it (Brophy, 2010). A continuing impulse to learn is characterised by intense involvement, curiosity, and a search for understanding that goes well beyond just an interest in a topic or activity. Developing motivation requires creating classroom cultures in which students connect prior learning and experiences to what they do in their school and more specifically their classroom (Oldfather et al., 1999).

Greater motivational classroom cultures, lead to empowerment of each student's disposition to learning, as evidenced in the research of Ellis and Worthington (1994). In focussing on the difference between expert and novice (ineffective) learners, they espoused that expert learners display motivational characteristics that empower them to be or to have: an internal locus of control; expectant of success; goal oriented; intrinsically motivated; self-reinforcing; make connections with prior knowledge and skills; organised in structuring their knowledge; active in working towards self-regulation in thoughts and actions; a broad range of academic skills and strategies; a flexible and interchangeable repertoire of skills and strategies; and acquired extensive knowledge about important concepts (Ellis & Worthington, 1994, pp. 9-11).

These characteristics of an expert learner are generated around the cognitive domain of learning, but emotional competencies such as self-awareness, self-control, empathy, the art of listening, resolving conflicts, co-operation and being able to motivate one-self are significant in motivating students to learn. These, along with persistence in the face of frustration, the control over impulses and delay gratification, regulating one's moods and keeping distress from swamping the ability to think, and the ability to empathise and to hope (Illeris, 2007), are just as significant in empowering and motivating students to learn. A positive learning environment within a

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collaborative community of learners, where students feel comfortable, valued, and secure, encourages them to form positive emotional bonds with teachers and peers and a positive attitude toward school, which in turn facilitates their academic motivation and learning (Brophy, 2010).

When motivation to succeed is strong, there is willing engagement, but when motivation to avoid failure is stronger, the response is to avoid the task. The goal for teachers and schools is to ensure students are motivated to willingly engage in learning, to enjoy the challenges, and to experience success.

The ten core principles that have been outlined in this section are drawn from recent research on contemporary learning approaches about how students learn. These principles led to the second question:

What principles for learning do these teachers base their beliefs upon?

3.4 Teacher Judgement of Learning

The literature surrounding teachers' understanding of judgement of learning is as 'messy' a construct as understanding teacher beliefs about learning (Pajares, 1992). Just as learning and teaching are not single entities, neither is judgement of learning. All are complex and dynamic and need to be understood as integral to student learning (Earl, 2003). Current educational literature has many and varied interpretations of the judgement of student learning, and for the most part, is understood as 'assessment'. However, in light of current understandings of how students learn, aligned with the growth and development of their learning, this places a different emphasis upon the purpose of assessment and judgement of student learning and development. Assessment according to Masters (2013) "needs to be about evidence of progress in the growth of knowledge, understanding and skills" (p.iv). This developmental growth perspective to assessment places the judgement of student learning not just as "success in specific learning content, but also judging how students are developing in understanding" (Masters, 2013, p.5). To ascertain the growth and development of knowledge, understanding, processes and skills, *The Gordon Commission on the Future of Assessment in Education* (2011) maintains that "assessment should be informed by the

needs, ends, and, processes of teaching and learning" (p.1). What is needed according to Masters (2013) is that, "assessments need to provide information about where individuals are in their learning, what experiences and activities are likely to result in further learning, and what progress is being made over time" (p.4). What exists however, as pointed out by Krajcik (2011), is that "most curriculum materials that currently exist focus primarily on impoverished ideas about student learning or are based on no model of learning at all, and few, if any, follow a developmental perspective" (p.156).

Just as our knowledge and understanding of how students learn has deepened and expanded over recent time, it would be presumed that our understanding of making informed judgements about the growth of student learning and development has also improved. This may not necessarily be the case, as much of the literature reviewed maintains that the dominant theories and past models of judgements about learning continue to operate as the default framework affecting and driving current practices and perspectives (Shepard, 2000; Black & Wiliam, 1998).

In the last century, social efficiency and scientific principles were aligned to improve problems of industrialisation and urbanisation. These same principles were appropriated by educational systems. Precise standards of measurement were applied to learning which was seen to be a mastery of skills necessary to enter the workforce. This behaviourist approach viewed learning and knowing as disparate pieces of knowledge – hierarchical and explicitly taught, to ensure mastery, and externally motivated to reinforce each successive step along the way (Shepard, 2000). It was the belief that in order to acquire complex higher-order skills, knowledge had to be broken down bit-by-bit into a series of pre-requisites skills, otherwise known as a building-blocks-of-knowledge approach. It was assumed that after the basic skills had been learned by rote, they could be assembled into complex understandings and insights (Dietel, Herman, & Knuth, 1991. Judgement of student learning was an indicator of what a pupil knew, and understood, and provided entry into proceeding year levels, institutions of higher education or the workforce. Teachers were

perceived as the "gatekeepers" permitting students to pass through to the next level of education (Earl, 2006).

Education in the latter half of the 20th century was acknowledged as an important key to social mobility (Earl, 2006), and with the expectation of "education for all", came increasing competition and demands for students to attain higher levels of education to enter the workforce. This, coupled with advances in contemporary scientific understanding of the nature of human cognition, methods of measurement and the societal changes of redefining what all students should learn (Pellegrino et al., 2001), has refocussed the purpose of the judgement of student learning and development. The past two decades have seen an increasingly competitive economy emerge with rapidly advancing technologies. As a result, greater pressure has been brought to bear upon the education for 'all' students, not just a few, to learn: how to communicate; to think and reason effectively; to solve complex problems; to work with multidimensional data and sophisticated representations; to make judgements about the accuracy of masses of information; to collaborate in diverse teams; and to demonstrate self-motivation (*Between Craft and Science: Technical Work in the United States*, 1997; Glaser, Chudowsky, & Pellegrino, 2001). Judgement of student learning and development must tap into a broader range of competencies than in the past, and must capture the more complex processes, skills and deeper content knowledge reflected in new expectations for learning (Glaser, Chudowsky, & Pellegrino, 2001). It would stand to reason, therefore, that judgement of student learning and development would align with new expectations of 21st century learning.

Judgement of learning through assessment processes has, in recent times, dominated contemporary education by an overriding logic of improvement (Peim & Flint, 2009; Black, Harrison, Lee, Marshall, & Wiliam, 2004; Ofsted, 2003) that act as a surrogate measure of the quality of most of the elements educational systems (Mansell & James & The Assessment Reform Group, 2009). Throughout many countries today, judgement of learning through various assessment measures are used to indicate national progress through a focus on standards and test-

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based accountability.   Policy makers have used these accountability measures to provide the pressure necessary to force change, the logic being that such testing will pressure students to work harder and for teachers to improve their teaching (Jones & Egley, 2007).   This high stakes testing regime has come under a great deal of censure in much of the current literature reviewed.

An empirical study conducted by Trepanier-Street, McNair and Donegan (2001) regarding the views that teachers have about assessment, indicated that of the 298 participants in the study, the data from "school, district and/ or state based testing were the least chosen assessment approaches and the least valued sources of information" (p.239). Teachers placed "higher value on one-on-one assessment, written observations, teacher made tests, checklists and portfolio information (Trepanier-Street et al., 2001).

The internationalisation of test validity, reliability, authenticity, quality, fairness, ranking, rewards, sanctions and the effects on teaching practice have called into question these current assessment practices in the light of new understandings of learning theories, new knowledge and skills and new curricula necessary for today's world (OECD, 2005). Despite the criticism of high-stakes testing and accountability measures, education systems value assessment as a process for improvement. Nonetheless, education systems today mandate assessment that places emphasis on outcomes and accountability, rather than on its ties with learning (Vey, 2005). As Mislevy (1993) has noted, "It is only a slight exaggeration to describe the test theory that dominates educational measurement today as the application of 20th century statistics to 19th century psychology" (p. 19). Although the core concepts of prior theories and models are still useful for certain purposes, they need to be augmented or supplanted to deal with newer assessment needs that judge the growth of student learning and development. This challenge to orthodox views of the judgement of student learning through assessment could be attributable to:

The world-wide tendency for more young people to stay longer in formal education that now increasingly includes higher education, coupled with a growing discourse of 'life-long

learning,' has helped shift attention towards how best to support students' learning (Broadfoot & Black, 2004, p. 19).

A well respected review of research conducted by Black & Wiliam (1998a, 1998b, 1999) on the uses of assessment across many countries world-wide identified weak assessment practices of many teachers who encouraged only rote, low-level, superficial learning, with little reflection on the appropriateness of the assessments used. They also found many cases where only summative assessment was used to grade students, with little emphasis upon progress of learning evidenced by of high levels of competitiveness between students rather than improved personal learning. However, Black and Wiliam (1998a, 1998b, and 1999) did reveal significant gains in student learning through the use of assessment for formative purposes. When teachers' conceptions were more closely linked with the learning experiences of the students and how students learn, their pedagogy reflected assessment as integral to the learning process. When students were actively involved in their own learning development, teachers' goals shifted to helping students develop their own learning-to-learn skills (OECD, 2005). This notion of students being involved and responsible for their own learning is described by Hattie (2012) in his meta-analysis of empirical research (2012) as the need for learning to be "visible" to students. He maintains that when there is an explicit and transparent goal to be attained, both the teacher and student need to "seek ways aimed at attaining mastery of the goal" (p.14). This, Hattie (2012) advocates as, "teachers seeing learning through the eyes of students and students seeing teaching as the key to their on-going learning" (p.14). The underlying principle of this notion is supported by Pellegrino, Chudowsky, & Glaser, 2001:

> Every educational assessment judgement of learning, whether used in the classroom or in a large-scale context, is based on a set of scientific principles and philosophical assumptions or foundations and should be grounded in a conception or theory about how people learn, what they know, and how knowledge and understanding progress over time (p.20).

Internationally recognised researchers, Broadfoot, Daugherty, Gardner, Harlen, James, and Stobart, voluntarily formulated the Assessment Reform Group (ARG)[10] in 1996 in England, to ensure that assessment policy and practice at all levels took into consideration relevant research in the area of educational assessment judgement of learning. Whilst this group's work is now complete, the theoretical framework comprising ten principles of assessment for learning continues to provide ideas and insights central to assessment practice and teacher judgement of student learning. The framework is research-based, and its central tenet identifies "assessment for learning as the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there" (ARG, 2002, p. 2). The following lists the ten research-based principles that are drawn from this theory:

> Assessment for learning: is part of effective planning; focuses on how students learn; is central to classroom practice; is a key professional skill; is sensitive and constructive; fosters motivation; promotes understanding of goals and criteria; helps learners know how to improve; develops the capacity for self-assessment and recognises all educational achievement (ARG, 2002, p. 2).

An alternative view of the judgement of learning - *assessment of learning,* refers to the overall outcome from an assessment event as the representation of an assessed person's knowledge, skill or understanding, for example, the representation of their competence (Newton, 2007). Nonetheless, there are many types of assessment utilised to judge student learning competence, and Newton (2007) maintains there is a continuum of judgements that range from summative to descriptive:

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[10] The Assessment Reform Group (ARG) was a voluntary group of researchers brought together as the Policy Task Group on Assessment by the British Educational Research Association (BERA) in 1989. In 1996, when BERA ceased to support policy task groups, the Group adopted the name ARG and its meetings were funded by the Nuffield Foundation. The ARG was dissolved in 2010.

- the judgement level concerns the technical aim of an assessment event (e.g., the purpose is to derive a standards-referenced judgement, expressed as a grade on a range from A to E)

- a summative judgement is characterized by appraisal - a decision concerning the value or quality of the (apparent) competence

- descriptive judgements are characterized by analysis - a reflection on the nature of the (apparent) competence

At the summative end of the continuum are judgements that (purely) summarize the value of an educational attainment in essentially quantitative terms, for example:

- self-referenced judgements (e.g., attained better this time than before)

- norm-referenced judgements (e.g., attained at a higher level than n% of students)

At the descriptive end of the continuum are judgements that describe the nature of an educational attainment in essentially qualitative terms, for example:

- concept-referenced judgements (e.g., understands in this respect but not in that respect)

- performance-referenced judgements (e.g., succeeds in this respect but not in that respect)

In between the extremes we find judgements of learning that combine elements of summary and description, for example:

- criterion-referenced judgements (e.g., can do x, cannot do y or z)

- standards-referenced judgements (e.g., likely to be able to do x, y and z)

  (pp. 158-159).

This extensive list of judgements about assessing student learning and development helps to clear up the 'messy' construct that has confused and bewildered teachers for some time. It is however, the purpose of these judgements, along with the analysis, interpretation and evidence of learning and development that supports the validity of judgements of learning. The literature surrounding the purposes of assessment in judging student learning and development have been

well documented with variations in interpretation (Earl, 2006; Black & Wiliam, 1998a; Black & Wiliam 2007; Stiggins, 2004 ; Stobart, 2009; Darling-Hammond, 1994; Mansell et al., 2009; Newton, 2007), but what is apparent is that there are multiple purposes as identified by Newton (2007): social evaluation; formative; student monitoring; transfer from one teacher to the next; placement; guidance; qualification; selection; school choice; institutional monitoring; resource allocation; organisational intervention; program evaluation; system monitoring and national accounting (pp.161 - 162). These purposes are broad, but if each is considered in detail, the uses for the data gathered can be extensive.

Clarity of purpose is fundamental to the validity of assessment for judging student learning and development, and one significant principle is that assessment involves a process of reasoning from evidence which cannot always be clearly defined as results, observations or performances as they can only estimate what a person knows or can do (Pellegrino, Chudowsky, & Glaser, 2001). Pellegrino, Chudowsky, & Glaser (2001) refer to "three foundational elements, as the assessment triangle that underlie all assessments - cognition, observation, and interpretation" (p.44), and all must be explicitly connected and designed as a coordinated whole. If not, the meaningfulness of the inferences drawn from the assessment will be devalued.

Cognition refers to the processes of acquiring knowledge and understanding required, based on the theory of learning in a particular area for example, reading. Through the evidence of multiple observations of these competencies, interpreted and measured by the teacher, this then provides information about the learning attained to that point, or whether further competencies are required to inform future teaching and learning. This finding by Parr & Timperley (2008) argue that, "closely analysed evidence about the learning of students allows deliberate adjustments to a classroom teaching programme in order to meet the needs of students better" (p. 57).

It cannot be presumed that assessment to judge student learning and development on its own can better meet the needs of student learning, however basing assessment on theories of learning that are aligned with curriculum and instruction, gives a far clearer indication of strengths

and weaknesses of student learning and teacher practice to support thinking and knowledge in a particular domain. "If assessment, curriculum, and instruction are aligned with common models of learning, then it follows that they will be aligned with each other (Pellegrino, Chudowsky, & Glaser, 2009, p. 256).

Many assessments are summative, particularly standardised large-scale testing that does not indicate whether a student's learning is progressing over time through developing competencies. It is quite feasible that a student can give a correct answer, yet have little or no understanding of the concept being tested. This type of summative judgement of learning is used to certify learning, and to report the relative position of students with a strong emphasis upon comparing student results. If the emphasis is shifted however, to assessment processes of judgement *for* learning, the purpose becomes formative, and shapes the learning to cater to the needs of the individual student's strengths and areas for growth. Assessment for this purpose compared with summative assessment utilised in large-scale testing, was the subject of an empirical study by Leighton, Gokiert, Cor, & Heffernan (2010), who conducted their research in Canada across three jurisdictions, with 272 teachers from Years 7-12 and 25 Principals. What they found was that teachers regarded classroom assessment, compared with large-scale assessments, as providing more evidence about students' thinking skills and learning processes. This led to teachers' focussing on more meaningful learning strategies and as a consequence, improved learning for students.

This does not presume however, that summative assessment in general does not have a place and purpose in educational evaluation. Summative assessment as part of classroom and school judgements of learning are important when reporting to parents or achieving a final result or product in a learning process. Three distinct approaches of assessment judgements – assessment of, for and as learning are seen by Earl (2003, p.26) as a summary of educational evaluation and are listed in the table below:

Table 3:2:

Features of assessment of, for, and as Learning

Approach	Purpose	Reference Points	Key Assessor
Assessment of learning	Judgements about placement, promotion, credentials, etc.	Other students	Teacher Education Authorities
Assessment for learning	Information for teachers' instructional decisions	External standards or expectations	Teacher
Assessment as learning	Self-monitoring and self-correction or adjustment	Personal goals and external standards	Student

Based on Table 3.2 in Earl (2003, p. 26), learning is fundamentally the responsibility of the learner, and whilst judgements through assessment processes are driven by the teacher in assisting the learner to achieve success, assessment as learning places the learner in an actively engaged position. The learner through the construction of meaning and making sense of information, relating it to prior knowledge, and using metacognitive strategies and self-reflection on what is understood or not understood to master the necessary competencies, is taking responsibility for their own learning and developing attributes to sustain life-long learning (Beckman, 2002; Black & Wiliam, 1998b; Bransford, Brown & Cocking, 2000; Donovan et al., 2000; Earl, 2003; Gardner, 1999; Shepard, 2000; Victorian Government, 2005). The Assessment Reform Group - ARG (2002) developed ten assessments for learning principles that are research-based and intended as a guide for teachers and which are listed below. This group maintains that,

> While assessment of learning has well established procedures, assessment for learning requires some theoretical ideas to be put into practice if the potential benefits are to be gained. In doing this, it is important to follow certain guiding principles which reflect the essential features of assessment for learning (Assessment Reform Group, 2002, p. 3):

- is part of effective planning

- focuses on how students learn

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- is central to classroom practice

- is a key professional skill

- has an emotional impact

- affects learner motivation

- promotes commitment to learning goals and assessment criteria

- helps learners know how to improve

- encourages self-assessment

- recognizes all achievements

(Assessment Reform Group, 2002, p. 2)

Whilst there is much in the literature surrounding the various types of assessment that should be considered by teachers to judge student learning and development, the question remains whether teachers are able to diagnose errors, weaknesses and misunderstandings in student learning and remedy these. The empirical study conducted by Leighton et al. (2010), as mentioned previously, indicated that there was limited evidence of classroom assessment being used to diagnose student learning processes, and little value was placed on the information from large-scale testing results. The researchers advocated the use of empirically-based models of learning designed to be cognitively diagnostic to inform teacher practice and student learning in relation to:

- the strengths and weaknesses of the learning processes used

- the influence of meaningful learning by students in developing strategies to improve their learning processes

- improved performance and success in test-taking

(Leighton et al., 2010, p.8)

Measuring learning that focuses explicitly on the processes of learning for the purpose of cognitive diagnosis, as distinct from most traditional classroom assessments and large-scale testing, is an area that is not familiar to most teachers (Black & Wiliam, 1998; Leighton et al.,

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2010; Stiggins, 1991). There is a great deal of literature surrounding the lack of training and expertise of teachers in measuring and diagnosing student learning (e.g. Leighton et al., 2010; Stiggins, 1999; Brookhart, 1993; Wiliam et al., 2004), however, fundamentally judgements of student learning and development through assessment processes are inferences that are made by educators to estimate the growth of knowledge, understanding, skills and processes of students' learning. This complex and dynamic process is best summarised by Pellegrino (2009):

> Educators assess what students know and can do, but assessments do not offer a direct pipeline into a student's mind. Assessing educational outcomes is not as straightforward as measuring height or weight; the attributes to be measured are mental representations and processes that are not outwardly visible... Deciding what to assess and how to do so is not as simple as it might appear (pp.5-6).

If "assessments do not offer a direct pipeline into a student's mind," as Pellegrino (2009, p.5), suggests then:

How do these teachers judge student learning and development?' is the third question to be addressed.

3.5 Use of learning and development data

Data on its own carries no meaning. It is widely acknowledged that in order for it to gain meaning, it must be interpreted through a context that informs the judgement of student learning and development achievement to provide evidence to improve teacher practice and to identify improved or lack of improved student learning progress (Campbell & Levin, 2009; Coburn & Talbert, 2006; Creighton, 2001; Mandinach, Honey, Light, & Brunner, 2008; Pellegrino, Chudowsky, & Glaser, 2001; Williams & Hummelbrunner, 2011). For teachers to make consistent judgements of student learning, the ongoing process of assessment that gathers, analyses and reflects on evidence to make informed decisions is necessary to improve student learning (Victoria State Government, Education & Training, 2014).

According to Creighton (2001) and Mandinach (2012), meaningful information can be gained only from a proper analysis of data rather than intuition, anecdotes, gut feelings or opinions. The use of data from large-scale standardised testing as a means of judging student learning achievement has been a contentious issue over the past decade. This has been primarily brought about by the No Child Left Behind legislation (NCLB) in the United States in 2001, with pressure being brought to bear on schools and systems to be accountable for improving student performance. The introduction of large-scale testing across many developed countries, including Australia, as a way of instigating educational reform has resulted in a proliferation of statistics drawn from data to indicate the progress and improvement of education. This elevated, quantitative use of data to meet the administrative demands of governments and systems allows for the analysis and interpretation of trends and patterns of large numbers of students over time (Mandinach, Rivas, Light & Heinze, 2006). High-stakes use of data for accountability purposes is well recognised, however much of the recent literature (e.g. Tierney, 2006; Timperley, 2008; Broadfoot & Black, 2004; Earl, 1999); Mandinach et al., 2006; Shepard, 2000; Leighton et al., 2010; Bernhardt, 2003, 2004; Stiggins, 2004; Stobart, 2009; Darling-Hammond, 1994; Leahy, Lyon, Thompson & Wiliam, 2005; Hattie, 2005; Supovitz & Klein, 2003; Schnellert, Butler, & Higginson, 2008; Protheroe, 2001; Jones & Egley, 2007; Halverson, 2010), question the validity, reliability and purpose of this type of assessment judgement. The information that is gathered is also seen to be fragmentary, as "rather than a detailed record of instruction and cognition, or a view of the spectrum of what students need to learn, educational datasets are largely measures of small bits of knowledge in those areas that are the easiest to test" (Piety, 2013, p. 155). This is certainly the case in standardised testing mandated in Australia, where only literacy and numeracy are used as the benchmark to ascertain student learning improvement.

There also exists the assumption by governments that mandating standardised testing, ensures that teachers have access to the data, the assessment literacy to use data effectively, and the results to make decisions about school and classroom practices that will improve student

learning. There is the concern that teaching methods become test-like to prepare and accommodate high-stakes testing, and that other areas of the curriculum are neglected (Earl, 1999). A presumption also exists, that schools themselves have a capacity to use the data from standardised tests to inform priorities and decisions regarding the progress of student learning and development and then make changes and monitor their effectiveness. However, much of the literature suggests that this is not the case. It is not common practice in most schools for teachers and administrators to base their decision-making on the routine use of data that affects instructional practices and student learning and development progress (Hattie, 2005; Brunner, Fasca, Heinze, Honey, Light, Mandinach, & Wexler, 2005; Schildkamp & Kuiper, 2010), as they tend to rely on anecdotal evidence, intuition and their experience as practitioners (Ingram, Seashore & Schroeder, 2004). There are many reasons as to why this might be the case, but what is suggested in the literature is that: teachers, and often the leaders of a school, lack sufficient training, knowledge and expertise in analysing and interpreting data (Choppin, 2002; Lachat & Smith, 2005; Mandinach, 2012); there is limited access to available data for teachers (Choppin, 2002); lack of time to gather, analyse and interpret data (Ingram et al. 2004); a scepticism about the usefulness of data gathering and teachers have difficulty in making connections with data and the interventions necessary to improve student learning (Lachat & Smith, 2005).

An empirical study conducted by Brown, Lake and Matters (2011) indicated that the beliefs, values, and attitudes teachers have about assessment influence and shape their implementation of high-stakes testing initiatives. In their study, results indicated that it is not teachers who need more assessment literacy, but in fact "policy makers, professional developers, teacher educators, and administrators who may have failed to persuade teachers that the currently available assessment systems provide informative, valid, and improving effects" (p.218). This failure, they suggest,

> may lie in the inadequacies of the assessments or in the failure of assessment systems to generate usable information in a timely manner. Likewise, the failure may lie in the act of

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being externally reviewed; external surveillance itself (with or without consequences) may raise concerns amongst teachers that invalidate the assessment system in their minds. There is not much point making teachers or students accountable, if the assessments being used are not defensibly aligned with teaching, learning, and curriculum, if they are not timely and rich in their feedback to the teacher, or if they are patently inaccurate or unfair. Perhaps the point of teachers' assessment literacy is not so much a problem of teacher knowledge or teacher thinking, but rather one of limited access to good assessment design and use (Brown et al., 2011).

All these factors are seen to inhibit the use of data by teachers and administrators. However, if schools need to know where they are and where their students are, define where they and their students want to get to, and measure progress along the way (Holcomb, 2004), then a range of data can provide evidence-informed approaches to support improvement and change in learning and development (Campbell & Levin, 2009). Data, when interpreted through a context, can be categorised, calculated and connections and summaries made (Schildkamp & Kuiper, 2010) that becomes information that attaches meaning, relevance and purpose. A "data culture" is what is required according to Hamilton et al. (2009), who defines this as, "A learning environment within a school or district that includes attitudes, values, goals, norms of behaviour and practices, accompanied by an explicit vision for data use by leadership for the importance and power that data can bring to the decision making process" (p. 46). The Principal, as instructional leader, must support data-driven decision making to bring about improvement and change.

It has not been common practice in many Australian schools to use data-driven decision making to improve learning and teaching. With the introduction of national testing, and the devolved responsibility from central educational systems to schools, there is an expectation that schools will provide data to measure their "performance of productivity or output" (Ball, 2003, p. 216) to be able to compare results with like schools – systemic, state and national. This "new mode of regulation" (Ball, 2003) requires Principals and teachers to organise and monitor themselves to

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meet targets, benchmarks and standards. This notion of "performativity "(Ball, 2003) positions the Principal of the school as being responsible for increased productivity and performance for improved teaching and hence student learning output. This engenders "ethics of competition and performance" (Ball, 2003, p. 218) in a school environment that in the past was based on "the older ethics of professional judgement and co-operation" (Ball, 2003, p. 218).   Competitive performativity makes demands upon schools to take responsibility for self-improvement, self-transformation and self-discipline to ensure they "remain competitive for the goods and services they produce" (Ball, 2003, p. 219).   Evidence of this can be found on the Australian Curriculum Assessment and Reporting Authority [ACARA] My School (2014) website, where it states:

> Schools, teachers, parents and the community can use the information on My School to: access information about a school, using nationally consistent indicators; compare the achievement of students in a school with the average achievement of schools serving students from statistically similar backgrounds; and with all schools in Australia, identify and learn about high-performing schools, including schools in which significant student progress is demonstrated; and gain a broader understanding of the performance of schools in a local community (Using the *My School* site, para 4, ACARA, 2014).

The demands of performativity, through increased accountability have not only changed the view of education as a commodity, but also, motivated the push for higher standards and educational improvement, and schools are reacting to the immediacy of these demands. This pressure is seen by Hargreaves and Shirley (2009) as the orientation of **"presentism"** (p. 2506). They maintain that schools are locked into short term development plans that respond to "large-scale, fast-paced, high-stakes initiatives" (Hargreaves & Shirley, 2009, p. 2509), thereby only responding to present demands. This has impacted on long-term planning, where schools have "insufficient time to plan, prepare, reflect more deeply, or think ahead" (Hargreaves & Shirley, 2009, p. 8). School missions and visions for learning, leading to long term school improvement have given way to the demands of the present. This, according to Hargreaves and Shirley (2009),

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is "counter-productive, as forced, fast-paced measures to raise achievement results in easily-tested basic skills have reached an early plateau because deeper achievements in improving the depth and quality of teaching and learning have been ignored" (p. 12).

This notion of "presentism" is related to "conservatism," and, according to Hargreaves and Shirley (2009), manifests itself when teachers "mistrust reform initiatives as their loyalty lies with established classroom practices that work for them regardless of research findings or pupil learning outcomes" (p. 6). This conservative mind-set by some teachers can lead to further problems for principals in particular, who are under pressure to meet the demands by systems and educational authorities for improved educational outcomes. This reaction to "innovation overload" (Hargreaves & Shirley, 2009, p. 9) can impact a school's openness to change and collaboration that "degenerates into contrived collegiality, where teachers' consent is manipulated to secure their compliance with administrators' predetermined agendas" (Hargreaves & Shirley, 2009, p. 13).

The issues of performativity, presentism and conservatism, if evident in a school, could impact the sustained change that is needed to teacher practice to ensure the use of data is integral in informing student learning and development. This notion was identified earlier by Shepard (2000), who maintains that classroom assessment practices need to change; the content and character of assessments need to be significantly improved to reflect contemporary understanding of learning, and the gathering and use of assessment information and insights must become a part of the ongoing learning process. However, if:

> schools and classroom teachers have a clear vision and purpose that is to improve student learning and development progress, then assessment data needs to reflect current understanding of the theories of learning, new curricula, and new knowledge and skills that are necessary for the 21st century (OECD, 2005, p. 1).

The implications for leadership teams and teachers in reflecting and acting on current views of teaching and learning, re-positions the use of assessment data as essential to the process of learning. Here, it focuses on the strategies and processes students are attempting to use, not just an

end result or product (Shepard, 2000). Data used in this way can inform teachers about the nature of student learning, which can then help them to provide better feedback to students, which in turn can improve student learning (Black & Wiliam, 1998b; Hattie, 2012). Current approaches to learning as outlined in Section 3.3.1, *Principles for Learning*, explicate the processes and strategies that are foundational to student learning and development. Some of these processes and strategies are beyond measure, and cannot be defined in terms of evidence-based data; however, what is proposed is a change in the assessment processes and practices at the school and classroom level (OECD, 2005).

In earlier research, Shepherd (2000) suggests an interventionist approach using new methods of data analysis and interpretation. This approach requires both quantitative and qualitative measures of student learning processes, where teachers use their judgement to analyse and synthesise the data gathered. They are then in a position to target any additional data required for substantiating learning achievement or necessary intervention. These measures could include teacher observations, student prior knowledge, student self-monitoring and evaluation, student think-a-louds, self-reflection, metacognitive strategies, surveys, effective feedback, explicit criteria, a variety of opportunities to achieve understanding and transfer, modelling of important processes, knowledge organization, problem representation, different kinds of participation in activities e.g. formulating questions, constructing, and evaluating arguments, and contributing to group problem solving. These processes can provide data and evidence to make valid inferences about formal and informal learning achievements (Shepherd, 2000; Pellegrino, Chudowsky, & Glaser 2001).

The inferences drawn from student learning and development progress, inform future learning, and ensure that instruction is central to the next stages of learning, based on a learner's current state of understanding and development (Glaser et al., 2001). This establishes a continuous improvement cycle that revolves around reflecting, planning, implementing, assessing, and

analysing the data (Means, Padilla, DeBarger & Bakia, 2009). Figure 3:1 below represents this continuous improvement cycle:
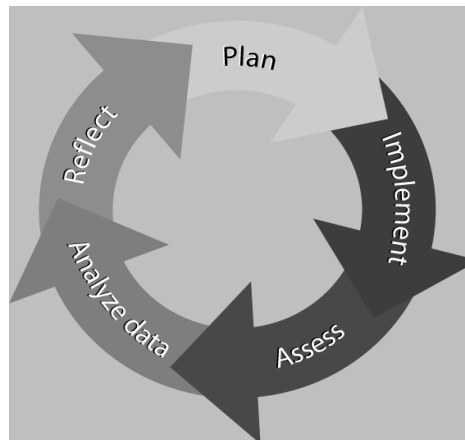
Figure 3:1:

Continuous Improvement Cycle (Means et al., 2009, p. 2)

This model of continuous improvement (Means et al., 2009) implies the growth perspective advocated by (Heck, 2006), as analysis and interpretation of the data informs the next phase of learning based on the competencies previously attained. Multiple opportunities for students to demonstrate their learning competencies and improved development are also necessary to provide extensive evidence and data that are more valid, reliable, fair and consistent (Pellegrino, Chudowsky, & Glaser, 2001). High-stakes testing and some classroom assessments on the other hand, provide a single measure of a student's learning to make a definitive judgement about their progress and competence (Pellegrino, Chudowsky, & Glaser, 2001). Multiple measures of student learning provide a broader picture of student learning achievement, according to Bernhardt (2002) and Schildkamp and Kuiper (2010), as "Many educators believe that over 50 percent of student achievement results can be explained by other factors" (Bernhardt, 2002, p.1). These other factors explained by Bernhardt (2002) relate to:

- demographic data such as gender, ethnicity, religion, attendance, etc. all of which can assist in understanding the diverse student population of a class or whole school

- perceptions data gathered from students, parents, teachers and other members of the school community about what they perceive of the learning environment

- school processes that gather data regarding school programs, instructional strategies and classroom and school practices (pp 1-3).

These measures may provide added data to assist in understanding the current situation, and guide future planning to improve student learning and development. However, it is the intersection or triangulation of these measures that Bernhardt (2002) maintains, provides more effective data-informed decision making. An example of this intersection of data is evidenced in the question:

> Based on whom we have as students (demographics), and how they prefer to learn (perceptions), and what programs they are in (school processes), are all students learning at the same rate (student learning)? (p. 4).

Measurement of student learning and development progress using data to identify strengths and areas for growth is recognised in much of the literature as an important school and classroom process. However, for data to become an integral part of a culture of continuous inquiry (Park & Datnow, 2009), it relies heavily on the beliefs of teachers and administrators that the use of data supports decisions of improvement rather than uncovers problems (Ingram et al., 2004). There exists the implication that data used to identify the strengths and weaknesses of student learning and development progress reflects a teacher's own pedagogy. This might mean that teachers "select the best technique from one's repertoire to address the problem at hand; or it could imply much more critical inquiry and transformative purpose" (Shepard, 2000, p.63).

Despite the flow-on effects, much of the recent literature surrounding the use of data-based decision making advocates the positive impact it has on student learning and development progress, particularly when the ownership of the data presides with teachers, students and schools themselves. There is a recommendation evident in the literature that students should be instructed to analyse and interpret their own data and to set their own learning goals (Hattie, 2012).

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Expectations for student learning should be made explicit to students (Black, 2000), and feedback should be provided in a clear and timely manner (Hattie, 2012; Mandinach, 2012). This means that the data collected is owned by the student, teacher, or school, rather than them being the recipients of data gathered, analysed and interpreted from high-stakes testing (Farrell, 2014: Kerr et al., 2006 Schildkamp & Kuiper, 2010; Wayman & Stringfield, 2006). Whilst there is strong support among policymakers and educators about the use of data to improve student learning, there has been little research that investigates how this translates to everyday practice in schools and classrooms (Little, 2012). If this is the case, then the final question is:

How do these teachers use learning and development data to improve student learning and inform their teaching practice?

3.6   Conclusion

This chapter has provided a foundation that will guide the rest of the study. As outlined in Chapter 2, the purpose of this research is to explore some teachers' beliefs about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning and teacher practice. This purpose led to the research question: *What beliefs do some teachers hold about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning and teacher practice?* Themes identified within the research literature resulted in four distinct sub-questions to guide the study:

1. What beliefs do teachers in one BCE primary school hold about how students learn?

2. What principles for learning do these teachers base their beliefs upon?

3. How do these teachers judge student learning and development?

4. How do these teachers use learning and development data to improve student learning and inform their teaching practice?

Synthesis of the literature generated a conceptual framework for the exploration of these themes and is displayed below as Figure 3.2. Improved student learning and development is

central to the framework and this is enveloped by the four elements representative of the four sub-questions drawn from themes in the literature review. The use of a cyclical diagram represents the complex nature of teaching and learning with each element being interrelated and interconnected informing each of the other elements in a continuous, reoccurring pattern that have an effect on the improvement of student learning and development.
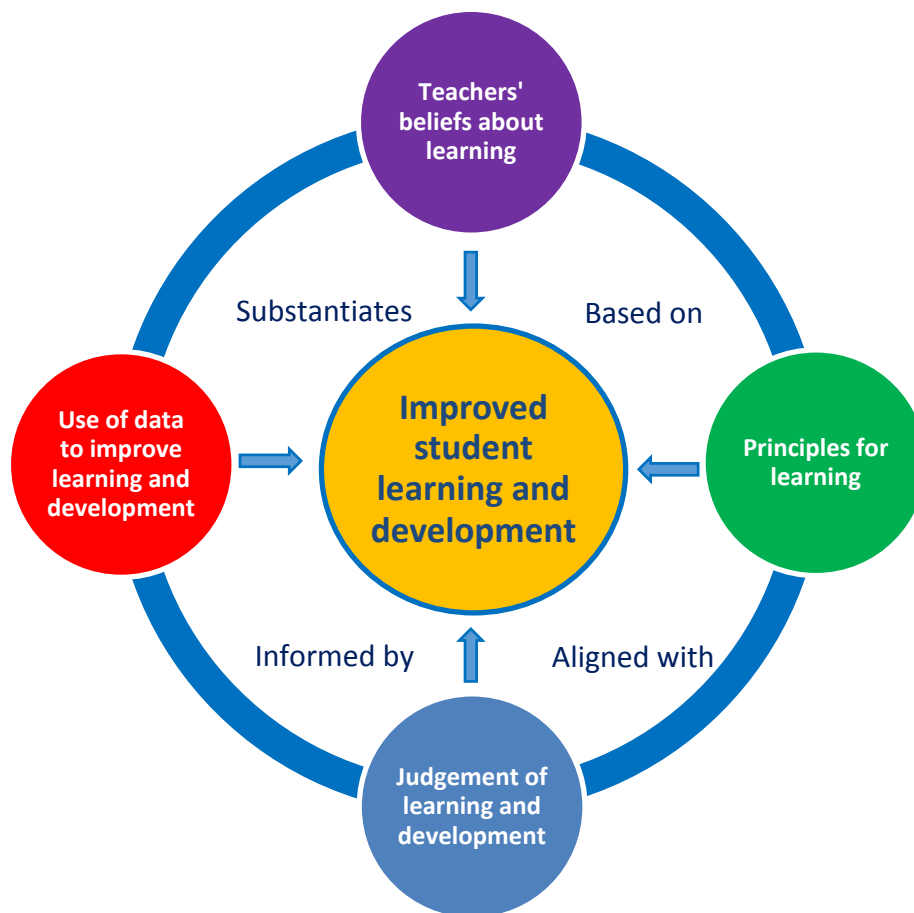
Figure 3:2:

Conceptual Framework of Literature Review

The overarching research question and the four sub-questions guided the theoretical perspective, methodology and methods used in this study. An account of the design of the study follows in Chapter 4.

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Chapter Four - The Research Design

4.1   Introduction

The purpose of this research is to explore some teachers' beliefs about how students learn, the judgement of student learning and the use of learning data for the purposes of improving student learning and teacher practice. Chapter 2 identified the changing landscape of educational accountability, and the requirement for teachers to use data to inform student learning and development. In Chapter 3, the literature review, it became evident that teachers need knowledge of how students learn to be in a position to judge their learning and development and of how to use data to assist in providing necessary evidence to inform their teaching practice and the progress of student learning. Four research questions were generated as a result of this literature review:

- What beliefs do teachers in one BCE primary school hold about how students learn?

- What principles for learning do these teachers base their beliefs upon?

- How do these teachers judge student learning and development?

- How do these teachers use learning and development data to improve student learning and inform their teaching practice?

The research design was guided by these research questions. In particular, this chapter discusses the epistemological and methodological implications of situating this study within a constructionist paradigm. Section 4.2 discusses the theoretical perspective, followed by an overview of the research data collection methods employed in Section 4.3. A description of the participants is outlined in Section 4.4, and details of the process of data analysis and interpretation in Section 4.5. Trustworthiness of the study is addressed in Section 4.6, followed by ethical considerations in Section 4.7. Section 4.8 concludes this chapter.

4.2 Theoretical Perspective

The purpose of this chapter is to generate and justify the theoretical perspective adopted to direct this study. The theoretical perspective provides the boundary and structure for selecting the appropriate epistemological lens, the guiding framework and research methodology. Educational research is framed within theoretical assumptions that provide "grand or big theories" (Wolcott, 1992, p. 7). These perspectives provide a function that are "maps or guides" (Usher, 1996, p. 15) for determining our assumptions about reality in relation to the social world. It is the theoretical perspective that provides the link between the theoretical and the practical components of the exploration of the research problem.

Educational research is designed to explore changing interpretations of teaching and learning to link and accommodate new understandings. These changes are brought about through social, political, economic, historical, technological, and ecological influences. Research can be used as a "tool" (MacNaughton, Siraj-Blatchford, & Rolfe, 2001, p. 3) to assist in answering questions about learning and teaching.

This study explores the situated, meaningful realities of some teachers' interpretations and perspectives of how students learn, the judgement of their learning, and the use of learning data to improve student learning and teacher practice and development. Therefore, the underpinning philosophy of the research is concerned with the socially constructed realities of individual participants in the context of a classroom. It is the participants' understanding of how students learn, and how they make judgements and use data to be informed about student learning and development, based upon their socially constructed realities. It is the exploration of these teachers' perceptions and realities that "is aimed at informing educational judgements and decisions in order to improve educational action" (Bassey, 1999, p. 39). It is this that provides the impetus for the problem being investigated in this study.

Given the nature of the focus of this research problem, it was appropriate to position this study in a constructionist epistemology. In line with this philosophical selection, the research study

is placed within a theoretical framework of symbolic interactionism with the orchestrating viewpoint of a 'case study' informing the research design. The theoretical perspective of the research design guides the research elements so that, as Merriam (1998, p. 45) suggests, it becomes the "lens" through which the researcher views the world. The theoretical perspective consists of three elements: the theoretical philosophical assumptions about knowledge claims contained within the study; the methodology that explicates the strategies of inquiry to be used in the study; and finally, the methods of data collection deemed most applicable to the particular study (Creswell, 2008).

The research design developed in this chapter is summarized in Table 4.1 below and provides an alignment with the philosophical perspective and the practical methodology.

Table 4:1:

Research Design

Research Design	Selected for study
Epistemology	Constructionism
Guiding Framework	Interpretivism: Symbolic interactionism
Methodology	Case study
Methods	Survey
	Focus group
	Individual semi-structured interviews

4.2.1 Epistemology

Epistemology is the study of knowledge and the processes by which we understand and explain how we know what we know and make sense of the world around us (Crotty, 1998). In order to make meaning, the researcher needs to adopt a philosophical position in order to make assumptions about the nature of knowledge and ways that can best make meaning of the interactions of individuals and groups. This is referred to by Gough (2002, p. 1) as the "relationship between the knower and the knowable". It is through knowledge, and the process by which

knowledge is acquired and substantiated, that meaning can be constructed in different ways and contexts. There are many epistemological assumptions made about the nature of knowledge and it is appropriate to declare the theory of knowledge generation and acquisition that grounds the research.

This research is based upon a constructionist epistemology (Crotty, 1998). Constructionism is centred on a person's negotiated view of reality and the ways in which they engage and interpret that reality. As defined, constructionism posits that,

> Human beings do not find or discover knowledge, so much as construct or make it. We invent concepts, models, and schemes to make sense of experience and we continually test and modify these constructions in the light of new experience. Furthermore, there is an inevitable historical and socio-cultural dimension to the construction. We do not construct our interpretations in isolation, but against a backdrop of shared understandings, practices, and language (Schwandt, 2000, p. 179).

This interaction with others through on-going processes of communication, negotiation, beliefs, feelings and interpretations in order to seek understanding of the world in which people live and work, fundamentally shapes what is reality for them (Neuman, 2000). "We are born into a world of meaning, and we inherit a system of significant symbols," (Crotty, 1998, p. 54) that we use to construct our reality. Constructing our reality according to constructionists, is concerned with interpreting these realities from the point of view of the participant, not to re-interpret or re-design their actions and experiences, but rather, to understand them. In deepening the understanding of the negotiated meanings that people create, constructionists also focus on the historical and cultural backgrounds and settings of the participants as well as their own position as the researcher. It is through these processes that constructionism supports the notion that humans derive meaning from engagement within a context. It is within this context that people construct meaning by "interacting with others in on-going processes of communication and negotiation" (Neuman, 2007, p. 89).

The assumptions about the social construction of meaning made by constructionists are outlined by Creswell (2008, p. 9) and elaborated upon in the following three points:

1. Meanings are constructed by human beings as they engage with the world they are interpreting. Everyone is born into a world of meaning and from the time we can make sense of it; we view it through the lens that our culture has imparted to us (Crotty, 1998). Being human means being engaged with the world around us, and meaning occurs when consciousness engages with the world and the objects in it (Crotty, 1998). Knowledge is constructed within the mind as we draw upon existing knowledge to make sense of new experiences. It is the view of constructionists that humans distinguish between physical and constructed reality, but that most take "things for granted and act as if they are a natural objective and a part of fixed reality" (Neuman, 2007, p.89).

2. Humans engage with their world and make sense of it based on their historical and social perspective – we are all born into a world of meaning bestowed upon us by our culture. In the constructionist view, "meaning is not discovered but constructed" (Crotty 1998, p. 42), and as we engage with others we construct meaning. Human action means little on its own, but meaning is attributed by those who share the same meaning system of understanding, practices and language (Schwandt, 2000) based on similar historical backgrounds and social beliefs. It is through this context that we interpret meaning, not in isolation, but through shared understandings, practices, and language.

3. The basic generation of meaning is always social, arising in and out of interaction with a human community. The human community or culture we all belong to is an "indispensable guide to human behaviour" (Crotty, 1998, p. 53) and has its own system of symbols and teaches us how to see things and construct meaning. It guides us in the way we behave or take action and interact within the community, as well as dealing with meaningful realities that are interpreted and reinterpreted through social construction.

The participants in this study, being teachers, have their own meaningful realities that are culturally and historically derived through the knowledge they have constructed about how to teach students to learn. This reality is built upon a number of factors that influence their perceptions:

- their own experiences of learning as a student learning to learn

- their socially constructed realities are drawn from their interactions within and outside the context of schooling

- their interpretations and re-interpretations of how to teach students to learn as influenced by their professional membership of a community of teachers

The same meaningful realities that are individually constructed by teachers also exist when judging the learning and development of students. Teachers' understanding, practices and language used to assess student learning and development is constructed through their "apprenticeship of observation" (Heaton and Mickelson, 2002, p.51) by their interpretation and re-interpretation of the judgement of their own learning experiences at school, and the socially constructed realities of judging learning and development within the context of schools and the wider community.

These multiple meanings and understandings of how students learn, and the judgement of student learning and development by some teachers, forms the basis for constructing and providing the rational explanation behind the genesis of each teacher's seemingly pragmatic behaviour and whether or not teachers take these explanations for granted.

4.2.2   Guiding Framework

Constructionist epistemology supports a range of theoretical perspectives. These perspectives focus on how people construct their reality influenced by their values, attitudes and beliefs (Punch, 1998). Interpretivism used in this study is used to explore the values, attitudes and beliefs which influence people to act in a particular manner (Punch, 1998). It is by adopting symbolic interactionism as the guiding framework to direct the methodology that allows an exploration of how people define and act on those values, attitudes and beliefs emerging from

their meaning making (Blumer, 1969; O'Donoghue, 2006). The aim of this study is to explore how teachers and members of the Leadership Team of this school define and act on those beliefs emerging from their meaning making.

Symbolic interactionism is inextricably linked to constructionist epistemology, as both centre on the social construction of reality. It is the individual's interpretation and construction of meaning derived from their social interaction that empowers them to connect to shared understandings and meanings. This individual construction of meaning is formed through interpreting and modifying common symbols or beliefs (Charon, 2001). In order to reconstruct new meaning, there are a number of lenses that can interpret the conceptualisation of the research and the symbolic interactionism used in this study.

Symbolic interactionism is based on the social psychologist's work of Mead (1934) and extended by Blumer (1969) and they point out that this perspective encapsulates three basic tenets:

- human beings act toward things on the basis of the meanings that these things have for them in the natural world and the social world

- that meaning attribution is derived from, and arises out of, the social interaction that one has with others, which is always "emerging in a state of flux and subject to change" (Cohen, Manion & Morrison, 2011, p.20)

- meanings are aligned within the social context and interactions are modified through aligning actions by "taking the role of the other, by making indications to 'themselves' about how others might act, and then how they might act in certain circumstances (Cohen, et al., 2011, p.20)

Symbolic interactionism is a theoretical position within an interpretivist paradigm (O'Donoghue, 2007). Human action, viewed through an interpretivist paradigm is seen to be meaningful and "has to be interpreted and understood within the context of social practices" (Usher, 1996, p. 18). It is the action and reasons behind the actions, not the behaviour or the causes of that behaviour as argued by positivists, that distinguishes symbolic interactionism from other

paradigms. "In other words, actions are preceded by intentions, which arise out of perspectives, which individuals hold," (O'Donoghue, 2007, p. 29). Therefore, there exists different concepts of what is real, and it is these different "concepts of reality that can vary from one person to another" (Bassey, 1999 p. 43). The concepts of reality that this study explores, revolve around how teachers construct meaning about how students learn, how they judge that learning, and use data to inform their teaching and student learning. This provides the researcher the opportunity to "get inside the ways others see the world" (Neuman, 2000, p. 75), to interpret and to restructure the understandings of the participants (Schwandt, 2000). It is through reconstruction that new meanings, understandings, and perspectives of reality can be realised.

The ethnography of symbolic interactionism is for the researcher to "search out the insider's perspective" (Crotty, 1998, p. 76). Therefore, the implication is the need to consider the point of view of the participant or actor in that it is:

> …the actor's view of actions, objects, and society, which has to be studied seriously. The situation must be seen as the actor sees it, the meanings of objects and acts must be determined in terms of the actor's meanings, and the organization of a course of action must be understood as the actor organises it. The role of the actor in the situation would have to be taken by the observer, in order to see the social world from his perspective (Crotty, 1998, p. 75).

The perspective of the participant or actor can be interpreted through this type of interaction, but can only be interpreted through the symbols that humans share. As people are, "social, interactional, and symbolic by their very nature" (Charon, 2001. p. 35), language is seen by symbolic interactionists as the agreed upon symbolic system through which we communicate (Bassey, 1999; Crotty, 1998), and therefore make meaning. It is not only the meanings and symbols of the individual, but also the shared meanings through the interactions of its members that are significant in understanding the individual's construction of meaning. "Individuals and the context that individuals exist in are inseparable. Truth is tentative and never absolute because

meaning changes depending on the context of the individual," (Benzies & Allen, 2001, p. 544). There is the belief that humans should be regarded in the context of their environment (Benzies & Allen, 2001), and the context of this study is the school environment.

Teachers in classrooms respond internally to their understanding of how students learn, and then externally act upon these perceptions in the way they formulate judgements about the development and progress of that learning. "They also align their actions with the actions of others" (Cohen, et al., 2011. p. 20), where they act as others expect them to act and respond in a professional teaching work environment. This study examines the language and symbols by which teachers choose to explain their beliefs about how students learn based on principles for learning, and how they judge this learning with the use of assessment and learning data to substantiate these judgements. This construction of meaning emerged from the literature about teachers' beliefs about how students learn, and the judgements that teachers believe are appropriate when judging this learning.

Whilst individual and shared construction of meaning of the teachers and Leadership team in the context of this school's environment provides "concentrated action found in schools and classrooms" (Cohen, et al., 2001, p. 20), there is a "risk in interpretivist approaches", such as symbolic interactionism, to "put artificial boundaries around subjects' behaviour" (Cohen et al., 2011, p. 21). However, the selection of symbolic interactionism preserves the integrity of the situation in which the study is undertaken, i.e. teachers in classrooms with their students. The researcher in structuring the study and analysing the situation is "present to a much smaller degree than would be the case with more traditionally oriented research approaches" (Cohen et al., 2011, p.20). It is through preserving this integrity that this study is able to explore the perceptions, understandings, and meanings attributed to the judgement of student learning idiosyncratically developed by each individual teacher.

4.2.3   Methodology

To "uncover the interaction of the significant factors that are characteristic of this phenomenon" (Merriam, 1998, p. 29), it is important to understand the intrinsic and tacit beliefs that each teacher holds about how students learn and the judgements he or she uses to determine the level of development of that learning. This requires an in-depth investigation to gain insight, discovery, and interpretation of the research problem. Following the philosophical orientation of constructionism and the theoretical perspective of symbolic interactionism, this empirical inquiry is based on case study methodology to gain knowledge and understanding of how the Principal, Assistant to the Principal, Curriculum Leader and the teachers at this school understand how students learn, judgement of student learning, and the use of learning and development data for the purpose of improving student learning and teacher practice.

Case study methodology empirically investigates a contemporary phenomenon within a real life context by conveying in-depth understanding of the interpretations, and meanings being explored (Merriam, 1998). This methodology located within an interpretivist theoretical perspective is based upon an individual's construction of reality, and it is only through the explicit interaction between the researcher and the participants that these perspectives can be elicited and refined. For this study, involving one Catholic school, the methodology of a case study is used to explore some teachers' beliefs about how teachers understand learning, how they judge learning and use of learning and development data to improve student learning and teacher practice. Within this site, the engine room of the classroom is where teachers undertake the task of judging student learning and development, and it is here, that they should use data as a significant means of judgement to improve that learning. In this research, case study methodology, "the process of learning about the case and the product of that learning" (Stake, 1994, p. 237), serves a dual purpose. The first purpose of learning about the case will explore the meanings the Principal, Assistant to the Principal (Leadership Team) and Curriculum Leader hold about how students learn, and how they expect teachers to judge learning and development through the use of multiple

data gathering strategies across the school. This next step in learning about the case is to study the school's vision for learning (see Appendix 9), that was established with the foundation of the school ten years prior. The Principal, as foundation Principal, was one of a team established to formulate the schools' mission, vision, policies, procedures and practices for the school. The school's 'Vision for Learning' is accessible to all stakeholders, and its currency and alignment with changing approaches to learning and curriculum will be explored through learning about this case. In learning further about the case, it is necessary to explore current data regarding the school's policies and practices and the interpretations and meanings teachers at this school hold about how students learn, and how they judge learning and development through the use of multiple data gathering strategies. The second purpose will reflect upon that learning through analysing and interpreting data to generate any new learning or understanding.

In learning about the case, basic tenets of qualitative research are used to describe, understand, and explain the phenomenon through a systematic way of looking at the issue. This builds a rich and descriptive exploration about the context, activities and beliefs of the participants in an educational setting (O'Donoghue, 2007) that is "strong in reality" (Cohen, et al., 2011, p.146), and leads to a deeper understanding, interpretation and explanation of the phenomenon by the researcher.

This is achieved in case study methodology by utilizing various methods of data collection that enables the researcher to:

- explore significant features of the case

- create plausible interpretations of what is found

- test for the trustworthiness of these interpretations

- construct a worthwhile argument or story

- relate the argument or story to any relevant research in the literature

- provide an audit trail by which other researchers may validate or challenge the findings, or construct alternative arguments

(Bassey, 1999, p. 65)

Whilst case study methodology follows the interpretivist tradition of research in seeing the situation "through the eyes of the participants" (Cohen et al., 2011, p. 293), there are those that would argue that this method is "logically the weakest method of knowing" (Cohen et al., 2011, p. 293). A criticism of case study methodology is its inability to generalise the findings to the wider population (Cohen et al., 2011; Gomm, Hammersley, & Foster, 2000). A further criticism of case study methodology is that concrete, practical (context-dependent) knowledge is less valued than general, theoretical (context-independent) knowledge (Flyvbjerg, 2006). Guba and Lincoln (1985) note further limitations in the methodology: "case studies can oversimplify or exaggerate a situation; leading the reader to erroneous conclusions about the actual state of affairs … they tend to masquerade as a whole when in fact they are but a part - a slice of life" (p. 42). This case study does not make any claims of generalisability, but instead leaves this up to the reader to apply the research findings in other settings, only if they can be readily transposed. Issues of ethics, validity and lack of rigor are called into question by some regarding case study methodology as they argue that the subjective nature of this research is reliant on "the integrity of the researcher to select and present the evidence fairly" (Wellington 2000, p. 99). This concern has been linked to bias and therefore judgement is left to the reader to ascertain the "value or truth" (Wellington, 2000, p. 99) of the case under study.

Despite the inherent difficulties in relation to this methodology, which are not unique or exclusive, and are present in other forms of research, there are important advantages in that "the richness of the material facilitates multiple interpretations by allowing the reader to use his or her own experiences to evaluate the data, therefore serving multiple audiences" (Wellington, 2000, pp. 99,100). According to Merriam (1998, p.30) "this can bring about the discovery of new meaning" as "previously unknown relationships and variables can be expected to emerge … leading to a rethinking of the phenomenon being studied and insights into how things get to be the way they are" (Stake, 1981, p. 47).

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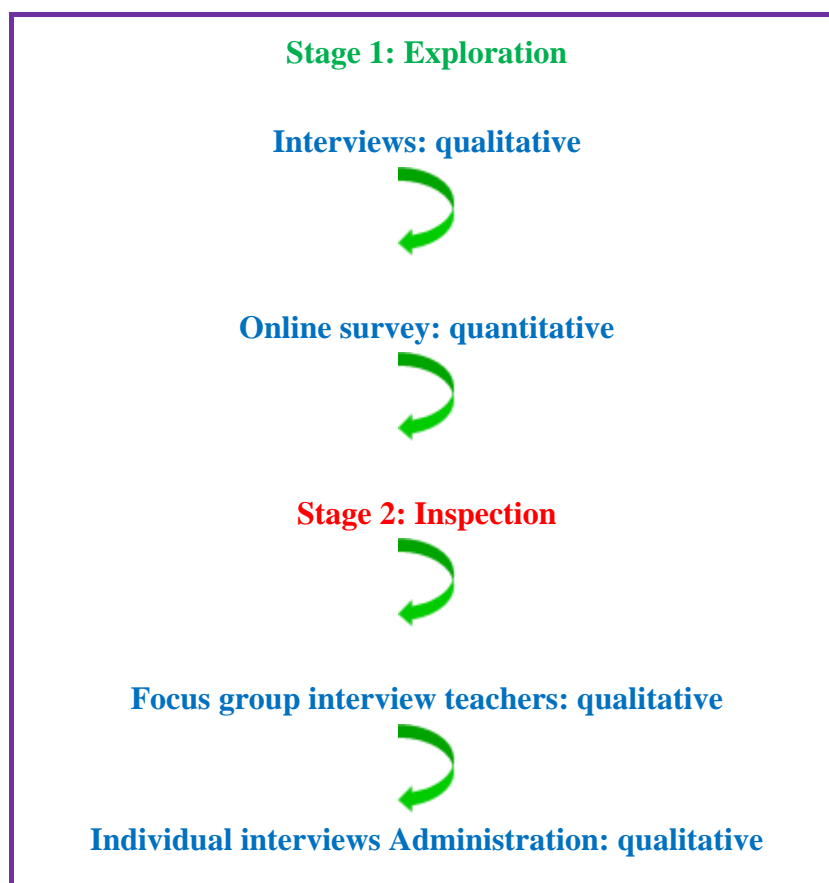Vicki Thorpe
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4.3   Research Methods

The collection, analysis, and interpretation of data in this study utilized several data collection methods that are both quantitative and qualitative. Quantitative research methods direct the types of questions asked in the study utilising close-ended approaches identifying set response categories (Creswell, 2014). Qualitative collection methods research the problem identified to establish a central idea. This central idea is determined through the use of open-ended questions asked of the participants to gain a sense of the "response possibilities"
(Creswell, 2014, p. 33)

It is through the use of qualitative and quantitative collection methods that data is interpreted and analysed using the theoretical perspective of symbolic interactionism in this study to explore an individual's construction of meaning through interpreting and modifying common symbols or beliefs (Charon, 2007), through a two-stage investigative process. This process recommended by Charon (2007) includes an "Exploration Stage" as well as an "Inspection Stage" (p.147). The initial Exploration Stage is where the researcher gains an early understanding of "what's going on around here?" (p.147), and the Inspection Stage focuses on specific issues identified during the Exploration Stage.

In the Exploration Stage of this study, there was a mixing or integration of both qualitative and quantitative data, whilst the Inspection Stage sought qualitative data only. In the initial Exploration Stage of the study, interviews with the Principal, Assistant to the Principal (APA) and the Curriculum Leader were conducted. This provided qualitative data with which to begin developing an understanding of the research question. This data, together with the literature combined to construct and use a theoretically-based and construct-specific on-line survey which employed quantitative measures. The use of the on-line survey was intended to enable the researcher to gather a mix of qualitative and quantitative data from participants as a way to inform the development of interview questions for the Inspection Stage of the study. The analysis and interpretation then informed the proceeding interviews in the Inspection Stage. The Inspection

Stage of the study used qualitative data in the form of interviews with a focus group, as well as one individual interview with teachers. The data from these interviews were then analysed and interpreted to inform the final interview with the Principal, APA and Curriculum Leader. The sequential progression of the both qualitative and quantitative data collection employed by the researcher is presented in Figure 4.1.

Stage 1: Exploration

Interviews: qualitative

Online survey: quantitative

Stage 2: Inspection

Focus group interview teachers: qualitative

Individual interviews Administration: qualitative

Figure 4:1:

Qualitative and quantitative data collection

This two-stage investigative process used specific data collection procedures as outlined in Table 4.2 below:

Table 4:2:

Data collection procedures in the two stages

Research Stage	Step in each stage	Research Method	Description and purpose of the method
Exploration Stage	Step 1	Document analysis	Review of school documents with relation to assessment to inform interview with the Leadership Team.
	Step 2	Individual interviews	Principal, APA and Curriculum Leader interviewed to ascertain their beliefs regarding the research question to support survey development.
	Step 3	Development and use of the on-line survey	Interview data from Step 1 together with the literature used to develop a theoretically-based and construct specific on-line survey sent to all teachers in the school to support interview question development for focus group interviews.
Inspection Stage	Step 1	Teacher focus group/individual interviews	Interview with teachers, representative of the range of year levels in the school. Interview data transcribed, coded and themes identified to take to Leadership team interviews.
	Step 2	Principal, APA and Curriculum Leader individual interviews	Final clarification of researchers' interpretation.

The first stage, the Exploration Stage of this study was conducted in Term 4, 2012, with interviews with the Principal, APA, and Curriculum Leader. In Term 1, 2013 a trial on-line survey was conducted and validated. The finalised on-line survey was sent to teachers for completion at the beginning of Term 2, 2013. The second stage of the study, of teacher focus group interviews were conducted in Term 4, 2013, and was followed by individual interviews with the Administration and Curriculum Leader. A detailed explanation of the data gathering procedures used in this study are outlined in the remaining sections of this chapter.

4.3.1 Document Analysis

Documents provide a useful resource in helping to provide information to understand the central phenomenon in qualitative studies (Creswell, 2014). The language and words used in this documentation is familiar to the participants, who have "usually given thoughtful attention to them" (Creswell, 2014, p. 245). This is evident in this school's *Vision for Learning and Teaching* document (see Appendix 9), where the foundational staff lay the basis for a shared understanding

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of learning and teaching to guide teachers, students and parents into the future. This document provides further comparative analysis of data from the online survey and interviews with the teachers and Leadership Team. What is important in analysing this document is the degree of significance given by the Leadership Team and teachers to its use and function over time, and the ways the ideas and concepts link to "practical action and sites of action" (Prior, 2008, p.231) through its "production, consumption (or use), and circulation" (Prior, 2008, p.231). The manner in which the Leadership Team and teachers use or do not use this document assists in determining the importance and significance they place on the meaningful messages contained within it.

4.3.2 Interviews

As a data-gathering strategy to elicit information so as to gain an understanding of the problem, individual semi-structured interviews were conducted with the Principal, Assistant to the Principal Administration and the Curriculum Leader at the beginning and the end of data collection. Interviewing is a data gathering strategy that is often closely aligned with constructivist epistemology and interpretivist theoretical perspective, as it provides interpretations of reality through the participant's construction of knowledge and meaning in a social situation. Semi-structured interviews enable the participants to share their personal narratives and "interpretations of the world in which they live" (Cohen et al., 2011, p. 409). For the researcher, it provides the opportunity for more in-depth exploration of the participants' own point of view, through discovering "the content of their minds - their beliefs, wishes, feelings, desires, fears, and intentions" (Merriam, 1998, p.72). It is a flexible and easily adaptive strategy that can be applied to a wide variety of situations (Punch, 1998). As Cohen et al., (2011) suggests, "An interview is not an ordinary, everyday conversation, as it has a specific planned purpose and direction so that the content focuses on the issues being explored" (p. 409). Semi-structured interviews differ from structured interviews in the openness of purpose (Cohen et al., 2011). From the point of view and understanding of the researcher, a semi-structured interview provides a planned frame of reference

for responses from participants, and the opportunity to use open-ended questions that make possible in-depth exploration of the research question.

The intention of the semi-structured interviews with Administration and the Curriculum Leader was to elicit information through a semi-structured framework with pre-determined questioning. In this way, the researcher takes a more active role in the process and attempts to access what is "inside a person's head" (Cohen et al., 2001, p. 411) making it possible to measure more thoroughly the knowledge, values, attitudes and beliefs (Cohen et al., 2011) of the participants. The semi-structured interviews gave the researcher the opportunity to delve deeper into the participants thinking and further clarify their knowledge and understanding.

The one hour interviews with Administration and the Curriculum Leader were conducted in Step 1 of the Exploration Stage of the study so as to develop a more sophisticated understanding in relation to the research question "What's going on around here?" (Charon, 2007, p.194). The interviews were audio-taped and transcribed. The data from the transcriptions were analysed and interpreted to then inform the construction of the on-line survey.

The second stage of the interview process, Step 1 of the Inspection Stage of the study involved a group of teachers, representative of the range of year levels across the school. This collaborative approach of interviewing allowed the participants to learn from each other's viewpoints, bringing multiple perspectives, and building knowledge around the research issue (Heinrich et al., 2000). Focus group interviews can provide a non-directive form of data collection that leads to an exploration of participants' feelings or opinions in a free flowing open ended discussion (Fontana & Frey, 1994; Gall & Borg, 1999). Focus group interviews are conducted by the researcher asking a small number of general questions in order to collect a shared understanding from several participants, as well as views from specific people (Creswell, 2008). The aim of conducting this focus group interview, in the Inspection Stage, was to gain further understanding and clarification of teachers' responses to the on-line survey by bringing together teachers who volunteered to participate, and were known to each other. Teachers were informed by the Principal

at a staff meeting of the focus group interview being conducted in-line with the study, and sought their voluntary participation. Six teachers from ranging from Prep to Year 7, and some of whom did not complete the on-line survey, volunteered to participate after school hours. This enabled the researcher to elicit responses from individuals, and appraise the interaction of the participants that according to Creswell (2008) "yield the best information" (p. 226). The session was approximately one hour in duration was audio-taped and supported by field notes and transcription for further analysis.

In the final stage of the Inspection Stage, the Principal, APA and Curriculum Leader were re-interviewed. This provided the researcher with the final opportunity to seek further clarification regarding any outstanding issues evidenced from the Inspection Stage teacher focus group interview. Each individual interview was audio taped, accompanied by supporting notes, with a transcription of the interview written immediately after each interview was conducted.

4.3.3 On-line exploratory survey

The Exploration Stage of this study collected qualitative and quantitative data. The qualitative data was collected through document analysis in Section 4.3.1 and individual interviews with the Principal, APA and Curriculum Leader as outlined in Section 4.3.2. This data, along with the literature surrounding the research question informed the development of the on-line survey. As the participants in this study were all digitally literate and had internet access via teacher allocated laptops, the on-line survey was delivered via email that directed the participant to the website location of "Survey Monkey"[11] (see origins of survey in footer). This method of delivery provided for teachers the opportunity to complete the survey at their leisure, at a time and place convenient to them. This product provided the tools for designing the questionnaire template, and for collecting and collating the data to aid in the analysis of the data by the researcher.

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[11] Survey Monkey is an online survey development cloud based company, founded in 1999 by Ryan Finley. Survey Monkey provides free, customizable surveys.

An on-line exploratory survey as a data-gathering instrument is able to be administered without the researcher present. Both qualitative and quantitative items can be used, where open-ended qualitative questions elicit from the participants their life experiences and shape their meanings in the cultural context of a school environment (Denzin & Lincoln, 1994).

There are however, a number of advantages cited in the literature regarding the use of internet-based questionnaires in comparison to paper-based questionnaires, including:

- reduced time to distribute, gather and process data

- participants can respond in a time suitable to them

- it reduces the effects of the researcher on the participants' responses

- human error is reduced in entering and processing the data

- a more attractive format than paper-based questionnaires

- response rates are generally higher than conventional methods

- quicker response time

- analysis is more straightforward

- responses in web-based surveys show fewer missing entries than paper based

- because of volunteer participation (i.e. an absence of coercion), greater authenticity of responses may be retained

(Cohen et al, 2011, p. 280)

This theoretically-based, construct-specific survey was significant in the Exploration Stage of the study, and a copy of the Improving Student learning and development Survey (ISLDS) is attached as Appendix 6.

The on-line survey was developed using the intuitive-rational approach for instrument design. Goldberg and Hase (1967), and later (Frazer, 1986), identified this multi-step model as a valid approach. This validity "rests partly on the subjective opinions of the investigators and other experts" (Dorman & Knightley, 2006, p.50). In the development of this on-line survey the

investigator is the researcher and the other experts are drawn from the literature in Chapter 3 and the document analysis.

The on-line survey using the intuitive-rational approach to develop constructs used three recognized procedural steps at outlined by Dorman and Knightley (2006, p. 50):

- identification of salient dimensions

- writing sets of test items that are linked conceptually with each salient dimension

- field testing the questionnaire

The first step involved the identification of the salient dimensions through individual interviews with the Leadership Team, as well as a review of the literature. This, along with the researchers' academic expertise, formed the writing of the test items aligned with the salient constructs. In the case of the ISLDS this was a 10 point Likert scale indicating 'most like me' – 1-5: indicating least like me; 6-8: indicating moderately like me, and 9-10: most like me. A five-point Likert scale is more commonly used in surveys and questionnaires, however it is acknowledged that different scales are used to meet different purposes. A five or three-point Likert scale may be used if the respondents are under constraints of time or to prevent them from becoming frustrated or demotivated (Preston & Coleman, 2000). However, "where considerations of face validity are regarded as paramount, it may be important for the respondents to perceive the constructs as allowing them to express their feelings adequately, and in such cases may be most appropriate" (Preston & Coleman, 2000, p.13). The ten-point scale rated ten as 'most like me'. The last step involved field testing the on-line survey to a sample of eighteen classroom teachers from other Brisbane Catholic Education schools to ensure the use of context-based terms, readability of the items and ease of interpretation. The pilot questionnaire (see Appendix 5), sought the recommendations of these teachers to improve the face validity of the ISLDS. One teacher commented that whilst the sections of the survey were easily navigated, Section 2 relating to 'Principles of Learning' was somewhat confusing and was uncertain upon the first reading of what was being addressed. She indicated that overall, the questions in the ISLDS challenged her to think

about her teaching and data gathering techniques. She thought it would be a valuable tool for the staff at her school to complete and then discuss at a staff meeting. From this teacher's comment, improvements were undertaken to the final form of the ISLDS, Section 2.

The ISLDS, following the intuitive-rational approach of instrument development, was divided into five distinct sections. The first five items in Section 1 of the ISLDS (see Appendix 6) elicited demographic responses regarding the teachers' years of teaching experience; qualifications; age range; and whether they taught in the upper, middle or lower primary section of the school. The second section with a qualitative response followed by 21 items focuses on teachers' beliefs about student learning. The qualitative response beginning this section was an opportunity to have teachers reflect upon their beliefs about how student's learn within a school environment. This form of an open-ended question was intended to elicit an impartial response that was not informed by subsequent questions of the survey. The third section with 33 items provided a framework for exploration of core principles for learning, drawn from the literature about how students learn. Section 4 focuses on teacher judgement of student learning and contains 55 items. The final section, Section 5 with 27 items, concentrates on teachers' use of data informing student learning and development. The high proportion of text in the survey reflects the magnitude of current research in the field, moreover, the number of questions in each section provided for analysis of teacher priorities on how students learn and their teaching practices supporting the interpretivist design of this study. For full discussion of the development of the on-line exploratory survey see Chapter 5.

4.4   Participants

A case study is a "bounded system" (Smith, 1978; Stake, 2000) and is specific through the choice of participants, place and time. This case study identifies the boundaries and the categories of groups chosen for the study. It involves one primary school with a teaching staff of twenty-two. With this in mind, "non-probabilistic" (Merriam, 1998, p. 60) "purposive" (Trochim, 2006) participant selection was employed. The reason for this participant selection is to study the

understandings, perceptions and actions of the participants to "discover, understand, and gain insight" (Merriam, 1998, p. 61), as most can be learned from purposive participant selection.

The purposive selection of the school was recognised within the Brisbane Archdiocese of Catholic schools as a veritably young school, having been established just ten years previously. In the establishment of a new school, it is an expected procedure that the foundation staff inaugurate a vision for learning and teaching to inform the future direction of the school. Due to this, it was recognized that this school might well be "information rich" (Patton, 1990, p. 230) with respect to the school establishing a set of core beliefs, principles and practices to guide learning and teaching. As the researcher had worked with the Principal at another school, and having a good rapport with him, it was thought that by situating this study within this research site, the researcher would be more likely to discover, understand and gain insight from a school from which most could be learnt (Merriam, 1998).

Within this research site, key personnel, including the members of administrative team, namely the Principal and Assistant to the Principal Administration (APA), the Curriculum Leader and the classroom teachers (Years Prep -7) were invited to participate in the study. The inclusion of the Principal, APA, and Curriculum Leader in the study gives a rich diversity of perspectives and experiences across the school, and provides the researcher with an understanding from a different perspective that is representative of a "system" perspective regarding the research problem. Their inclusion provides the opportunity for contradictory or overlapping perceptions of the research problem. Description of each participant group follows.

4.4.1 Leadership Team

The members of the Leadership Team in this school include the Principal, APA, and Assistant to the Principal Religious Education (APRE). They are responsible for leading a staff of 22 classroom teachers from Prep to Year 7. The Principal has a longstanding career in this role, and has been a principal in previous schools. He took on the Principal's role in this school, as it

was a new school to this area of Brisbane, and he wanted the experience of being the founding principal.

The APA, whilst an early career member of the Leadership Team, is not directly responsible for leading teaching and learning in the school, however she has responsibility, along with the Principal, in providing instructional leadership to ensure the school provides effective teaching and learning aligned with BCE's Strategic Renewal Framework.[12]

The Curriculum Leader, whilst not a member of the Leadership Team, is considered an advisor to Administration in all matters pertaining to curriculum. In this role, the Curriculum Leader attends term meetings as part of a network of Curriculum Leaders from their particular region within BCE. These meetings conducted by BCE Education Officers, provide professional learning and updates on the latest curriculum issues. It is an expectation that this information is then disseminated by Curriculum Leaders to provide currency and direction in relation to curriculum matters, for schools to continue to improve in the areas of learning and teaching. Many Curriculum Leaders, including the one from this school, participate in cluster meetings that are organised through an interested group of Curriculum Leaders to pursue further discussion and learning in specific areas.

Whilst all of these roles are significant in supporting teachers and students within the school, the Principal, APA and Curriculum Leader are considered the mainstays in terms of directing and supporting teaching and learning within the school. A one-on-one semi-structured interview with the Principal, APA and Curriculum Leader was conducted during the Exploration Stage of the study to formulate the on-line survey.

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[12] BCE's Strategic Renewal Framework outlines a set of inter-related processes for planning, review and improvement for schools. The School Renewal Cycle incorporates a set of inter-related processes, whereby a school connects with its beliefs and values, reflects upon the past, to enhance plans to take action for future improvement.

4.4.2 Teacher participants

The study sought the participation of all 22 classroom teachers from the school which represented a wide variance of ages, experience, and qualifications. In an effort to gain the approval from a wide range of teachers in the school, so as to ensure maximum representation, a presentation of the intentions of the study was delivered to a staff meeting. At this meeting all teachers were invited to participate. The nature of the study and the time commitment required of teachers was discussed, and all but one teacher consented to participate. At the conclusion of the study more than 50% of the teachers in this school participated.

4.4.3 The Researcher

In this research study, as the primary instrument of collection and analysis of the data (Merriam,1998), the researcher brings attributes, biases, assumptions, expectations and a personal history that sets apart my perceptions of data differently from another researcher (Denzin, 1989). It is necessary therefore to clarify and explain my history and experience that might influence the research and its findings (Merriam, 1998). As has been previously detailed in Chapter 2, I am employed by Brisbane Catholic Education as a Curriculum Leader in the Brisbane Archdiocese, and as such, have worked for 15 years in this role. From 2007, my role expanded across multiple schools.

The key function of my role is to provide support for teachers in working collaboratively with them, but to also build their capacity through improving practice and pedagogy, and leading them in current curriculum innovations and change. I have the responsibility to represent their needs, but also report concerns or problems to the Principal of each school and members of respective Leadership Teams.

Working across schools, with a variety of teachers provides a range of contexts and practices, but more importantly, a "cultural intuition" (Dance, Gutiérrez, R., & Hermes, 2010, p.332) develops over time that has enabled me to understand what it is like to be in the participant's shoes, given my close association and experience (Dance et al., 2010). This reciprocity provides a

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connection with the participants and a richer understanding of their contexts and the opportunity to create new findings and knowledge in the research process.

Whilst this connection with the participants could be considered an advantage as a member of the Leadership Team at the schools I worked in, my role carried some perception of authority, and was considered to be problematic in conducting the research for this study. In working with these teachers for many years, there were lengthy discussions during planning sessions around the importance of using data to inform student learning and development and improve their teaching practice. Whilst I was aware that very few teachers used data effectively to this end, they were well versed in the need for this to be incorporated as part of their planning and practice. My concern was that the responses from these teachers for the purposes of this study would be what they knew I wanted to hear as Curriculum Leader, and not reflective of what they were actually doing in their classrooms.   Consequently, the research was conducted in a school where I was not a member of staff. This decision ensured that the responses from the Leadership Team and teacher participants were conducted in a professional, friendly manner, based upon mutual respect, and not in a supervisory or authoritative capacity.

4.5   Data Analysis and Interpretation

To generate new understandings using a case study methodology, a diverse range of data gathering strategies provides the evidence from which the researcher draws conclusions. These strategies may include collecting data on the nature of the case, historical background, physical setting, other influencing contexts, and informants who can provide insider information on the case (Stake, 2000, p. 438-439). The range of data used in this case study included semi-structured individual interviews; a web-based on-line survey tool "Survey Monkey", and a focus group interview.

4.5.1   Data analysis and the interpretation within the quantitative approach

The steps taken in this study in the process of analysing data using a quantitative approach was firstly to prepare and organise the data for analysis. The next step was to analyse the data to

explore the descriptive statistics that indicated general tendencies in the data. The third step was to analyse the frequency distribution of the data. The fourth step involved the interpretation or "representing the results in tables, figures and reporting results in a discussion (Creswell, 2008, p. 204). In the final step, the fifth step, in a presentation of the results the researcher analyses the data with a view to summarising it so that patterns emerge to create themes to support the qualitative data.

Within this study, the first step of the quantitative approach was conducted in the Exploration Stage. Data was prepared and organised for analysis using "the most widely used statistical platform for social sciences" (Cohen et al., 2011, p. 604), the Statistical Package for the Social Sciences (SPSS). This software program provided the frequency distribution of the items that permitted the interpretation of the data and the construction of tables to report the results. These results were then discussed, which led to summarising the findings in light of the research questions in Chapter 5, Section 5.

4.5.2   Data analysis and the interpretation within the qualitative approach

The steps taken to analyse and interpret qualitative data involved a constant comparative method (Cohen et al., 2011). The process of analysing and interpreting qualitative data begins with organising and preparing the data; exploring the data and then coding the data; developing themes from the codes; interpreting the findings and finally validating the accuracy and credibility of the findings.

The initial preparation of the data for analysis was to organise and transcribe the participants' audio interviews. A general sense of the data was gleaned through the initial reading. In recording the responses to the research questions, relevant text was recorded per column one in Table 4.3. In the second reading of the transcripts, concepts were drawn from the data through an open coding process involving the "breaking down, examining, comparing, conceptualising and categorising data" (Strauss & Corbin, 1990, p.61). These codes represented either words actually spoken by the participants or broader educational concepts. Through closely analysing, questioning

and exploring the categories of concepts of these codes, similarities and differences can reveal "one's own and others' assumptions about a phenomenon, which can in turn lead to new discoveries" Strauss & Corbin, 1990, p. 62). An example of coding is identified in the second column in Table 4.3 below. Once overlapping codes were identified, they were aggregated to formulate themes. These themes were then interconnected with themes from other data sources as represented in the third column in Table 4.3 below. The final step in the qualitative approach is to report and represent the findings in the form of a narrative discussion or theory (Creswell, 2008) as evidenced in the fourth column in Table 4.3. It is from this stage that the researcher "steps back and forms some larger meaning about the phenomenon based on personal views, comparisons and past studies, or both" (Creswell, 2008, p.264). Table 4.3 below indicates an example of selecting text, and applying codes with supporting quantitative data to identify themes permitting the development of theory.

Table 4:3:

Text to codes, theme identification, and development of theory

Research question: To what do you attribute your beliefs about how students learn?

Selecting relevant text	Coding	Theme	Theory
Curriculum Leader: Well I think initially or certainly from my own experiences, the things I've learnt best or that has stuck with me and that's informed the way students learn that informs my experience as a teacher. Things that I've tried and things that students have found most enjoyable or have had best effect at the end.	Personal experience Informs practice Work in the classroom	Beliefs can be attributable to personal experience, as well as experience in the classroom.	Teacher beliefs remain unchanged without social interaction to establish a cultural norm of shared beliefs and understanding.
On-line survey Item 7: Life experience has influenced my beliefs about how students learn – 5 out of 9 teachers agreed this was "most like me" with a 9 or 10 on the Likert scale.	Personal experience		The social world with symbols such as language, gives attribution of meaning to individual constructs of what it means to be a teacher.
On-line survey Item 7: Working in the classroom has influenced me about how students learn - 7 out of 9 teachers agreed this was "most like me" with a 9 or 10 on the Likert scale.	Work in the classroom		Individual teachers' beliefs are constructed in a social context with interactions between place and people, and are drawn from their alignment with the actions of others.

For further text to codes, theme identification, and development of theory –

see Appendix 3.

4.5.3 Data analysis and interpretation between the quantitative and qualitative data approaches

Beyond the constant comparative method (Cohen et al., 2011) adopted by this study, it also follows the model of supporting a "first, second and third-order interpretation of data" (Neuman, 2007, p.160). These involve first-order interpretation that is the interpretation from the viewpoint of the participant. Second-order interpretation is from the viewpoint of the researcher, and third-order interpretation is the researcher assigning general theoretical significance to the findings.

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The "first-order interpretation" (Neuman, 2007, p.160) in this study involved the Principal, APA, and Curriculum Leader in understanding their perceptions of the four sub-research questions. It was from these perceptions, that the researcher identified common elements. These elements were then linked with the literature, and this led to the construction of the on-line exploratory survey. The first order interpretation of the data is identified and displayed in Chapter 5. The second and third order interpretations of the data (Neuman, 2007) are applied in the second stage of the study. In this stage the data is examined to begin to form "an in-depth understanding of the central phenomenon through description and thematic development" (Creswell, 2008, p. 254). These themes were developed through the analysis and interpretation of data from the teacher focus group interview and a second interview with the Principal, APA and Curriculum Leader. This second-order interpretation is also displayed in Chapter 5 of the study. The "third-order interpretation" (Neuman, 2007, p.60) is the final step in the second stage of the study. This links the themes to the theoretical significance and propositions as evidenced in Table 4.3.

In Figure 4.2 a diagrammatic representation of the processes involved in the collection, analysis, and interpretation of the data in both the Exploration and Inspection Stages of the study is represented, as well as the continuous flow of interpretation and understanding of the research site. It also indicates the layering of first, second- and third-order interpretations of data analysis in each stage of the study.
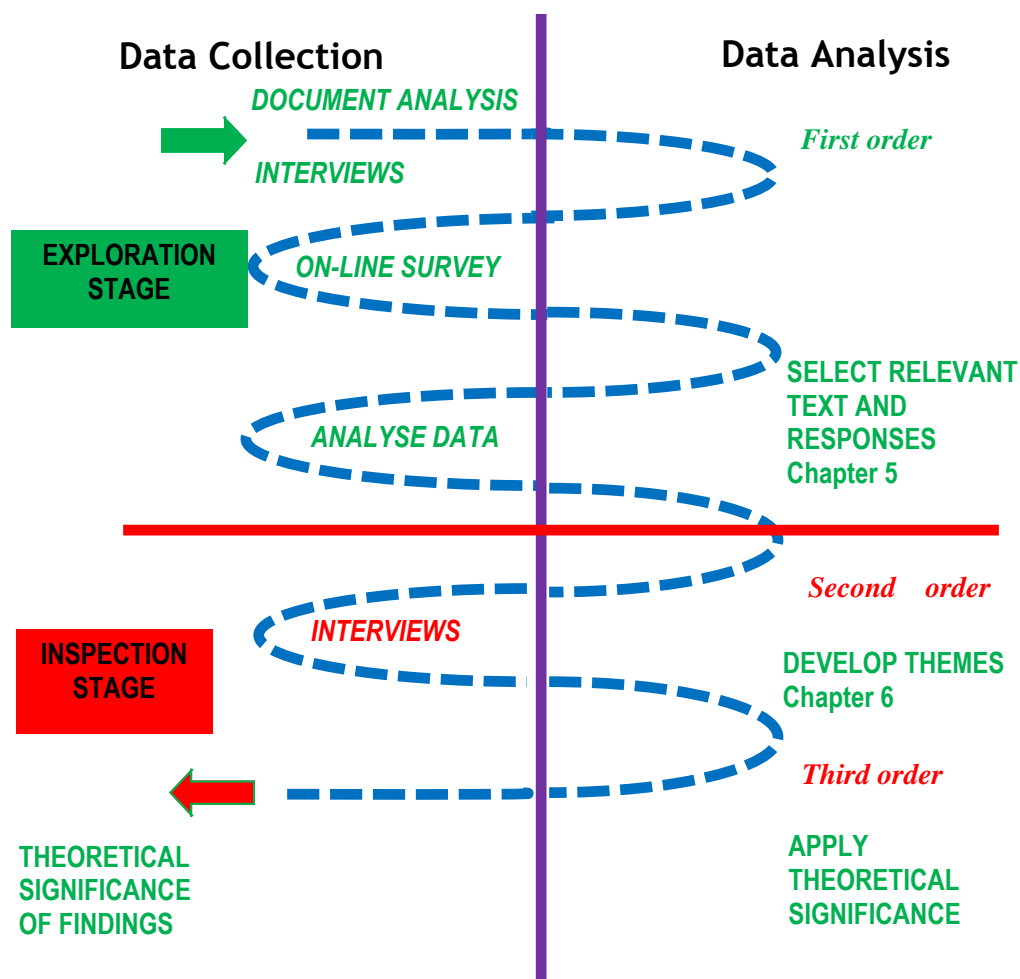
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Data Collection **Data Analysis**

DOCUMENT ANALYSIS

INTERVIEWS

First order

EXPLORATION STAGE

ON-LINE SURVEY

SELECT RELEVANT TEXT AND RESPONSES
Chapter 5

ANALYSE DATA

Second order

INSPECTION STAGE

INTERVIEWS

DEVELOP THEMES
Chapter 6

Third order

THEORETICAL SIGNIFICANCE OF FINDINGS

APPLY THEORETICAL SIGNIFICANCE

Figure 4:2:

Interactive Model of Data Analysis and Interpretation

The scale and scope of the data collection approaches is provided in Table 4.4 below:

Table 4:4:

Data Collection Approaches

Data Collection Instruments	No. of participants	Length of Time Taken	Transcription processes	Time taken to administer data gathering instruments
Semi-structured interviews-Leadership Team: Exploration Stage	3	3 x 1 hour	Constant comparative method	3 hours
On-line Survey: Teachers	8 fully completed	1 hour	Frequency analysis	8 hours
Semi-structured interviews-Teachers: Inspection Stage	6	1.5 hours	Constant comparative method	1.5 hours
Semi-structured interviews – Leadership Team: Inspection Stage	3	3 x 1 hour	Constant comparative Method	3 hours

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4.6   Trustworthiness

It is important in educational practice to trust educational research that is valid, reliable and ethically produced (Merriam, 1998). The establishment of trustworthiness is "especially important to professionals in applied fields such as education, where practitioners intervene in people's lives" (Merriam, 1998, p.198). In using an interpretivist approach and case study methodology, it is the trustworthiness of the findings and inferences of the study that provide "credibility, plausibility, dependability and transferability" (Cohen et al., 2011, p. 181). These are achieved through the "methodological decisions about design strategy and method that the researcher makes, ensuring that these decisions are logical, sound and feasible and may be inspected by the public" (Lincoln, 2005, p. 162). Data-collection methods employed in this study utilise both qualitative and quantitative methods, resulting in a fuller representation of the developing themes and subsequent assigning of theoretical significance.

The model of data analysis and interpretation method in Table 4.2 delineates stages of the research. This gives a clear map of all steps in the analysis process that provides a chain of evidence supporting the trustworthiness of the conclusions drawn. This model was specifically supported by the prolonged engagement with the data and observations of the salient themes. The findings from interview data and on-line survey data were taken back to the participants for confirmation and checks of the themes, to ensure the correction of any bias by the researcher and to determine the accuracy and therefore the trustworthiness of the findings (Creswell, 2008; Glesne & Peshkin, 1992). These processes contribute to an audit trail that provides rich, thick descriptions that support and corroborate the findings (Cohen et al., 2011; Lincoln & Guba, 1985).

4.7   Ethical considerations

The research of this study was conducted ethically and in accordance with the guidelines of the Australian Catholic University Human Research Ethics Committee, as well as bounded by ethical approval from Brisbane Catholic Education Research Committee. The Principal of the

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school participating in the study was approached in 2012 and approval to proceed was defined by agreement. The Principal, Assistant to the Principal Administration, along with the Curriculum Leader received an information letter and consent form (see Appendix 2 for information letter and consent form) and agreed to participate in the study. The researcher attended a staff meeting where teachers were openly informed of the purpose of the study and all in attendance were invited to participate. All members of staff were given information letters and agreed to participate by signing the written consent form (see Appendix 2 for information letter and consent forms). The participants self-selected on a voluntary basis. They were advised that they could withdraw from the study at any time without explanation, with their identity protected. In addition, participants involved in the study were given codes to further protect their identity.

Ethics approval documentation from the Australian Catholic University Human Research Ethics Committee, as well as ethics approval from Brisbane Catholic Education is contained in Appendix 1. The ethical integrity of the study was further ensured by the secure and safe storage of data in accordance with ACU protocols.

4.8 Conclusion

The purpose of this study is threefold: (1) to explore some teachers' understanding of how students learn; (2) the judgement of that learning; and (3) the use of learning and development data to inform student progress and achievement. An interpretive paradigm of research incorporating constructionism and the theoretical perspective of symbolic interactionism informed the data collection and analysis. This chapter outlined and justified the two-stage approach consistent with this symbolic interactionist perspective. These two stages incorporated quantitative and qualitative methods for data collection. Case study methodology was selected to guide the research design to gather rich, thick descriptions from the participants of the study.

Through the Exploration Stage of the study, a one-on-one interview with the Leadership Team and the Curriculum Leader (see Appendix 4) led to the construction of a theoretically-based construct-specific on-line survey. From the analysis and interpretation of the data in the

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Exploration Stage, one-on-one interviews and a focus group interview with teachers were conducted in the Inspection Stage of the study to further interrogate the data. The iterative and interactive process of data collection is in Section 4.5 and the analysis of that data is represented in Figure 4.2. The issues of trustworthiness in Section 4.6 and ethical considerations in Section 4.7 were then addressed. In elucidating the research method, an understanding of the situated, meaningful realities of teachers' interpretations and perspectives of student learning and the judgement of their learning and development can be explored.

The following chapter, Chapter 5, gives an account and justification of the Exploration Stage of the study through focusing on the interviews conducted with the Leadership Team and the Curriculum Leader, and the subsequent construction and validation of the on-line survey.

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Chapter Five - Exploration Stage – Development and Use of the Improving Student learning and development Survey

5.1   Developing the improving student learning and development survey

The purpose of this research is to explore some teachers' beliefs about how students learn, the judgement of student learning and the use of learning data for the purposes of improving student learning and teacher practice. During this first stage of the study, the Exploration Stage, the researcher developed and used an on-line survey. This chapter provides an account and justification of the development of that survey titled *Improving Student learning and development Survey* (ISLDS – see Appendix 6 as discussed in Section 4.3.2). In conducting the survey, the researcher was able to begin to explore the case under examination by exploring as Charon (2007) says, "What's going on around here?" (p.147). As outlined in Chapter 4, this study follows the theoretical perspective of symbolic interactionism. In line with this perspective a two-stage research design of "exploration" and "inspection" (Charon, 2001, p.208) was used by the researcher in order to collate the data and then identify specific issues to take to the next stage of the study. Consistent with this approach to the research, Section 5.2 details the development of the survey through the process of bringing together the relevant literature, as well as the data that was gathered from the document analysis of school documents, semi-structured individual interviews with the Principal, Assistant to the Principal (APA) and Primary Curriculum Leader. These data sources were used to develop three open ended qualitative questions and 10 constructs consisting of 138 items that make up the ISLDS.

Section 5.3 reports on the use of the ISLDS where descriptive statistics and qualitative responses for individual items in Sections 2 to 5 are displayed. These descriptive statistics provide an analysis of the teachers' responses to each item with a view to summarising the data so that patterns can emerge to create themes. The themes that emerge from interpreting the qualitative

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responses attach meaning and significance to the data. At the end of each section there is a series of issues for further investigation. Section 5.4 concludes this chapter by detailing the issues for further discussion at the conclusion of the Exploration Stage, and sheds light on key issues to take to the next stage of study, the Inspection Stage discussed in Chapter 6.

5.2   Development of the ISLDS

In this Exploration Stage, the researcher identified the underlying coherence or sense of meaning from the interview data, this, along with the review of the literature informed the development and validation of a theoretically-based and construct-specific on-line survey. Analysis of this context-specific data supported the development of the on-line survey. Consequently, the language used in the on-line survey was familiar to the teachers working within the Brisbane Catholic Education system and the school's structures, systems and practices.

The initial development of the ISLDS was drawn from: the constructs emerging from the review of the literature; anecdotal evidence gleaned by the researcher while working with teachers in an educational climate that demands the use of data to inform student learning and development; and analysis of interview data collected from the Principal, Assistant to the Principal Administration (APA) and the Curriculum Leader during individual semi-structured interviews. The four sub-questions of the study led to the semi-structured interview questions:

1.   What beliefs do teachers in one BCE primary school hold about how students learn?

2.   What principles for learning do these teachers base their beliefs upon?

3.   How do these teachers judge student learning and development?

4.   How do these teachers use learning and development data to improve student learning and inform their teaching practice?

As indicated in Table 5.1 below, the first five questions in Section 1 of the ISLDS elicit responses regarding demographic information such as: the teachers' years of teaching experience; qualifications; age range; and whether they teach in the upper, middle or lower primary section of the school. The purpose of these questions was to provide further demographic context for teacher

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responses. The second section, with one qualitative response followed by 21 items focuses on teachers' beliefs about student learning. The third section with 33 items drew on a framework of core principles for learning drawn from the literature about how students learn. Section 4 focussed on teacher judgement of student learning and development and contained 55 items. The final section, Section 5, with 28 items on the ISLDS and two qualitative questions, concentrated on the teachers' use of data to inform student learning and development (see Appendix 6 for a copy of the ISLDS).

Table 5:1:

Constructs and related items of the initial form of the ISLDS

Section 1	Demographic Data		
Section 2	(Qualitative)	Beliefs about how students learn	1
	1	Influences in establishing beliefs	2-10
	2	Role of teacher	11-22
Section 3	3	Principles for learning	23-55
Section 4	4	Teacher judgement of learning personal	56-78
	5	Teacher judgement of learning school	79-100
	6	Assessment for learning principles	101-110
Section 5	7	Measuring progress	111-123
	8	Different types of data	124-134
	9	Importance of using data	135, 136
	10	Data to inform stakeholders	137-139
	(Qualitative)	Ways to improve data use	140, 141

The 138 items (excluding the demographic data and qualitative questions) of the ISLDS were rated against a ten-point Likert scale, and the participants were forced to respond to each item. The ten-point scale rated ten as 'most like me'. There were three open-ended items that provided an opportunity for teachers to give a written response in Section 1, Item1; and Section 5, Items 140 and 141.

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5.2.1 ISLDS: Section 2

This section relates to the first sub-question of the research question and explores some teachers' beliefs about how students learn. The first construct in this section sought qualitative responses regarding teachers' beliefs about student learning.

Construct 1: Beliefs about how students learn. Within the ISLDS, this theoretical construct was identified as an important component that provides evidence of certain beliefs and understandings held by teachers that are related to desirable student outcomes (Kagan, 1992). Teacher beliefs about how students learn not only affect student behaviour and performance but also their own behaviour, which in turn affects their teaching practice as well as student learning (Chan, 2001; Clark & Peterson, 1986; Marland, 1994; Richardson, 1996).

The beliefs associated with this construct were identified during the interviews conducted with the Principal, APA, and Curriculum Leader. The Principal believed that whilst learning is a cognitive process, it must be purposeful and connected to the real world, and that teacher beliefs "absolutely" have an effect upon student learning. He stated that, "It is the teachers' task to ensure that they create a learning environment that promotes interest, purpose, and meaningful activities for effective learning to take place." The APA defined learning as a 'journey' where students are encouraged to investigate, therefore gaining new knowledge and experiences. When asked whether teachers' beliefs have an effect upon student learning, she responded, "Most certainly. If teachers believe that students learn in a rote manner where they must sit down and listen to what the teacher has to say, then that is only going to work for a number of students and it is not going to allow for the creative thinkers in the classroom to have those opportunities to develop and stretch their knowledge and thinking".

The Curriculum Leader believed that learning is the process by which you take on new information or develop new understanding or new skills. In responding to whether teacher beliefs had an effect on student learning, she stated, "Absolutely, I think that is foundational. The way

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you think people learn is the way you're going to present Information and give them opportunities or not depending on how you think it's best done*".*

The review of the literature and responses from the Leadership Team in relation to this construct led to the *Qualitative Question – Item 1* in the ISLDS:

Item 1: How do you believe students learn within this schools' environment?

The remaining responses in Constructs 1 and 2 in this section of the ISLDS elicited responses on 21 items using a Likert scale format. These constructs are listed in Table 5.2 below.

Table 5:2:

Constructs and items for the development of the ISLDS – Section 2

Construct	Name of Construct	Item/s
1	Influences in establishing beliefs	2,3,4,5,6,7,8,9,10
2	Role of teacher	11,12,13,14,15,16,17,18,19,20,21,22

Construct 1: Influences in establishing beliefs. This construct examined the influencing factors attributing to the beliefs that teachers hold about how students learn. Pajares (1992) found beliefs to be a 'messy construct,' and much of the research is drawn from inference as beliefs are often tacit making it difficult for teachers to articulate (Nespor, 1987; M. Rosenfeld and S. Rosenfeld, 2008). There are many suggestions in the research about the source of these personal theories from one's upbringing, a reflection of life experience, and the results of socialisation processes in schools (Chan, 2001; Nespor, 1987; Raths, 2001; M. Rosenfeld & S. Rosenfeld, 2008).

Articulating the factors they attribute to their beliefs about how students learn, after members of the Leadership Team were asked the question, "What has had the greatest influence upon you in establishing your beliefs about how students learn?*"* the Curriculum Leader stated:

Well, I think initially or certainly my own experiences, the things I've learnt best or that has stuck with me have informed my teaching and the way students learn informs my experience as a teacher. Things that I've tried and things that students have found most enjoyable or have had best effect at the end. Then the other part would be listening to other professionals,

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going to a lot of professional development or reading and expanding my repertoire, I suppose, of understanding.

The APA identified experience in the classroom, literature, and research as influencing her beliefs about how students learn. She also recognised a shift in her beliefs from her early classroom teaching. Her earlier belief was influenced by her pre-service training that supported the behaviourist viewpoint that learning and knowledge were to be transmitted. She acknowledged that she used far more teacher-directed approaches with little student-led or interactive opportunities. Following a constructivist viewpoint, and in light of current theory and practice, she has altered her thinking and practice to align with an inquiry/investigative approach to learning that has led to greater success in engaging all students in their learning, and hence improved student learning and development.

In drawing upon the research literature, school documents and preceding interview analysis, the demographic items and items for Construct 1 are provided in Appendix 6: ISLDS, Demographic Data and Section 1. Full details of each item is also provided in 5.4: Use of the ISLDS.

Construct 2: Role of Teacher. This construct of items was drawn from the work of Jordan, Lindsay, and Stanovich (1997) and M. Rosenfeld & S. Rosenfeld (2007). These researchers based their investigation on the premise that teachers differ in their implicit theories of the nature of teaching and consequently act in different ways to foster learning. This raises the question: what do teachers believe is the role of a teacher?

In interviewing members of the Leadership Team in relation to this construct by answering the question: *What do you consider is the role of a teacher?* The APA stated:

If teachers believe students learn in a rote manner, and everyone has to sit down and listen to what I have to say, that's only going to work for a number of children. It's not going to allow for the creative thinkers in the classroom or give them the opportunities to develop and learn and stretch their knowledge.

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And

I think the role of the teacher is as facilitator, to scaffold the learning and provide opportunities and experiences for the children. I don't believe the teacher has all the answers, especially in this day and age when children have done a lot more research on topics that they like, and they know a lot more than teachers. They know a lot more about technology, most likely more than I do. I think the role of the teacher is to teach the children how to learn, not teach them what to learn because if they know how to learn then they are going to continue to do this the whole of their lives. It's not so much about the content; it's more about the process and being able to take new knowledge on-board.

The Curriculum Leader mirrored many of the same beliefs about the role of the teacher. The following statement outlines some of these:

I think the role of the teacher is as facilitator of student's learning; to scaffold things for students so that they're helped through the process, but enable students to develop their own learning which is going to be different for every person. They're all going to start at a different point, and probably all going to finish at a different point, so being flexible enough to be able to provide opportunities for each student to move forward.

These sentiments were also reflected in the response by the Principal who stated that the role of a teacher was to be "the facilitator; the tutor; the motivator; the inspirer; the enabler; the resource – the person who can help children connect the dots." These responses suggest that these school leaders are working together to establish common beliefs, which is in contrast to the findings of Jordan, Lindsay and Stanovich (1997) and M. Rosenfeld and S. Rosenfeld (2007). It is therefore important to understand if the teachers held similar perspectives to, or different from, their school leaders.

Drawing from the research outlined in the literature, school documents and interview analysis with the Leadership team and Curriculum Leader the items in Construct 2: *Role of Teacher*

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are detailed in Appendix 6: ISLDS, Section 1. Full details of each item is also provided in 5.4: Use of the ISLDS.

5.3 ISLDS: Section 3

Section 3 of the ISLDS sought to elicit information regarding possible core principles that could be used as a framework for discussion about how students learn. It consisted of one construct, *Principles for learning* that was divided into three nested domains: motivational, cognitive, and behavioural with 33 associated items. These items are listed in Table 5:3 below.

Table 5:3

Constructs and items for the development of the ISLDS – Section 3

Construct 3	Name of Construct	Item/s 23-55
Nested domains	Motivational Engagement	23,24,25,26,27,28,29,30,31,32,33,34,35,36,37
	Cognitive Engagement	38,39,40,41,42,43,44,45,46,47
	Behavioural Engagement	48,49,50,51,52,53,54,55

These items recognise that learning is a complex process. In an effort to understand learning more fully, many theories from diverse areas of educational, developmental, cognitive, social and clinical psychology provide a significant framework for study (Illeris, 2007).

In order to establish a set of psychological principles to summarise some of the important results of recent research on learning relevant for education today, the researcher has drawn from a number of sources. This study utilises a conceptual framework for discussion based on the literature outlined in Chapter 3, Section 3.1, identifying ten principles that are considered significant for learning. In developing this framework of possible core principles for use in the ISLDS, it was also important to gain the perspectives of members of the Leadership Team. The following question was posed during the interviews:

If you could describe a set of core principles that would provide a framework for discussion about how students learn, what would they be?

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The Principal, APA, and Curriculum Leader identified individually, and in some cases collectively, the following principles about how students learn:

- student engagement

- challenge thinking and understanding

- high expectations

- realistic goals

- learning must be engaging

- clear learning intentions

- real life application

- relevance for students

- to achieve success

- cater to individual difference

- to take risks

It was evident that through the literature and responses from the Leadership Team and Curriculum Leader, there were a number of similarities relating to possible core principles for discussion regarding how students learn. What became clear to the researcher was that there was not just a focus on cognitive principles for learning, but many of the principles related to students' engagement, motivation, and involvement in the learning process. As Vosniadou, (2001) states, "Learning at school requires students to pay attention, to observe, to memorise, to understand, to set goals and to assume responsibility for their own learning; these cognitive activities are not possible without the active involvement and engagement of the learner" (p.8). Engagement of the learner according to Linnenbrink and Pintrich (2010):

…is reciprocally related to learning and achievement in the reality of the classroom. That is, self-efficacy can lead to more engagement and, subsequently, to more learning and better

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achievement. Accordingly, the more a student is engaged, and especially the more they learn and the better they perform, the higher the self-efficacy (p.123).

Engagement in learning can be supported through developing student expertise in learning how to learn, as evidenced in many of the principles for learning outlined in Section 3.3.1. This principle has become a major research topic in recent educational research (van Velsen, 2013). Metacognitive knowledge, which is knowledge about one's own knowing and thinking can be supported through the explicit teaching of metacognitive strategies to support students to better understand their learning. Bransford, Brown & Cocking (2000) in their research on the science of learning found, "one of the three key findings … is the effectiveness of a 'metacognitive' approach to instruction" (p.18). Pintrich (2002) maintains that "students who know about the different kinds of strategies for learning, thinking, and problem solving will be more likely to use them" (p. 222).

A framework developed by Linnebrink and Pintrich (2010) provided an overlay for the researcher to develop three domains in the ISLDS. These three domains are as follows:

- behavioural engagement

- cognitive engagement

- motivational engagement

(Linnenbrink & Pintrich, 2010, p. 122)

With this in mind, items for Construct 3 are listed in Section 2 of the ISLDS, and are drawn from preceding interviews, the research literature and school documents. These items are detailed further in 5.4: Use of the ISLDS.

5.3.1 ISLDS: Section 4

This section of the ISLDS relates to the third question of the research study and focussed on the judgements that teachers personally make, as well their perceptions about the judgements that are made by other teachers across the school about the progress of student learning. It prompted responses drawn from four constructs and consists of 65 associated items. These theoretical constructs and associated items are outlined in Table 5:4 below.

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Table 5:4:

Constructs and items for the development of the ISLDS – Section 4

Construct	Name of Construct	Item/s
4	Teacher judgement of learning – personal	56,57,58,59,60,61,62,63,64,65,66,67, 68,69,70,71,72,73,74,75,76, 77,78
5	Teacher judgement of learning – school.	79,80,81,82,83,84,85,86,87,88,89,90, 91,92,93,94,95,96,97,98,99,100
6	Assessment for learning principles.	101,102,103,104,105,106,107,108,109,110

Construct 4: Teacher judgement of learning - personal. This construct sought to explore teachers' understanding of how informed judgements are made about student learning. Just as learning and teaching are not single entities, neither is judgement of learning. All are complex and dynamic and need to be understood as integral to student learning (Earl, 2003). In much of the literature, judgement of learning is referred to as 'assessment,' and can be defined as the ongoing process of gathering, analysing and reflecting on evidence to make informed and consistent judgements to improve future student learning (Victorian Government, 2013). It has been found that when teachers' conceptions are more closely linked with the learning experiences of students and how students learn, their pedagogy reflects assessment as integral to the learning process. As a result, students are actively involved in their learning and teachers' goals shift to helping students to further develop their own learning-to-learn skills (OECD, 2005).

This literature was aligned with this construct and formed the basis of the interview questions with members of the Leadership Team and Curriculum Leader. Their responses to the question: "What strategies would you expect teachers to use to know that a student's learning is developing?" indicated all three approaches as mentioned in Section 3.4, namely assessment of, for and as learning

Construct 5: Teacher judgement of learning – school. This construct sought to ascertain teachers' perceptions about the judgement of student learning and the strategies used most frequently across the school. It sought to examine whether the school as a whole had a consistent

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approach to assessment based on current understandings of assessment and judgement of student learning, or whether past models of assessment judgement about learning continue to operate as the default framework affecting and driving current practices and perspectives (Shephard, 2000, Black & Wiliam, 1998).

The Curriculum Leader, when interviewed, had the following expectation:

You need to know where they've started; to know whether you've had any improvements, so I would expect pre-testing of sorts to go on; that would be a strategy to employ. Whether that's a pen and paper, or verbal or a range of activities that you take notes on. So, some sort of pre-test and assessment. The strategy of being very clear about what it is we're learning or focusing on, so the students understand and are on the journey, so there are no secrets for them. I would expect one strategy being the feedback through the course of the project or course of study with dialogue between the student and the teacher.

The Principal also had the expectation that teachers should use a range of strategies to assess student learning and development through: observations; anecdotal notes; running records; on-going data collection; the school's tracking tool; formal and informal testing.

Given these comments, the twenty-two items in *Construct 5*, reiterated the items in *Construct 4,* but with the focus on the teachers' perceptions from a whole school perspective.

Construct 6: Assessment for learning principles. Whilst the previous constructs in Section 3 of the ISLDS focus on what teachers are doing in classrooms to judge student learning and development, this construct was developed from the literature detailed in Section 3.5 regarding ten assessment-for-learning principles developed by the Assessment Reform Group (2002) that were drawn from the research of Black and Wiliam (1998; 1999). This group maintains that:

"While assessment *of* learning has well established procedures, assessment for learning requires some theoretical ideas to be put into practice if the potential benefits are to be gained. In doing this, it is important to follow certain guiding principles which reflect the essential features of assessment *for* learning" (Assessment Reform Group (2002).

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Their theoretical model outlined in Section 3.4 using ten principles for learning was used in the ISLDS for teachers to rate according to the level of importance they would attribute to each.

In drawing upon the research literature, school documents and preceding interview analysis, the items for Constructs 4, 5 and 6 are provided in Appendix 6: ISLDS, Section 3. Full details of each construct and associated items are also provided in 5.4: Use of the ISLDS.

5.3.2 ISLDS: Section 5

The final section of the ISLDS explores both the teachers' and the schools use of data to inform the progress of student learning and development. It consisted of four constructs with 28 associated items and two qualitative questions – Items 140 and 141. These theoretical constructs and associated items are outlined in Table 5:5 below.

Table 5:5

Constructs and Items for the development of the ISLDS – Section 5

Construct	Name of Construct	Item/s
7	Measuring progress	111,112,113,114,115,116,117,118,119, 120,121,122,123
8	Different types of data	124,125,126,127,128,129,130,131,132 133,134
9	Importance of using data	135,136
10	Data to inform stakeholders	137,138,139
2 Qualitative Questions	Ways to improve data use	140, 141

Construct 7: Measuring progress. The focus of this construct is to determine' how teachers measure student learning progress. If the purpose of schools and classroom teachers is to improve student learning achievement, then it would be assumed that there would be evidence to measure this improvement. Researchers (for example, Shepard, 2000) have argued that the "content and character of assessments need to be significantly improved to reflect contemporary understanding of learning" (Good, 2008, p. 246) and the gathering and use of assessment information, and insights must become a part of the ongoing learning process. This approach requires both quantitative and qualitative measures of student learning, where teachers use their judgement to analyse and

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synthesise the data gathered, and to justify any additional data requiring substantiating learning achievement or the need for intervention.

When interviewed, the Leadership Team's responses reiterated some of the processes and strategies espoused in the literature. The Curriculum Leader stated that there needs to be both quantitative and qualitative measures of student learning and a variety of strategies needed to be used, but she also stated the development of content knowledge was also necessary. The Principal believed that testing and teacher professional judgements were measures that he would expect teachers to use to indicate student learning progress. The APA suggested that using good quality, planned questioning was the approach teachers should use to measure student progress. These responses from the Leadership Team, along with the literature, indicated inconsistent perspectives on the measures that should be used to inform the progress of student learning.

Construct 8: Different types of data. This construct sought to examine the types of data informing this school of the progress of student learning. Schools need to know where they and their students are, define where they and their students want to get to and measure progress along the way (Holcomb, 2004). A range of data can provide evidence-informed approaches to support this improvement and change (Campbell & Levin, 2009). Data, when interpreted through a context, can be categorised, calculated, and connections and summaries made (Schildkamp & Kuiper, 2010). This information attaches meaning, relevance, and purpose to the task of understanding student learning progress. In response to the questions surrounding this construct, the Curriculum Leader, when interviewed, stated that they used a school-wide process to track student learning progress. She indicated that there were a number of processes and strategies that teachers were expected to use. She identified the following examples:

- standardised tests – NAPLAN testing; *I Can Do*; Pat Maths; TORCH Tests; PM Benchmarking
- formalised testing – *Words Their Way; First Steps*

She also stated that other forms of data were used by teachers in the form of:

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- anecdotal notes

- pre- and post-assessments

- teacher-devised tests

- student learning profiles

- end of semester reports

- information passed on from teacher to teacher informally

The APA indicated that the school uses the tracking of student progress through the use of standardised tests, as well as NAPLAN data and data pertaining to curriculum core content. She also stated that formalised data was gathered once per term to measure academic learning. She too indicated that information was passed on informally from one teacher to another in relation to how the students learn, as well as successful strategies to promote learning. The Principal stated that data was gathered around the behaviour management of students, their physical growth, and development. He made no mention of the school-wide tracking system, but stated that student work samples provided data for teachers to assess student learning progress.

The information gathered from these interviews indicated a variety of responses from the Administration Team.

Construct 9: Importance of using data. The importance that is placed on the use of data by the teachers is the focus of this construct. The literature surrounding this construct indicated that it is not common practice in most schools for teachers and administrators to base their decision-making on the routine use of data that affects instructional practices and student learning achievement (Brunner et al., 2005; Hattie, 2005; Schildkamp & Kuiper, 2010). It is advocated that teachers tend to rely on anecdotal evidence, intuition and their experience as practitioners (Ingram et al. 2004). There are many reasons as to why this might be the case, but what is promoted in the literature is that teachers, and often administrators, lack sufficient training, knowledge and expertise in analysing and interpreting data (Choppin, 2002; Lachat & Smith, 2005); there is limited access to available data for teachers (Choppin, 2002); lack of time to gather, analyse and

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interpret data (Ingram et al. 2004) ; a scepticism about the usefulness of data gathering exists, and teachers have difficulty in making connections with data and the interventions necessary to improve student learning (Lachat & Smith, 2009). For data to become an integral part of a culture of continuous inquiry (Park & Datnow, 2009), it relies heavily on the beliefs of teachers and administrators that the use of data supports decisions of improvement in both teaching and learning, rather than uncovering student problems (Ingram et al., 2004). There is also the belief by some teachers, that data can be used adversely to judge the effectiveness of their teaching practice and pedagogy (Martin & Loomis, 2012). This in turn has an effect upon the significance teachers place upon using data to inform student learning and development.

In the interviews conducted with members of the Leadership Team and Curriculum Leader, there was an expectation that teachers use on-going data collection through a variety of data-gathering measures to include in the school's tracking tool system for each student. This indicated that they considered the use of data as significant in informing teachers about student learning and development. Whilst this was an expectation, their responses indicated that there were no formalised systems in place for the analysis and interpretation of the data. Typical of the responses was the following:

> I'd say different sorts of data are used in different ways. There's no formal structure to pass on information about students from one teacher to the next in the following year. Most of that informal data tends to be around how the students learn, what strategies have worked well for that student and perhaps behaviour management strategies and things like that. We do collect and have data on the behaviour of students, but it isn't directly as yet, or we don't see, or we haven't analysed it to connect it to student learning data.

The Curriculum Leader also stated that the use of data was under-utilised across the school, and there was a need to improve in the analysis of data. She indicated that data was gathered, but not utilised. However, this was not the case with the *Words Their Way* program. This program was introduced a number of years' prior as part of a literacy project, and was a school-wide

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initiative introduced by a team of teachers and lead by the Curriculum Leader to improve the teaching and learning of spelling. It is still an expectation that teachers use this program to gather and analyse data to improve student learning in this area. The Curriculum Leader also referred to NAPLAN testing, indicating that there was a major focus by teachers in Years 3, 5 and 7 to prepare for these national standardised tests.

The APA stated that NAPLAN data was not informative and that the data can be misleading.

The Principal recognised that there were a lot of holes in the collection of data across the school and that there were areas where data was not currently being gathered, analysed and monitored evidence of student learning progress. He too had concerns about NAPLAN data, maintaining that it was not effective due to the delayed return of the data to the school[13] to provide information regarding current cohorts of students. He was critical of NAPLAN data comparing schools and the presumption that the professional expertise of teachers was not recognised in terms of assessing student learning.

Construct 10: Data to inform stakeholders. This construct is centred on the effective and productive use of data to inform teachers, parents, and students of the school about student learning and development. For effective and productive use of data, the literature suggests that the inferences drawn from student learning achievements informs future learning and ensures that instruction is focal in the next stages of learning, given a learner's current state of understanding (Pellegrino, 2009). This establishes a continuous improvement cycle that revolves around reflecting, planning, implementing, assessing, and analysing the data (Means et al., 2009).

This model of continuous improvement implies a growth perspective (Heck, 2006), as analysis of the data informs the next phase of learning based on the competencies previously attained. Multiple opportunities for students to demonstrate their competencies are also necessary

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[13] NAPLAN testing occurs in May each year. Currently the return of the analysis of data to schools is not until late in the year.

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to provide extensive evidence and data that are more valid, reliable, fair, and consistent (Pellegrino, 2009). These multiple opportunities are needed to make a definitive judgement about students' progress and competence (Pellegrino, 2009). As is the case with high-stakes testing and some classroom assessments, a single measure of students' learning does not provide these opportunities. Multiple measures of student learning alone are not enough to ensure student learning achievement (Bernhardt, 2013; Schildkamp & Kuiper, 2010). "Many educators believe that over 50 percent of student achievement results can be explained by other factors," (Bernhardt, 1998, p.1). These other factors explained by Bernhardt (2013) relate to:

- demographic data such as gender, ethnicity, religion, attendance, etc. all of which can assist in understanding the student population of a class or whole school

- perception data gathered from students, parents, teachers and other members of the school community about how they perceive the learning environment

- school processes that gather data regarding school programs, instructional strategies and classroom and school practices

- student learning data gathered over time using different measures regarding student performance (p.21)

These measures may provide added data to assist in understanding the current situation and guide future planning to improve student learning. However, it is the intersection or triangulation of these measures that Bernhardt (2013) maintains provides more effective data-informed decision making.

In responding to this construct, the members of the Leadership Team and the Curriculum Leader indicated that there was no school-wide expectation for teachers to use data to inform student learning and development. They recognised that for improved effectiveness and productivity from the use of data, teachers needed more support and time to better analyse and interpret data. The Curriculum Leader saw the need for the analysis and interpretation of the data

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to be closely aligned with curriculum planning, and hence the need for resourcing to support individual learning needs of students. She stated:

> By analysing the data better; looking for the detail and using the resources that we have in the school as an expectation that they are used… to teach teachers how to do that, there needs to be a little bit more development – professional development for teachers.

In drawing upon the research literature, school documents and preceding interview analysis items for Constructs 7, 8, 9 and 10 are provided in Appendix 6: ISLDS, Section 4. Full details of each item is also provided in 5.4: Use of the ISLDS.

Qualitative Questions – Items 140 and Item 141: Ways to improve data use. The importance that is placed on the use of data by the teachers to inform the school community of student learning and development is the focus of these qualitative questions in the ISLDS. The literature surrounding this issue indicated that it is not common practice in most schools for teachers and administrators to base their decision-making on the routine use of data that affects instructional practices and student learning achievement (Brunner et al., 2005; Hattie, 2005; Schildkamp & Kuiper, 2010). Teachers tend to rely on anecdotal evidence, intuition and their experience as practitioners (Ingram et al. 2004). For data to become an integral part of a culture of continuous inquiry (Park & Datnow, 2009), teachers and administrators must rely on, and support the use of data rather than merely uncover problems (Ingram et al., 2004). There exists the implication that data used to identify the strengths and weaknesses of student learning achievement reflects upon a teacher's own pedagogy. This in turn reflects upon the level of importance teachers place upon using data to inform student learning and development.

In the interviews conducted with members of the Leadership Team and Curriculum Leader, there was an expectation that teachers use on-going data collection through a variety of data gathering measures to include in the school's tracking tool system for each student. This indicated that they considered the use of data as significant in informing teachers about student learning and development. Whilst this was an expectation, their responses indicated that there were no

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formalised systems in place for the analysis and interpretation of the data. This was evident through comments by the Curriculum Leader who stated:

> I'd say different sorts of data are used in different amounts. There's no formal structure to pass on information about students from one teacher to the next in the following year. Most of that data tends to be around how the students learn, what strategies have worked well for that student and perhaps behaviour management strategies and things like that. We do collect and have data on the behaviour of students, but it isn't directly, or we haven't analysed it, to connect it to student learning data.

The responses from the Leadership Team and Curriculum Leader, together with the literature and school documents, led to the following qualitative question in Section 4 of the ISLDS. Full details are provided in Section 5.4: Use of the ISLDS.

Item 140: *What change/s if any, would you make to improve your effectiveness and productivity and/or your level of confidence and competence in using data to inform you of the progress of a student's learning and development in your classroom?*

The final item in the ISLDS focused teachers' perceptions on the changes that could be seen if the school as a whole was more effective, productive, confident, and competent in the use of data in informing student learning and development. If the purpose of schools and classroom teachers is to improve student learning achievement, then assessment data needs to "reflect current understanding of the theories of learning, new curricula, new knowledge and skills that are necessary for the 21st century" (Victorian Government, 2005, p.1). The implications for schools and teachers in reflecting and enacting these current views of teaching and learning, repositions the use of assessment data as essential to the process of learning, as it focuses on the strategies and processes students are attempting to use, not just an end result or product (Shepard, 2000). Much of the recent literature surrounding the use of data-based decision making advocates the positive impact it has on student learning achievement, particularly when the ownership of the data resides with teachers and schools themselves. This means that the data collected is their own, rather than

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merely being the recipients of data gathered, analysed and interpreted from government bodies and educational systems (Kerr et al., 2006; Schildkamp & Kuiper, 2010; Wayman & Stringfield, 2006; Wohlstetter, Datnow, & Park, 2008).

According to the members of the Leadership Team and Curriculum Leader, the school's collection of data required a number of changes if there was to be an improvement in the teachers' and the school's effective, productive, confident and competent use of data to inform student learning and development. The Principal stated that there would be more support for students; more time provided for teachers in analysing and interpreting data and increased funding to support the changes. The APA specified that the effective use of data would lead to greater differentiation of student learning. The Curriculum Leader indicated that curriculum planning and resourcing would be better aligned with the data, the dialogue amongst teachers would be more reflective of accommodating individual learning needs of students and results would show improved student learning progress.

These responses from the interviews, along with the literature and school documentation formed Item 141 in Section 4 of the ISLDS and sought a qualitative response to the question:

Item 141: *What change/s if any would you expect to see if data was used more effectively and productively with higher levels of confidence and competence to ascertain students' learning and development across the school?*

Further details of this qualitative response can be found in the following section, 5.4.

5.4   Use of the ISLDS

This section of Chapter 5 reports on the second step of the Exploration Stage of the study. The first step was to familiarise the researcher with empirical evidence of "What's going on around here?" (Charon, 2007, p.194). The data from the qualitative questions in the ISLDS provided the opportunity for teachers to make their thinking explicit and provide their own viewpoint in relation to the specific questions posed. Frequency analysis provided on the items that make up the 10 constructs of the ISLDS contributes to the researcher's understanding of the research site. It is from

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the analysis and interpretation of this data that the researcher is able to establish, through applying a symbolic interactionist lens, a point in time indication of meaning attributed to the constructs and qualitative questions of the ISLDS. This then provided the basis for exploration of the three tenets of symbolic interactionism through further investigation of the meaning, language, symbols, and thoughts of teachers and the Leadership Team by focus group and individual interviews.

The school involved in this study had 22 classroom teachers in 2012 and all but one teacher, signed consent forms and agreed to participate in the study when the researcher presented the purpose of the study at a staff meeting. Whilst 22 teachers were invited to participate in the online survey, 14 commenced the survey, with 8 completing it. Five teachers opted not to continue after Question 1 in the ISLDS. Nine teachers continued, but one more teacher ceased to respond from Construct 5 (N = 8).

5.4.1 Demographic Information

All twenty-two classroom teachers were invited to complete the ISLDS, with fifteen commencing the survey, one stopping mid-way through the survey and only eight fully completing it. The reasons as to why so many teachers discontinued in completing the survey will be more fully explored in Chapter 6, the Inspection Stage of the study. As there was only one male teacher in the school during the period of data collection, no discussions on gender differences will be considered. Fourteen of the fifteen teachers who began the survey had a Bachelor of Education degree and one a Post Graduate Diploma (Primary). No teacher held qualifications beyond a Bachelor of Education. The teaching experience of participants who fully completed the survey included two teachers with less than ten years teaching experience, four with 10-20 years teaching experience and two with greater than 20 years teaching experience.

As expected, all teachers with less than 10 years' teaching experience do not qualify for Experienced Teacher (ET) 5 or 6[14], however it is surprising that the teachers with between 10 to

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[14] Experienced Teacher is an allowance paid to eligible teachers. There are two levels - Experienced Teacher 5 and Experienced Teacher 6. Experienced Teacher 5 provides eligible teachers recognition for undertaking leadership

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20 years also do not hold either an ET 5 or ET 6. Only one of the two teachers with greater than 20 years' experience holds an ET 5 classification.

The eight teachers who completed the survey were from a variety of year levels with six of the teachers in Prep to Year 2, two teachers from Years 3-5 and one from Years 6/7. This demographic data was analysed from the introductory section of the ISLDS (see Appendix 6).

5.4.2 Analysis of Individual Items of the ISLDS

The final form of the ISLDS is analysed in the proceeding sections. In Section 5.4.3, one qualitative question and two constructs are considered from Section 1 of the ISLDS: *Beliefs about student learning*. Section 5.3.4 analyses three constructs from Section 2 of the ISLDS: *Principles for learning*. Section 3 of the ISLDS: *Teachers judgements of learning*, with four constructs, are addressed in Section 5.3.5, and finally Section 5.3.6 analyses Section 4 of the ISLDS: *The use of data*. Section 5.4 sheds light on possible areas to be further investigated by identifying the issues for further discussion at the conclusion of the Exploration Stage. Section 5.5 provides a summary and concludes this chapter.

5.4.3 Analysis of Items from Section 2: Beliefs about how students learn

Qualitative Response 1: *How do you believe students learn within this school's environment?* This section of the ISLDS sought qualitative responses from the teachers (N=9).

The teachers indicating a shared belief that students need to feel safe and happy in a supportive learning environment suggesting a need to differentiate to accommodate a variety of learning styles, dispositions and abilities. Typical of the responses were:

> I feel that the most important thing as a teacher is to establish an element of trust with each
> student, particularly in the early years, so that they feel safe and comfortable within their
> learning environment. (ISLDSS1P6Q6R7)

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task(s) amongst classroom teachers. Experience Teacher 6 provides eligible teachers recognition of their demonstrated skill, knowledge, proficiency, and contribution made as classroom teachers.

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Teachers also saw the need to utilise practical, concrete, hands-on approaches to engage student learning. A range of other approaches were also shared:

- knowing your learners (1 teacher)

- the need for students to access knowledge and be engaged in the necessary content (1 teacher)

- good role modelling by teachers (2 teachers)

- for students to achieve success (1 teacher)

- real-life experiences (2 teachers)

- students taking responsibility for their own learning development (2 teachers)

- clear learning expectations and outcomes (2 teachers)

In analysing the responses, only one teacher indicated that teachers need to understand their students as learners. Knowing students as learners is fundamental to discerning differing learning styles, dispositions and abilities (Powell & Kusuma-Powell, 2011), and the analysis noted the lack of recognition by teachers in relation to the importance of this issue. Many of the responses emphasised teacher practice to ensure student learning, rather than focussing on and how students learn in this school's environment. This aspect warrants further investigation in the Inspection Stage of the study.

Construct 1: Beliefs about how students learn. Table 5.5 displays the frequency distribution for Construct 1. There are several observations from these data that are worthy of note. The items that were rated 8, 9 or 10 were considered to have the most influence on their teaching beliefs. These were B1: life experiences, and B6: working in the classroom**.** The endorsement of life experience, classroom experience and working with colleagues as the strongest influences upon the teachers' beliefs about how students learn, suggests that teachers use tacit knowledge to guide their thinking about how students learn.

The responses that teachers indicated as the items that had the least influence upon their beliefs with frequencies for scales from 1 to 6 were: Items B4: professional reading; B5: research

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B7: own school experience; and B8: pre-service training. The limited support of professional reading, research, pre-service training, and the lack of postgraduate qualification, as indicated in their demographic data, calls into question teachers' knowledge currency. The lack of engagement with current research through either postgraduate study or professional learning warrants further investigation. The wide spread of data in the frequency analysis may indicate a lack of professional discussion to formulate consistent ideas or shared meaning relating to many of the items in this construct. Table 5:6 indicates the frequency distribution for Construct 1.

Table 5:6

Beliefs about how students learn (N=9)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
B1	Life experience has influenced my beliefs about how students learn.						1	2	1	4	1
B2	Learning from my colleagues has influenced me about how students learn.						1	3	4		1
B3	Professional development has influenced me about how students learn.					1	1	4	3		
B4	My professional reading has influenced me about how students learn.					4		1	2	2	
B5	Research has influenced me about how students learn.			2	1	1	2	1		2	
B6	Working in the classroom has influenced me about how students learn.							1	1	2	5
B7	My own experiences when I was at school have influenced me about how students learn.		1	2	1	3				1	1
B8	My pre-service training has influenced me about how students learn.	1	1		1	3	2		1		

Construct 2 of the ISLDS: Role of teacher. Table 5:7 displays the responses for the items focussed on the statement: *Rate each of the following statements from 1-10 (10 being highest) that best describes in your opinion the role of a teacher?*

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Table 5:7

Frequency distribution for role of teacher (N=9)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
R1	The role of a teacher is to support students in their learning.							1	1	2	5
R2	The role of a teacher is to assist in student self-directed learning.						1	1	2	3	2
R3	The role of a teacher is to provide learning opportunities to cater for all students.						1			3	5
R4	The role of a teacher is to encourage life-long learning.								1	3	5
R5	The role of a teacher is to cover the necessary curriculum content.					1	1	1		3	3
R6	The role of the teacher is to transmit knowledge and skills.				1	1				3	4
R7	The role of the teacher is to have students learn from each other.						1		1	3	4
R8	The role of the teacher is to create an engaging learning environment.									3	6
R9	The role of the teacher is to ensure success for all learners.							1		2	6
R10	The role of the teacher is to ensure progression to the next year level.				1	1	1		1	2	3
R11	The role of the teacher is to focus on the processes of how to learn.						1	1	1	1	5
R12	The role of the teacher is to teach students to think about their thinking.						1			3	5

The majority of the items indicated a consistent level of endorsement, with highest frequencies ranging from 9 or 10. Together, these data suggest that teachers believe the role of a teacher is to provide a supportive learning environment where students learn from each other, and that they will engage and provide opportunities for students to succeed as life-long learners. The transmission of knowledge and skills, and the teaching of students to think about their thinking are considered important by the majority of these teachers. However, Item R2: *The role of a teacher is to assist in student self-directed learning*, has the least number of teachers supporting this item with only two teachers indicating a 10. This would indicate that teachers are less inclined to support students taking ownership or responsibility for their own learning. This is contradictory to Item R1: The role of a teacher is to support students in their learning, which was endorsed. The inference that could be drawn from this is that many of the teachers do not hold a strong regard for their role guiding or facilitating learning that promotes independent, self-directed students.

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Inconsistencies are present because not all teachers have similar perceptions. For example: R5: curriculum content; R6: knowledge and skills; R10: progression; and R11: processes. It is therefore not surprising that in these items there is an inconsistency in the responses, where teachers either strongly endorse each item or rate less positively towards the lower end of the scale depending on the prioritising of their role.

Moreover, there appears to be an inconsistency not only between responses for each item, but also when compared with other items. This was evident when seven teachers endorsed Item R6: *The role of the teacher is to transmit knowledge and skills* with a rating of 9 or 10, but two teachers were less positive with a 4 and 5 rating. In Item R5: *The role of a teacher is to cover the necessary curriculum content* – six teachers indicated support by rating 9 or 10; but three were less positive in rating 5, 6 or 7. This range of ratings indicates that some teachers either consider covering the curriculum content as very significant or others not as significant in relation to other items describing the role of the teacher.

The issues for further investigation from the ISLDS: *Section 2 – Beliefs about how students learn* are that:

1) Teachers in this school have not continued to further their studies beyond their education degrees.

2) Teachers endorsed the need to cater to differing student learning styles, dispositions and abilities in their qualitative responses, but only one teacher indicated that teachers need to know their learners. There was the prevailing emphasis on what "teachers" need to do to ensure student learning, rather than focussing on the students and how they learn in this school's environment.

3) The endorsement of life experience, classroom experience and working with colleagues as the strongest influences upon the teachers' beliefs about how students learn, suggests that teachers use tacit knowledge to guide their thinking about how students learn with experience in the classroom rated highly.

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4) Teachers did not strongly advocate for students taking ownership or responsibility for their own learning and development. A conjecture that could be drawn from this is that many of these teachers do not regard their role as one of guiding or facilitating learning that promotes independent, self-directed student learning.

5) The coverage of curriculum content was given a low rating by two teachers. This lack of consistency indicates the lack of shared understanding among these teachers that is founded upon contemporary learning approaches about how students learn.

Whilst the frequency analysis indicates a spread of data, there are more teachers who rate highly, in the 9 to 10 range (most like me), in this construct indicating more agreement on the role of the teacher. These issues will be explored further in the next stage of the study presented in, Chapter 6, the Inspection Stage.

5.4.4 Analysis of Items from Section 3: Principles for learning

The following provides a set of core principles that have been used to provide a framework for discussion about how teachers perceive students learn. This section is divided into three domains of learning – motivational, cognitive, and behavioural within the one construct, Construct 3. Teachers were asked to indicate the level of importance on a scale of 1-10; 10 being highest that they believed should be evident in the classroom.

Construct 3 of the ISLDS: Principles for learning: Motivation. The results listed in Table 5:8**Error! Reference source not found.** refer to *Motivational Principles*.

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Frequency distribution for a set of principles for learning – motivational (N=9)

Item No.	Item										
		*Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
M1	To ensure that students are actively involved in learning.									4	5
M2	To ensure that students are encouraged to be responsible for their own learning.							1	2	3	3
M3	To ensure that students construct their own meaning.						2		1	4	2
M4	To ensure that students monitor their own learning.						2	1	2	3	1
M5	To ensure that student learning is constructed with other learners.						1		1	3	4
M6	To ensure that students are supported in their learning.								1	3	5
M7	To ensure that students feel safe and cared for in the classroom environment.									2	7
M8	To ensure that students have a strong sense of identity and well-being.								1	2	6
M9	To ensure that students develop personal and social capabilities.								1	4	4
M10	To ensure that every student is valued									3	6
M11	To ensure that learning is drawn from real life contexts.						1			6	2
M12	To ensure that learning is connected to personal experience.						1		2	3	3
M13	To ensure that the learning motivates the learner.							1		2	6
M14	To ensure that students see the value in what is learnt.							1		3	5
M15	To ensure that learning provides new experiences.								3	3	3

There was strong endorsement by the teachers for each of the items although some spread does occur. Whilst all nine of the teachers rated a 9 or 10 indicating strong agreement of Item M1: *students being actively involved in their learning*, some teachers did not feel so strongly about Item M3: *students construct their own meaning* nor Item M4: *students monitoring their own learning*.

It would appear that these teachers see monitoring student learning as their domain, and whilst they strongly agree students should be actively involved in their own learning, they were less inclined to support students being responsible for constructing or monitoring their own learning. A qualitative response from one teacher supports this interpretation:

I only feel less strongly about students monitoring their own learning and constructing their own meaning because I am early years trained and I believe that these concepts are extremely difficult for students of a young age to grasp. (ISLDSS3Q9P12)

Similarly, with Item M2: *To ensure that students are encouraged to be responsible for their own learning*: although 8 of the 9 believed *students should be supported in their learning* (Item M6), they did not translate that into students being responsible, or that students should be supported

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in constructing and monitoring their own learning and development. It is interesting to note that the spread of data indicates that teachers agree on the items associated with students' wellbeing, however items associated with students' application to their learning is not as strongly agreed upon. If this is the case, then further questions need to be asked in the Inspection Stage.

Construct 3 of the ISLDS: Principles for learning – Cognitive. Cognitive principles are itemised in *Table 5:9*:

Table 5:9

Frequency distribution for a set of principles for learning – cognitive (N=9)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
C1	To ensure that learning focuses on processes not content.							1	4	2	2
C2	To ensure that students reach a level of independence before moving to new concepts.							1	3	3	2
C3	To ensure learning is built upon prior knowledge.							1	1	2	5
C4	To ensure that learning is connected to new and prior knowledge.								2	1	6
C5	To ensure the learning improves thinking and remembering.								2	3	4
C7	To ensure that students are able to transfer learning to different contexts.								2		7
C8	To ensure that students are able to transfer knowledge, understanding and skills aligned with the General Capabilities of the Australian Curriculum.								3	4	2
C9	To ensure that students are given time to practice.								2	2	5
C10	To ensure that students are given time to process information.								1	3	5

Note that in this construct all items were rated 7 or above. However, in Item C1: *To ensure that learning focuses on processes not content* only four of the nine teachers rated it a 9 or 10. They did however endorse Item C4: *To ensure that learning is connected to new and prior knowledge* and C7*: To ensure that students are able to transfer learning to different contexts*. These two items addressed in Chapter 3, Section 3.3.1 are considered processes of learning based on contemporary psychological principles designed to improve how students learn. It could be conjectured that these teachers do not have a clear understanding of the processes of learning.

Teachers were less inclined to agree with Item C2: *To ensure that students reach a level of independence before moving to new concepts*, or Item C8: *To ensure that students are able to*

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transfer knowledge, understanding and skills aligned with the General Capabilities of the Australian Curriculum when compared to their responses for the other items in this scale. This could indicate that teachers are not yet familiar enough with the Australian Curriculum to make the connections with the General Capabilities that underpin the current curriculum. Not placing an emphasis upon students reaching independence in their learning before moving onto new concepts is contrary to Vygotsky's (1978) theory of the Zone of Proximal Development that focusses on gradual release to students' independent performance.

Teachers generally hold consistent views on the principles for learning relating to cognitive development. Processes of learning focussing on metacognition which encourages students to develop expertise in their own knowledge of learning processes (i.e. knowledge about one's own knowing and thinking) in the context of learning to learn (Bransford, Brown & Cocking, 2000), were not strongly endorsed.

Construct 3 of the ISLDS: Principles for learning- Behavioural. The items that were strongly endorsed by teachers were Items Be4, Be7, and Item Be8 as seen in Table 5:10.

Table 5:10

Frequency distribution for a set of principles for learning – behavioural (N=9)

Item No.	Item	1	2	3	4	5	6	7	8	9	10
						Response Rating (1 lowest – 10 highest)					
Be1	To ensure that students engage in self-reflection.							1	4	4	
Be2	To ensure that students engage in regulating their own learning achievements.					1			3	5	
Be3	To ensure that developmental differences are accommodated.							1	2	2	4
Be4	To ensure that individual differences are accommodated.							1	1	2	5
Be6	To ensure that students have a positive attitude in believing tasks can be mastered with effort.								1	4	4
Be7	To ensure that students have a positive outlook towards learning.								2	1	6
Be8	To ensure students are given clear direction and scaffolding to improve learning.								1	3	5

There was least positive endorsement by one respondent of Item Be2: *To ensure that students engage in regulating their own learning achievements*. This result suggests that student

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self-regulated learning is not considered a high priority by this teacher. It is interesting to note the inconsistency in the less positive responses by the majority of teachers in responding to Item M4: *To ensure that students monitor their own learning* in Table 5.8. However, the majority of teachers supported Item Be7: *To ensure that students have a positive outlook towards learning* and Be4: *individual differences are accommodated* and Be8: *students are given clear direction and scaffolding to improve learning.*

The issues that require further exploration from the ISLDS: *Section 3 – Principles for learning* are:

1) Teachers generally held consistent views on the principles for learning relating to cognitive development in comparison to motivational or behavioral principles for learning.

2) Teachers indicated agreement when they, as teacher, have something to do with students' learning, but when the expectation for learning was focussed on the student taking responsibility, they agreed less strongly.

5.4.5   Analysis of Items from Section 4: Teacher judgement of learning

Construct 4 of the ISLDS: Teacher judgement of learning.   There are disparate endorsements as indicated in the frequencies displayed in Table 5:11 in relation to the strategies that could be used by teachers to ascertain the development of students' learning.

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Table 5:11:

Frequency distribution for teacher judgement of learning – personal (N=8)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
S1	I use judgement of prior knowledge to know that a student's learning is developing.						1	2	2	1	2
S2	I use the measurement of improvement against clear learning intentions to know that a student's learning is developing.							1	2	4	1
S5	I give students explicit criteria to know that student's learning is developing.					1		3		4	
S6	I use student self-reflection strategies to know that a student's work is developing.					2		4	1	1	
S7	I use student self-evaluation strategies to know that a student's learning is developing.					2	1	3	1	1	
S8	I focus on a student's strengths as a strategy to know that a student's learning is developing.					1	1		2	2	2
S9	I use the strategy of giving students' specific direction for improvement to know that a student's learning is developing.	1				1				4	2
S10	I use the collection of data throughout the learning process to know that a student's learning is developing.							2	2	1	3
S11	I use formative (ongoing) assessment to know that a student's learning is developing.								1	2	5
S12	I use summative (giving a final result or grade) assessment to know that a student's learning is developing.						1	1		3	3
S15	I use the measurement of student competencies (carrying out processes) to know that a student's learning is developing.							2		5	1
S16	I use observations of students at work to know that a student's work is developing.								1	4	3
S17	I use the writing of anecdotal notes to know that a student's learning is developing.			1			1	1		2	3
S18	I use running records to know that a student's learning is developing.	1						2	1	2	2
S19	I align student work with Australian Curriculum standards to know that a student's learning is developing.							3	1	1	3
S20	I diagnose student learning difficulties in the classroom to know that a student's learning is developing.	1						1	2	2	2
S21	I use student's self-regulation of their own progress to know that a student's learning is developing.					1	1	3	1	2	
S22	I use my own judgement to ascertain the progress of a student's learning and development.					1	1			3	3

The items most positively endorsed were Item S11, Item S12, Item S15, S16 and Item S23. These items indicated that most agreement focussed on the teachers' judgement of student learning. However, items that focussed on students making judgements of their own learning as evidenced in Items S6, S7, S9 and S22 were not as positively supported. A few teachers indicated less support for Items S17, S18, and S20 that related to anecdotal notes, running records and diagnosing student learning difficulties. It is considered by some upper-primary teachers that making anecdotal notes and running records are strategies used by lower-year level teachers. With reference to Item S20, some teachers would consider the diagnosis of student learning difficulties to be the responsibility of the Support Teacher Inclusive Education (STIE).

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Also of interest is Item S10*: I use the collection of data throughout the learning process to know that a student's learning is developing* which was rated 10 by only 3 teachers. Interviews conducted with the Leadership Team in the Exploration Stage of the study indicated that it was an expectation that teachers use data to inform them of student learning and development. This analysis points to misalignment in expectation and enactment   in ensuring that this is a school-wide practice. This will be followed up in the next stage of the study.

Item S20: *I align student work with Australian Curriculum standards to know that a student's learning is developing* shows a spread across the positive endorsement end of the Likert scale. This result is worthy of note, considering that interviews conducted with the Leadership Team indicate that BCE schools should be implementing the Australian Curriculum in the areas of English, Mathematics, Science, and History by 2013. Moreover, the assessment and reporting of these learning areas is to be aligned with standards of the quality of student work. Further investigation is warranted as teachers may have different interpretations of this question; either they are not adhering to the national curriculum, or they are not adhering to the use of standards aligned with the national curriculum to be informed of student learning and development.

There is a wide spread of data indicating a lack of shared understanding and agreement by teachers regarding the judgement of student learning and development. This could indicate limited professional learning in this area and the potential differences in interpretation need to be teased out in the interviews in the Inspection Stage of the study.

Construct 5 of the ISLDS: Teacher judgement of learning – school. Frequencies for each item on the construct in Table 5:12 indicate inconsistencies and several observations can be made from these data that inform the design of the Inspection Stage of the study.

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Frequency distribution for teacher judgement of learning – school (N=8)

Item No.	Item	Response Rating (1 lowset – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
SS1	In my school we test for prior knowledge to know students' learning is developing.						2	3		1	2
SS2	In my school we measure improvement against clear learning intentions to know students' learning is developing.							2	3	1	2
SS3	In my school we use student think-alouds to know that their learning is developing.						2	2		3	1
SS4	In my school we give feedback to students to know that their learning is developing.							2	3	1	2
SS5	In my school we give explicit criteria to students to know that their learning is developing.							1	5	2	
SS6	In my school we use the strategy of student self-reflection to know that their learning is developing.					1	2	1	3	1	
SS7	In my school we use student self-evaluation strategies to know that their learning is developing.					1	1	4	1	1	
SS8	In my school we focus on strengths as a strategy to know that students' learning is developing.					1		1	3	1	2
SS9	In my school we give the students specific direction for improvement to know that their learning is developing.			1					5	1	1
SS10	In my school we collect data throughout the learning process to know that students' learning is developing.							1	2	1	4
SS11	In my school we use formative (ongoing) assessment to know that students' learning is developing.								2	3	3
SS12	In my school we use summative (giving a final result or grade) assessment to know that students' learning is developing.								3	2	3
SS13	In my school we comparing of data with pre-testing data to know that students' learning is developing.						1		3	3	1
SS14	In my school we use standardised testing to know that students' learning is developing.								1	5	2
SS15	In my school we measure student competencies (carrying out processes) to know that students' learning is developing.					1			4	2	1
SS16	In my school we use observations of students at work to know that their learning is developing.								1	4	3
SS17	In my school the writing of anecdotal notes is used to know that students' learning is developing.				1	1			1	3	1
SS18	In my school we use running records to know that students' learning is developing.					1			2	3	2
SS21	In my school we diagnosis student learning difficulties in the classroom to know that students' learning is developing.					1		1	1	3	2
SS22	In my school, teachers use their own judgements to ascertain the progress of students' learning and development.								2	4	2

Unlike most other scales only a few teachers rated any item a 9 or 10. There were, however, some similarities to the previous analysis in Table 5:111 - *Teacher judgement of learning – personal*, that teachers' perceptions of judgement across the school were similar to their own personal judgements. Formative and summative assessment rated higher, along with standardised testing, observations, and teacher judgement of learning. Similarities can also be drawn from the results from Table 5.11, where teachers' responses suggest that they do not prioritise students' input when determining the improvement or development of the students' own learning. The data

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from Items SS3, SS4, SS6, SS7, and SS9 indicate this. This is contrary to the responses given in the initial interviews with the Leadership Team, where they indicated that students should be responsible for their own learning; they need to be self-reflective and to self- evaluate. They also stated that students should be given specific direction for improvement. This contradiction of perception warrants further investigation in the next stage of the study.

The items that focus on the use of data to inform student learning in SS1, SS10, and SS13 indicated a spread across the frequency distribution. This aligns with the data from the previous Table 5.11, Item S10. It was clearly defined in the interviews with the Leadership Team that it is an expectation that teachers use data to inform student learning and development. The ratings for these strategies indicate that they have not been prioritised, either to gather data to ascertain prior knowledge or as a point of comparison at the end of a learning episode. The overall spread of the data indicates a lack of consistency regarding teachers' perceptions about the use of data across the school.

Construct 6 of the ISLDS: Assessment for learning principles. The items listed in Table 5:13 indicate a list of possible principles of assessment upon which teachers should base their assessment.

Table 5:13:

Frequency distribution for assessment for learning principles (N=8)

		Response Rating (1 lowest – 10 highest)									
Item No.	Item	1	2	3	4	5	6	7	8	9	10
A1	Assessment is part of effective planning.								1	4	3
A2	Assessment needs to focus on how students learn.					1			1	2	4
A3	Assessment is central to classroom practice.						1	3		3	1
A4	Assessment is a key professional skill.						1		2	4	1
A5	Assessment has an emotional impact.							3	2	3	
A6	Assessment affects learner motivation.							2	2	3	1
A7	Assessment promotes commitment to learning goals and assessment criteria.							1	3	2	2
A8	Assessment helps learners know how to improve.							2	2	1	3
A9	Assessment should encourage self-assessment.							1	3	2	2
A10	Assessment should recognise all achievements.							1	1	2	4

Results indicate that whilst there is no rating lower than a 5 for all ten items, what is evident is that there appears to be a contradiction to responses to A1 and A3. Here, the teachers seem to

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rate assessment as a part of effective planning, but do not hold the same view in relation to assessment being a key professional skill. This raises concerns as to the value that teachers place upon assessment and needs further inspection.

Item A8 – *Assessment helps learners know how to improve* was rated lower by half the teachers with a 7 or 8, however, in contrast, 5 teachers rated a 10 for Item A10: *Assessment should recognise all achievement.* This difference calls into question what teachers see as the purpose of assessment.

It appears that some only recognise when a student does well in their learning development, yet they do not see assessment in the formative sense, to inform them of learning progress and assist students in improving their learning. This apparent difference needs to be further teased out in the Inspection Stage of the study.

There were a number of issues in *Section 4: Teacher Judgement of Learning*, which require further exploration.

1) Teachers did not see students' input as integral to determining the improvement or development of their own learning.

2) There was lack of endorsement for the collection of data throughout the learning process to indicate that a student's learning is developing.

3) Teachers did not align student work with the Australian Curriculum standards to measure that a student's learning was developing.

Whilst the spread of data indicates mostly consistent agreement, there is an indication that teachers do not feel strongly about assessment for learning principles as there are a number of items that are in the 5 to 7 range. This difference in expectation by the system, the school and teachers' enactment needs to be addressed further.

5.4.6 Analysis of Items from Section 5: Use of learning and development data.

Construct 7 of the ISLDS: Measuring Progress. The ISLDS asked the question: *How do you measure the degree of progress that a student has made in their learning and development so*

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that you can judge their improvement? The frequency distributions from Table 5:14 indicate a mixed response.

Table 5:14:

Frequency distribution for measuring the degree of progress (N=8)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
P1	I measure the degree of progress through results from classroom testing.						1	2	2	1	2
P2	I measure the degree of progress by comparing pre and post testing data.							2	3	1	2
P3	I measure the degree of progress through my observations.							1		3	4
P4	I measure the degree of progress by measuring against Australian Curriculum standards.							1	5		2
P5	I measure the degree of progress through student self-evaluation.						1	4	1	2	
P6	I measure the degree of progress through my own teacher judgement.							1		3	4
P7	I measure the degree of progress by the improved level of competence of students to complete tasks.								1	3	4
P8	I measure the degree of progress through moderation with other teachers.								3	1	4
P9	I measure the degree of progress using standardised testing data.							2	2	3	1
P10	I measure the degree of progress through the information on the school's tracking tool.						1	2	2	2	1
P11	I measure the degree of progress by looking at previous end of semester reports.					1	1	1	3		2
P12	I measure the degree of progress by looking at my own anecdotal notes.			1			1	1	2		3
P13	I measure the degree of progress by students regulating their own improvements.					1	1	3	1	1	1

Items P3, P6, P7, and P8 were given a rating of 10 by half of the teachers responding to these items of the ISLDS. While the items that indicated a wide spread of responses are: P1, P2, P4, P5, P11, and P13. These results suggest that teachers do not value measuring student learning progress through classroom testing, end-of-semester reports, Australian Curriculum-based standards or the school's tracking tool system. This was also the case with pre- and post-testing data, as well as student involvement in measuring their own progress. Teachers indicated a preference for measuring students' competency through their own observations, judgements, and moderation with other teachers. The item with the least support was Item 13: *I measure the degree of progress by students regulating their own improvements.*

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The inconsistency of responses in this construct is indicated by a wide spread of data. Teachers provided less positive responses with regard to the measurement of progress of student learning, with more positive responses for measures that are teacher-directed to inform their own judgements. This variance indicates limited agreement among teachers regarding the measurement of student learning progress. This needs to be investigated further.

Construct 8 of the ISLDS: Different types of data. The following display of frequency distribution in Table 5:15 is in response to the question in the ISLDS: *Different types of data informing you about student learning and development are used by the school. On a scale of 1 – 10 (10 being highest) rate the data gathering tools that you consider to be the most useful in informing you about your students.*

Table 5:15:

Different Types of Data (N=8)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
D1	The data from NAPLAN informs me about student learning and development.			2	1	1	2		2		
D2	The information from student profiles informs me about student learning and development.				1			4		2	1
D3	The data from PAT Maths standardised testing informs me about student learning and development.			3	1		1	1	1	1	
D5	The data from the TORCH standardised tests informs me about student learning and development.			2	1			1	1	2	1
D6	The data from *First Steps Writing* informs me about student learning and development.				1	1		2	4		
D7	The data from *First Steps Reading* informs me about student learning and development.				1	1		3	3		
D8	The data from *First Steps Speaking and Listening* informs me about student learning and development.				1	2		2	2		1
D9	The data from the school tracking tool informs me about student learning and development.				1		1	3	2		1
D10	The information from end of semester reports in previous years gives data to inform me about student learning and development.				1	1	2	1	2	1	
D11	Informal discussions with previous teachers, gives data to inform me about student learning and development.								4	2	2

The frequency distribution on the Likert scale in Table 5:15 rates on the lower end of the scale in comparison to all other scales in Section 5.3. The only item where four of the eight teachers indicate a 9 or 10 is Item 11: *Informal discussions with previous teachers, gives data to inform me about student learning and development.* There was less inclination to support Items D1, D3, D5,

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D6, D7, D8, D9, and D10 by most teachers, with very few rating 9 or 10. This would suggest that teachers place less value on the use of data to inform their judgements, and therefore dismiss the expectation of the Leadership Team that they must use data to indicate and be informed about student learning and development. This is particularly evident in Item D9: using the school's tracking tool. In discussions with the Leadership Team at the interview stage of the study, it was indicated that there was an expectation and a presumption that teachers use this tool. This discrepancy leads to the conjecture that the Leadership Team have not shared their plan or made it clear to teachers the expectation of the types of data that need to be gathered, analysed and interpreted to inform student learning and development. Frequency analysis indicates that there is a wide spread of data in relation to this construct indicating there is no consistent agreement or shared understanding of the use of data to inform teacher practice or student learning. This discrepancy in expectation and enactment needs to be addressed further.

Construct 9 of the ISLDS: Importance of using data. This construct has two items.

The following display of frequency distribution in Table 5:16 displays the responses to these questions in the ISLDS.

Table 5:16:

Significance of Using Data (N=8)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
TD1	The use of data is significant in informing me about student learning and development.						1		3	3	1
TD2	I feel competent and confident in using data to ascertain the progress of a student's learning development.							2	2	4	

One teacher endorsed the use of data to inform student learning and development with a 10 rating and supported this with the following statement:

I strongly agree with data as an informant for learning and development as it allows for grouping of students of a similar ability, and therefore leads to opportunities to extend these

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learners. I also believe it is a good tool to assist with the writing of reports, parent teacher interviews and when passing information onto the next teacher (ISLDSS5Q18P36).

This comment indicates that this teacher has weighed up the positives and negatives of the use of data, and can how it can be beneficial to her teaching practice. This teacher has the opportunity to interact with other teachers to change their meaning or attribute more meaning to the use of data to improve their teaching practice and student learning and development.

What is of interest in the results of the second item: *I feel competent and confident in using data to ascertain the progress of a student's learning and development,* is that of the eight teachers who completed the ISLDS, half rated a 9 regarding their level of competence and confidence in using data to ascertain the progress of a student's learning and development. Yet analysis of the data in earlier sections of the ISLDS, suggested that teachers did not rate the use of data highly on the Likert scale. The spread of data indicates agreement with this construct, but within the moderate range. It is worth noting that there is a stronger endorsement by teachers feeling confident and competent in using data, but they do not rate the use of data as significantly as other measures to ascertain student learning and development. This difference in teachers' use of data and their level of competence and confidence, as well as their perceptions on the use of assessment data is important for this study, needs to be further investigated in the Inspection Stage of the study.

Construct 10 of the ISLDS: Data to inform stakeholders. This question in the ISLDS consisted of three separate statements. Whilst each statement centred on the effective and productive use of data, each focussed on a different context: teachers, parents, and students.

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Table 5:17:

Data to Inform Stakeholders (N=8)

Item No.	Item	Response Rating (1 lowest – 10 highest)									
		1	2	3	4	5	6	7	8	9	10
EPD1	The school uses data effectively and productively to inform teachers about student learning and development.						2	3	1	2	
EPD2	The school uses data effectively and productively to inform parents about student learning and development.						1	3	2	2	
EPD3	The school uses data effectively and productively to inform students about their learning and development.			1			2	2	1	2	

This is perception data, where teachers are indicating how they perceive other teachers in the school are using assessment data. The majority of teachers' responses rated from 6 to 9 on the Likert scale for each item in this construct, indicating that teachers see a need for improvement in this area. A comment from one teacher points to the possibility that the need may be widespread by stating, "*I am new to the school and have only seen a few examples of how data is used so far.*" This statement indicates that this teacher is aware of the need to use data, but is looking for how others in the school interpret this to make change to her practice. There was a strong similarity in teachers' perceptions regarding the use of data by other teachers across the school, and the school's use of data to inform parents about their child's learning and development. This suggests that the use of data to indicate student learning and development to inform other teachers, as well as parents, may not be highly valued. The frequency of response for the third item pertaining to the school's use of data to inform students about their learning and development was the least positively supported item. The spread of data falls into the moderate range indicating there is not strong agreement in this construct. What is evident from the analysis is that teachers see the need for improvement across the school in this area, but also as noted in previous sections of this chapter, data is not shared with students to inform their learning and development. These interpretations need to be further investigated in teacher interviews to ascertain how widespread these perceptions are.

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Qualitative Response 2 of the ISLDS: Personal changes needed to improve use of data. This question of the ISLDS called for qualitative responses from teachers.

What change/s if any, would you make to improve your effectiveness and productivity and/or your level of confidence and competence in using data to inform you of the progress of a student's learning and development in your classroom? Please explain…

There were mixed responses to this question. Some teachers responded on a personal level, whilst others made statements that reflected the need for change across the school. The following statements reflect on a personal level, the teachers who perceived a need to improve their use of data:

One thing I would use more is student self – reflection to gain more feedback from the children themselves about how they are feeling towards their learning, what they like and dislike, what they find easy and difficult. Although I do this as part of discussions with the students, I would like to try to do this more formally so that all students participate and reflect upon their own learning journey instead of just a few confident students. This information would be beneficial to both the individual student and to me (ISLDSS5Q21P39R1).

Try to get more feedback/ data from the children in regards to their learning (ISLDSS5Q21P39R3).

I feel that I could possibly talk to the admin team at my school and my colleagues about the process they use, so that I am more familiar with it, and I could also begin to keep a record of the assessment strategies I use on a day to day basis in the classroom (ISLDSS5Q21P39R4).

I need to organize my data better (ISLDSS5Q21P39R6).

These statements reflect that some teachers see the value in using data to improve student learning and development and see the need to improve their pedagogy and/or practice. This indicates that these teachers are reconstructing their meaning of the use of data and see the need

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for a shared meaning to be acted upon by other teachers and the Leadership Team. This indicates a possible opportunity for the Leadership Team to work with teachers who would be receptive to changing or improving their practice to be data informed.

The following personal comments from teachers indicate that they have the perception that there are certain influencing factors prohibiting them from being effective or productive in this area as the following comments indicate:

- more time required to analyse data and discuss with colleagues

- ensure more data is recorded

- assistance in marking standardised tests

- prioritise data that needs to be collected

- cover the curriculum; there are not enough hours in the day to do the curriculum justice AND work to the strengths of / and data on each student

- sitting down with the STIE and discussing regularly results and what that means for your class would be very beneficial

In the next stage of the study, the Inspection Stage, these prohibiting factors need to be further investigated in teacher interviews to ascertain how widespread teachers' use of data informs them of the progress of a student's learning and development.

The following provides a summary of the comments that reflect a positive response from teachers however, they chose to respond to this question in terms of a whole school approach to improved effectiveness, productivity, competence and confidence in the use of data rather than on a personal level:

- samples of work, anecdotal notes, observations need to be included in the school's tracking tool

- moderation with other schools is necessary

- data collection to be an on-going process

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- all student needs are identified sooner using data

- students would achieve in areas they need the most

- use of data would ensure teachers tailoring their planning to the necessary areas

- less time wasted trying to ascertain starting points for student learning

- NAPLAN results would improve and teachers could support one another with strategies, teaching skills to accommodate for those students who are less able and need additional support

- consistency of teacher judgement

- assessment is consistent with other cohorts

The mixed responses of this item indicate that teachers understand the need for change of the use of data across the school in response to the expectations of the Leadership Team and the system. They have interpreted this meaning for themselves and how they might act in response, as well as how they believe others should act in response to this issue. Further exploration of this will be addressed in the next stage, the Inspection Stage of the study.

Qualitative Response 3 of the ISLDS: School changes needed to improve the use of data.

The following statement sought qualitative responses from teachers in the ISLDS:

What change/s if any would you expect to see if data was used more effectively and productively and with higher levels of confidence and competence to ascertain students' learning and development across the school? Please explain…

Some of the responses from the previous question were reiterated, where teachers chose to address the issue from the school perspective rather than from a personal one. The following identifies any comments that were not a part of the response from the previous question:

- increased data use with competency and confidence can be used to identify earlier student learning difficulties

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- increased data use with competency and confidence can be used for the early identification of students who need extension

- student learning outcomes would improve

- ensuring that all data is recorded on time to see the student's progress in the previous years

- if all data is entered correctly onto the school tracking then it would make it easier to group the students at the beginning of the year and view their progress over the first semester in comparison with previous years

- samples of work could be included on the school tracking portal by scanning through to ensure that teachers are consistent in their marking

- alignment needed between reporting to parents and standards reported on the school's tracking system

It is evident from the responses above that these teachers endorse the use of data and can see the benefits it would have for improved student learning and development, yet there is evidence to suggest in responses to previous items in the ISLDS, that the use of data is not considered as an important part of their practice as is the case for other measures of assessment. This warrants further investigation in the Inspection Stage of the study.

Several observations of the issues for further investigation from this section, *Section 5: Use of learning and development data* of the ISLDS, can be made from the frequency analysis of the constructs and qualitative responses. The teacher responses indicated preference for measuring students' improved learning and development by gathering data from their own observations, judgements, and moderation with other teachers, rather than measuring student learning progress through classroom testing, end-of-semester reports or Australian Curriculum based standards.

The responses regarding the effective and productive use of data by the school to inform stakeholders indicated that the majority of teachers perceived that the use of data was not an

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integral part of teachers' pedagogy and practice in this school and saw the need for improvement in this area across the school to inform teachers and parents.

5.5   Conclusion of the Exploration Stage

In order to gain a deeper appreciation of the issues for further investigation identified in the ISLDS, the following section denotes the key issues in the analysis of these data from Sections 5.3.2, 5.3.3, 5.3.4 and 5.3.5 and 5.3.6. These findings highlight teachers' divergent priorities as indicated on the 1-10 Likert scale, resulting in a number of issues in each section of the ISLDS:

Section 1 of the ISLDS: *Beliefs about how Students Learn*

There are diverse beliefs about how:

- students learn and how teachers are supported in knowing how students learn in this school's environment

Section 2 of the ISLDS: *Principles for Learning*

There are:

- different understandings held about core principles for learning and the support to improve this understanding

- different perceptions of what learning processes are considered important to ensure student learning and development

Section 3 of the ISLDS: *Teacher Judgement of Learning*

There are differing priorities:

- of what is considered to be the purpose of assessment

- held and levels of support provided to ensure assessment is integral to the learning process

Section 4 of the ISLDS: *Use of learning and development data*

There are differing opinions as to:

- the importance of the collection, analysis and interpretation of data in supporting student learning and development

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- how data takes on meaning that informs the judgement of student learning and development

- how data can be better utilised to improve learning and teaching

These issues for further investigation align with the four sub-questions of the study being teacher beliefs about student learning, principles for learning, judgement of student learning and learning and development data. Analysis of interview data relating to these issues are reported in Chapter Six.

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Chapter Six - Inspection Stage – Display and Interpretation of Interview Data

6.1   Investigating the issues further

The purpose of this research is to explore some teachers' beliefs about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning and teacher practice.

In order to achieve this, a two stage investigative process was undertaken. The first stage, the Exploration Stage, was detailed in Chapters 5 and the results from this highlighted a number of issues that warrant further exploration. These issues were summarised at the end of Chapter 5, Section 5.5. These questions and the data gathered, analysed and interpreted from the ISLDS, informed the collection, display and interpretation of data for the second stage of this study, the Inspection Stage displayed in this chapter. Inspection pertaining to the issues for further discussion are categorised under the four sub-questions of the study: Beliefs about Student Learning in Section 6.2*;* Possible Principles for learning, in Section 6.3; Judgement of Student Learning – Section 6.4 and learning and development data in Section 6.5. A summary of responses from teachers and the Leadership Team is provided at the end of each section. A Second Order interpretation is presented in Section 6.6 where a synthesis of the findings is presented.

The issues as identified in Section 5.4. for further exploration are as follows:

Section 1 of the ISLDS: *Beliefs about how Students Learn*

There are diverse beliefs about how:

- students learn and how teachers are supported in knowing how students learn in this school's environment

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Section 2 of the ISLDS: *Principles for Learning*

There are:

- different understandings held about core principles for learning and the support to improve this understanding

- different perceptions of what learning processes are considered important to ensure improved student learning and development

Section 3 of the ISLDS: *Teacher Judgement of Learning*

There are differing priorities:

- of what is considered to be the purpose of assessment

- held, and levels of support provided to ensure assessment is integral to the learning process

Section 4 of the ISLDS: *Use of learning and development data*

There are differing opinions as to:

- the importance of the collection, analysis and interpretation of data in supporting student learning and development

- how data takes on meaning that informs the judgement of student learning and development

- how data can be better utilised to improve learning and teaching

Questions associated with each of the issues for further investigation were posed to the six teachers of the focus group (see Appendix 7 for interview questions). This group was representative of teachers from a range of year levels across the school, and included some who completed the ISLDS, but others who did not. The exact number is uncertain as the identity of those who completed is not known. Data was also gathered from two sets of semi-structured interviews with the Principal, APA and Curriculum Leader. On the basis of the quantitative and qualitative collection methods, it was decided that sufficient data would be gathered to support the

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findings of the study. A full account of the development and use of the ISLDS is provided in Chapter 5.

The initial question of the Inspection Stage interview sought to explore the perceptions these teachers held about why so few teachers in this school completed the ISLDS. Teachers offered a number of reasons as to why this may have occurred:

- teachers who are new to the school may have been unsure as to how to respond

- lack of time

- too lengthy

- hard to answer

- difficulty in remaining motivated after a long day of teaching hours

- the survey required deep thinking

- it was tricky

One commented that it was beneficial in that "It made me think and was like doing a PD session itself".

Whilst these comments from the teacher focus group interview provide guidance for the researcher in conducting future surveys, they also indicate that some of the questions were challenging for some teachers in thinking more deeply about their pedagogy and practice in relation to student learning and development.

The analysis and interpretation of the data from the teacher-focus group interview then informed the individual semi-structured interviews with the Principal, Assistant to the Principal (APA) and the Curriculum Leader (see Appendix 8 for interview questions). It was determined that those in a leadership position would provide a broader interpretation of the teachers' responses in order to deepen understanding of the issues being inspected. The analysis and interpretation of these data, together with the data from the teacher-focus group interview, are detailed as findings from this study and are addressed in Chapter 7.

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6.2 Beliefs about how Students Learn

6.2.1 Issue 1

There are diverse beliefs about how students learn, and how teachers are supported in knowing about how students learn in this school's environment.

Teacher-focus group interview. During the Inspection Stage focus-group interviews with teachers, they indicated that students learn in this school's environment when they feel safe, supported and engaged. This following response indicates this perception:

> …the classroom climate is really important for them to feel welcomed; that they belong; that they have a place, and that it's safe (ISIT5).

The teachers did not specifically discuss how their students' learn or the importance of knowing their students as learner. In the Exploration Stage of the study, teachers outlined how they enact their own theory of learning, and that these personal theories are often drawn from a variety of sources, but noticeably with 5 of the 9 indicating in the ISLDS, Table 5.5 that this was drawn from their classroom experience. The following response however indicated a particular approach to learning to explain the variance in students' learning dispositions:

> Probably a variety of ways of learning. We all know that some children are strong visually, some might be kinesthetic. So perhaps allowing different/various strategies is really important. Various ways to learn the one thing. Particularly in the early years, even if it's a certain concept that we're teaching, there'll be a whole range of ways to get them to that understanding of learning. So whether it's a drawing or writing; manipulating concrete materials … through artwork, music. I think it's just a multi-strategy approach to learning and I think that's important. Then we are targeting different ways children learn. (ISIT3)

The teachers' remaining responses focussed on practices and/or strategies that *they* as teachers use to ensure student learning. This is supported by the qualitative responses in the ISLDS as noted in Section 5.3.1, where one teacher's response indicated that students' learn by access to knowledge and engagement with content. Two teachers stated that students' learning was dependent upon good teacher

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role modelling; and another two teachers prioritised clear learning expectations, and outcomes. While a further response describes teacher enthusiasm as indicated in the following statement:

I know that we have heard in the past that the teacher's input or enthusiasm doesn't necessarily have a huge impact on learning, but I think it really does. I think how much you invest in what you do with the children in terms of your own enthusiasm, and that you can show them whatever they're doing is important, in the way that you engage with the children and the way they can relate to you, and you can relate to them. I think that that really impacts the success of their learning as well. (ISIT2)

During discussion, a conducive learning environment was also raised, as reflected in the following comment:

I think the classroom climate is really important for them to feel welcomed, that they belong. I do think the disposition of the teacher can have an effect. You can see classes that by the end of the year are either calmer or less so, depending on the personalities and that can affect some students too. (ISIT5)

Inspection Stage interviews also focussed on the strategies that teachers use to ensure that students are learning and covering curriculum content to meet teacher expectations. The comment below is typical of responses and supports this interpretation:

I guess in the early years we're finding that if you show them what it looks like – the end product should look like in terms of your (the teacher's) expectation, in terms of how something should look when it is finished, it gives them something to work towards. Whereas if you have – it's almost like open, limitless options, sometimes as much as it is great to have such a diversity of thought, you come up with things and you think they really didn't get the intention of this learning. So we're setting them up with something that gives them a really good framework as to where they're going and what is expected of them and this tends to produce a better outcome in terms of learning. (ISIT2)

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Adding to this perception is the use of teacher stipulated criteria sheets used as a strategy to give students clear indicators of success to ensure learning that meets teacher expectations:

In the upper primary we always give them the criteria sheet first. We always give them – this is what we're looking for. There are no secrets. This is exactly what we're looking for, this is what it needs to look like, and this is how you are going to get there. (ISIT4)

Teachers also discussed some value in students directing their own learning, but this was then contradicted by further discussion, where it was stated that this was manipulated by the teacher to cover the necessary curriculum content:

Definitely doing and having a vested interest. So you'll pose a question, and it's for them to come up with what they would like to learn, and then you scaffold that and manipulate it slightly so that you actually cover what you need to cover. Children learn by having input. (ISIT5)

As was the case in the data interpreted from the ISLDS in the Exploration Stage of the study, the responses from teachers in the Inspection Stage of the study indicated that the knowledge and understanding about how students learn in this school's environment was:

1. Drawn from their classroom experience

2. Predominantly perceived as the practices and strategies that *they* employ to ensure that students are learning and not '*how*' students learn.

Leadership Team and Curriculum Leader individual interviews. Data from the teacher focus group interview then provided the basis for interview questions conducted with the Principal, APA and Curriculum Leader where three points were raised. The first point of discussion focussed on teachers' different understandings about how students learn. The second point of discussion was how teachers are supported in knowing about how students learn in this school's environment. The third point was factors that the Leadership Team believe impact teachers' beliefs about how students learn.

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The Leadership Team indicated that the support provided by leadership for teachers to know how students learn in this school's environment dated back to when the school was established ten years prior. The foundational staff, including the current Principal, designed and developed the school's *Vision for Learning and Teaching* (see Appendix 9 for de-identified document). This vision outlined some fundamental beliefs, principles and practices about how students learn. The Principal indicated that there was an expectation that teachers refer to these principles and practices outlined in the school's vision and should be integral to learning and teaching at this school. The vision based on shared beliefs and principles informed certain practices adopted by the school, such as not having textbooks and the use of collaborative learning spaces. When asked if teachers used this document, the Principal indicated that teachers were aware of the *Vision for Learning and Teaching* and were directed to use it, but he was uncertain as to whether it was referred to on a regular basis to inform learning and teaching in the school. He recognised that this had not been considered a priority in the past and his solution to this problem was to provide support for teachers in knowing how students learn, by future involvement in the *Visible Learning for Teachers*[15] project. During the discussion, the Principal was asked further about whether the project would provide teachers with a deeper understanding and knowledge about how students learn. His response indicated that it would "improve pedagogy". He explained that through teachers explicitly outlining learning intentions and expectations for students, learning would be improved across the school. He did not, however, recognise that this would address teachers' knowledge and understanding of how students learn or if it was a priority for him as instructional leader of the school.

When the APA was asked to comment on the purpose of the *Visible Learning* project she expressed a different perspective. She explained the support for the project would provide teachers with "an understanding of the factors that influence the learner in a positive or negative way. It

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[15] Visible Learning plus is a professional development program for teachers based on the work of John Hattie that explores how evidence can be used to create innovation in the learning environment.

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will help them [teachers] to prepare their lessons and structure their language around making students independent learners." She also made reference to student learning by advocating that the project would assist teachers in understanding that, "In starting with the students, it is important to ask: what does the student know and what does that student need to do to continue making progress for their learning?" She also believed the project would support teachers in being more student-focussed than content-focussed.

The Curriculum Leader on the other hand, did not indicate that the up-coming project would support teachers to understand how students learn indicating instead that to date there had not been a focused plan of professional learning targeting how students learn in this school's environment. She stated that any reference to this issue was incidental through the use of particular resources to support learning and through informal discussions amongst staff. This finding indicates that there was limited specific direction for teaching and learning from the Leadership Team. A refocussing on the school's *Vision for Learning and Teaching*, but aligned with principles and practices of contemporary learning approaches, could have been used as integral to teacher planning and practice to inform and improve student learning and development.

The second point of discussion, regarding the responsibilities of those in the Leadership Team in persuading teachers to deepen their knowledge and understanding of the current body of knowledge surrounding how students learn, was indicated by the Principal and APA as that this an issue that had not been considered a priority. The Principal justified this position by stating "Well yes and no. I mean, I guess I have the opportunity". He elaborated further by indicating that the Curriculum Leader was the "key lead" in terms of teaching and learning at the school. He expressed concern by stating, "I think I need to take a stronger role, and I've been endeavouring to do that in this past year". He explained further, that this was due to being "In a new school where you are pulled in so many directions, and I know my primary goal should be teaching and learning and the reality is that often it's not". He also commented in relation to the current body

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of knowledge surrounding how students learn, that the information flow was spasmodic and that there were often contradictions in the research.

The APA however, indicated that the constraint of time was the reason for not providing the necessary professional learning required around this issue. She stated that the current focus was on deepening teacher knowledge around the learning areas of the recently introduced Australian Curriculum. In support of this decision, she elaborated "I think as a Leadership Team we do provide opportunities for staff to do that, but because we don't want to burn anybody out, we choose what we're going to do each year and we try to stick to those areas. You can't put it on all at once. It's unrealistic".

The Curriculum Leader on the other hand indicated that in her position, she did have the opportunity to deepen teachers' knowledge and understanding of the current body of knowledge surrounding student learning. She stated that this could take place in one-on-one or in small group planning with teachers, but she had not had the opportunity to focus on this issue. Staff meetings or other professional development opportunities that were curriculum related, were seen as her responsibility. She believed that using research-based information relating to the *Visible Learning Project*, and becoming a" visible learning" school, would have teachers draw more upon research than in the past.

The third point of discussion sought responses from the Leadership Team and Curriculum Leader in relation to what they considered were the main influences that impact teachers' beliefs about how students learn. There were differing perspectives from the Principal and Curriculum Leader surrounding this issue. The Principal responded by stating that the "Curriculum Leader was the central person responsible for leading teaching and learning". The Curriculum Leader on the other hand, indicated that the Support Teacher Inclusive Education (STIE) was influential in her role, as she had an impact on teachers' beliefs about how students learn. She also revealed that there were number teachers on staff who held strong opinions and, consequently, were influential in impacting teachers' beliefs about how students learn across the school. She elaborated by

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stating, "They may not voice their opinion for the general public, but they're quite influential in their year level. Their opinions carry a lot of weight". She recognised that the Principal and APA have influence, "but if it isn't decided and driven in a way from the Principal, from Admin basically, then there can be a multitude of ideas". This suggests that, as it is not a priority of the Leadership Team, teachers are dealing with it in their own ways and constructing their own meanings. The Curriculum Leader went on to express the opinion that it was important to make sure that the school direction was clearly articulated and explained on a yearly basis, so that teachers understood that "this is what we do and this is why we do it". Although the Curriculum Leader was only an advisor to the Leadership Team, it would seem that she had some very sound advice that needed to be considered.

The following points are a summary of the responses from the Principal, APA and Curriculum Leader:

1. The Principal as leader of the school recognised that he did not support or lead teachers in learning and teaching.

2. The Curriculum Leader and the STIE were considered to be the leaders of teaching and learning in the school.

3. Influential teachers on staff impacted teachers' perceptions about 'how' and 'that' students learn.

4. This issue had not been considered a priority by the Leadership Team in the past.

5. The original *Vision for Learning and Teaching* plan was expected to be integral to learning and teaching and needed to be clearly articulated on a regular basis.

6. Professional learning was driven by new Australian Curriculum initiatives.

7. A solution lay in the school's future involvement in a *Visible Learning Project*.

8. The constraints of time prohibited supporting this issue.

Second Order interpretation of the first issue - the diverse understandings about how students learn, and how teachers are supported in knowing about how students learn in this school's

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environment is provided in Section 6.6 and the findings identified will inform the next chapter, Chapter 7.

6.3   Principles for Learning

6.3.1   Issue 2

There are different understandings that are held about core principles for learning, and the support to improve this understanding.

In the Exploration Stage of this study, it was documented in Section 5.2.2 that teachers rated some principles for learning, and processes to improve student learning, more highly in the frequency analysis than others. For example, cognitive principles were more positively endorsed along with students' active involvement; personal and social perspectives; transferring learning to different contexts and having a positive attitude in believing tasks can be mastered with effort. Whilst teachers in the Exploration Stage of the study indicated strong agreement about students being actively involved in their own learning, they did not make any correlation to students being responsible for their own learning, constructing their own meaning, or monitoring and regulating their own learning development as core principles for improved student learning.

Teacher – focus group interview. Discussions with teachers during the Inspection Stage focus group interview, confirmed teachers' responses on the ISLDS that students need to be actively involved in their learning with a positive attitude as two significant principles for learning. During this focus group interview, students' being responsible for their own learning was identified as an important principle for learning. This principle was discussed by the group in some detail, and the following indicates this emphasis:

> …responsible for their learning. They still are expecting you to spoon-feed a lot of the information. So it's really been trying to get them to realise that you're a part of this learning. I can give you things, but you need to take it and work with it. So I would probably say, responsible for their learning (ISIT6)

Another teacher confirmed a similar perception in relation to this learning principle:

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But also too, that they are aware that they're responsible for their own learning. I think we see so many children every day who think I'm just going to cruise on through. Some information goes in, but not a lot gets done with that, and they think the teacher's going to – it's what the teacher is telling me and they don't really understand that it's their responsibility (ISIT2).

These comments suggest that teachers interpreted this learning principle to mean that it was the students' responsibility to be *engaged* in their own learning, and to make the connections *themselves.* This perception was further supported in the statement:

To then take that information and apply it to their own life situations, to what they're doing as practical tasks. I think that that's a really important part to success in learning that they have to take ownership (ISIT2).

Another teacher elaborated further by stating:

Yes, they can be very engaged and very positive and [at the same time] let it all fly by. That was really interesting for that hour, or that term, but if they don't see the big picture of where that fits in, and this is going to impact on me, yes, they may not progress (ISIT5).

These statements indicated that teachers perceived that student responsibility for their learning included their capability to transform knowledge and understanding into real-life contexts and to be able to make the connections with the purpose of their learning for themselves, not supported by the teacher.

The degree that students should be responsible for their own learning and development was quantified by only one teacher, who believed that students should be 100% responsible for their learning. Others identified that there were degrees of responsibility, depending upon the age of the student or the type of learning to be covered. While others agreed that it should be a partnership between the student, teacher, and home. A response confirming this notion of partnership is indicated in the following statement:

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Well, I say to my kids that I'm looking for a 50/50 balance that with them that they need to be taking in and giving me back at least 50 per cent in terms of them being self- directed and learning. Not just sitting there and waiting for the teacher to write all the notes on the board or this is what you do now. Even in the work they do, that they need to be trying to think for themselves too. Not just always waiting for me. So I always say to them, 50/50 balance is what I'm looking for in effort. If I feel like I'm giving – if it's becoming 70/30 then they're not keeping their end of the bargain (ISIT6).

In summary, the discussion suggests that teachers interpreted this to mean students' *engagement* in the learning. They perceived the engagement as an expectation of the students' contribution to the learning. There was no mention of students working independently or being responsible for constructing, evaluating, monitoring or regulating their own learning development. However, they did indicate their understanding of two other principles:

1. Students need to be actively involved in their learning.

2. Students need to have a positive attitude towards learning.

Leadership Team and Curriculum Leader individual interviews. In discussions with the Leadership Team in relation to this issue, the Principal indicated that support was provided to teachers by his ensuring the availability of funding for teacher release to work with the Curriculum Leader. In the role of "gate-keeper", he held the belief that it was his responsibility to ensure that teachers were not overwhelmed, in particular with the introduction of the Australian Curriculum. He also mentioned the need to create a safe environment for teachers so that they felt supported.

The APA in relation to this issue indicated that there was no current support provided from leadership of the school. She did specify however that the BCE's *Model of Pedagogy* was to be the core driver to deepen teachers' knowledge and understanding of principles for learning in the future. She explained why this had not been a priority in the past, "I think the reason we haven't done that this year, is because it hasn't been the focus, even though I know – even saying that, it should be. It should be behind everything". The APA also made reference to core principles for

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learning in terms of student learning behaviours, indicating that these behaviours needed to change. She stated that most students in the school perceived good learning behaviour as, someone who sat quietly and listened to the teacher, putting their hands up when there was a question. She indicated that, "A good student learner should be communicating with people in their group and asking questions and interacting and researching and all that type of thing". Whilst this response was in support of some core principles for learning, there was no suggestion as to how teachers might embed these learning behaviours, or practices, in student learning.

The support provided to deepen teachers' understanding around core principles for learning was seen from a different perspective by the Curriculum Leader, who indicated that there was a lack of understanding around this issue. She explained the reason for this was "Because we haven't had targeted professional development which draws on a comprehensive base of research, this is why practices are the way they are. People draw on just their own experiences, or what someone else had told them worked for them, which may or may not be in line with the research".

This statement by the Curriculum Leader confirmed the findings from the Exploration Stage of the study. In Section 5.2.1, teachers endorsed life experience, classroom experience and working with colleagues as the strongest influences upon their beliefs about how students learn, suggesting that teachers use tacit knowledge to guide their thinking. The less positive responses regarding teachers deepening their knowledge and understanding through professional reading and research, and the lack of postgraduate qualification, as indicated in the Exploration Stage of the study, call into question teachers' knowledge and understanding of contemporary approaches to learning, and core principles for learning, that need to underpin these approaches.

When asked about the importance of students' being responsible for their own learning and development, the Principal responded by stating that "if students feel empowered to take responsibility for their own learning, that's the ultimate goal," but qualified this by commenting "but without taking the teacher off the hook, because the teacher is the facilitator of learning in the class".

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When asked if he believed that students being responsible for their own learning, encompassed constructing, regulating and self-monitoring their own learning, he indicated that "whilst there is the desire for students to be self-directed, there's the consideration of the curriculum". He suggested that teachers needed to find a balance [between students being self-directed and the teaching of curriculum]; and they needed to be "managers" of both. He made no suggestion as to the support needed for teachers to accomplish this, or that this has been, or should be, the role of the Curriculum Leader to guide teachers in finding a "balance." He made no mention of available funding for the professional learning of teachers to support deepening their knowledge and understanding of the principles for learning.

The APA was candid when making comments regarding students' taking responsibility for their own learning development. She stated, "Currently I believe that most of our students are not really interested in their own learning. They've been used to sitting in a classroom, being told what they have to learn, learning it, being tested on it, and being told what else they have to learn." She, along with the Curriculum Leader, was of the opinion that there needed to be clear learning intentions, purpose and awareness of what they [students] needed to achieve.

The core learning principle of students taking responsibility for their learning was seen in the light of students intuitively taking on this responsibility. There was limited evidence in the analysis that teachers connected students taking responsibility for their own learning, with students constructing their own meaning, or evaluating, monitoring or regulating their own learning and development. This perception could indicate that the teachers expected students to take partial responsibility for their learning, but considered the construction of meaning, evaluating, monitoring and regulating of student learning as their domain. Teachers indicated that students needed to be able to transform knowledge and understanding into real-life contexts and to be able to make the connections with the purpose of their learning for themselves, not as principles for learning that needed to be supported and guided by the teacher.

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The Leadership Team and Curriculum Leader in providing support for teachers deepening their knowledge and understanding of core learning principles to improve teaching and learning indicated differing perspectives. These findings are summarised as:

1. The Principal sees his role to provide support through funding for teacher release.

2. The Curriculum Leader is seen to be responsible for leading change in learning and teaching.

3. Teachers use tacit knowledge to guide their thinking.

4. There is not sufficient targeted professional learning based on comprehensive research to deepen teachers' knowledge and understanding of principles for learning.

5. The BCE *Model of Pedagogy* would provide what was needed to address the issue in the future.

6. Student learning behaviours need to change, but there is no direction provided.

7. Students should be encouraged to be responsible for their learning, but not to the detriment of covering the curriculum or limiting the responsibility of the teacher.

8. Students need to set learning goals and to have clear learning intentions, purpose and an awareness of what they need to achieve in their learning.

A summation of the perspectives from the teachers and the Leadership Team is addressed at Section 6.6.

6.3.2   Issue 3

There are different perceptions of what learning processes are considered important to ensure improved student learning and development.

It was indicated in Section 5.2.1 of the Exploration Stage, in the frequency analysis of the data from the ISLDS that teachers rated cognitive core principles for learning more highly, but assigned a lower frequency to teaching of learning processes and associated strategies in this construct. With these findings in mind, in the Inspection Stage of the study, responses were sought

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from teachers in the focus group interview, which then led to further clarification from the Leadership Team and the Curriculum Leader to further elucidate this issue.

Teacher focus group interview. The data from the Inspection Stage indicated that teachers were aware of a number of processes of learning such as students being able to question, investigate, analyse, reason, justify etc. Some responses indicated teacher-driven processes such as providing success criteria and a structured sequence of learning. The analysis indicated there was confusion around learning processes that students needed in order to improve their learning and the question of whether teachers actually taught students processes or student self-directed strategies for learning.

Leadership Team and Curriculum Leader individual interviews. The Principal, APA, and Curriculum Leader in their responses indicated that they believed teachers in this school predominantly taught the content of curriculum rather than the processes of learning. The Principal indicated that this was not the preferred practice. "Well, the thing teachers have always favoured is the content. I don't think that's where they should start. It's not about content." During the discussion a question was posed about the implications for student learning if teachers always taught content, without a focus on the processes of learning. The Principal responded "Well I think it's a shallower outcome, because they haven't got the skills and processes to be able to deepen their learning."

Reasons as to why teachers favoured the teaching of content over learning processes was explained by the APA: "Teachers are generally very well-planned, controlling people. They like to know that this is what I have to deliver, and that's what they need to know, and that's what I [the teacher] get back from the students." Approaches of inquiry or investigation, where students needed to apply processes of learning, were seen by teachers, according to the APA, about "moving away from the content because investigation is not as neat; it's not as easy to control; it forces them [teachers] to come out of that comfort zone of students just sitting there and listening".

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The Curriculum Leader indicated similar sentiments by relating comments from teachers during planning sessions. When she asked them about their approaches to learning where students needed to apply processes of learning, she said teachers responded with: "But when are we teaching? When do we get to teach? When are we going to teach them the things they need to know"?

There were also other points made by the Principal, APA, and Curriculum Leader in relation to this issue for discussion that shed further light as to why the processes of learning were not specifically taught by teachers to assist students to improve in their learning and development:

1. Teachers focussed more on the teaching of content rather than the teaching of learning processes.

2. The approaches of inquiry and investigation that relied on processes of learning were not valued by teachers.

3. The Leadership Team recognised the teaching of learning processes would deepen student learning.

4. Teaching of learning processes would detract from the teaching of curriculum content.

These findings from Issues 2 and 3 will be summarised in the Second Order interpretation in Section 6.6 and further in Chapter 7 as a Third Order interpretation, where theoretical significance is developed and theoretical propositions are advanced.

6.4   Teacher Judgement of Learning

Section 6.4 examines teachers' judgement of student learning and the expectations of administration in relation to these judgements. Two issues for discussion, Issue 4 and 5 were identified at the end of the Exploration Stage.

6.4.1 Issue 4

There are different priorities of what is considered the purpose of assessment.

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The collection, analysis, and interpretation of data from the ISLDS in the Exploration Stage of the study, in Section 5.4.4, focussed on the judgements teachers make about the progress of student learning. Lower frequency in the analysis of the ISLDS data indicated teachers held a lesser value for the assessment strategies of student self-reflection, student self-evaluation, student self-regulation, student self-monitoring, for students to determine the improvement and development of their own learning. Teacher responses on the ISLDS also indicated little value in transferring knowledge and understanding from one context to another. Teachers did however, endorse the use of formative assessment to know that a student's learning is developing, but were less inclined to support that assessment helps learners know how to improve.

In the Inspection Stage a number of responses indicated a variance of understanding among teachers, and between teachers and the Leadership Team, regarding the purpose of assessment.

Teacher focus group interview. The Inspection Stage confirmed the analysis from the Exploration Stage, in that some teachers saw the purpose of assessment was to inform them, and their students, of the progress of learning. Assessment was seen as a continuum to "set the markers" to give students "an idea of where we're they're headed" (ISIT5).

There was also the perception held that contradicted the findings in the Exploration Stage, that teachers did not regard assessment as central to classroom practice. As one teacher commented,

> I think it's quite interesting when you look over Mathematical tests and things, where the majority have found it really difficult, and you think, well maybe, I should have taken a different approach with teaching that (ISIT1).

Whilst these responses aligned with current knowledge surrounding the purpose of assessment, there were other interpretations that indicated otherwise. The use of assessment strategies to explain the understanding of the purpose of assessment was indicated by one teacher:

> Well, I guess, just to see initially where they're at, and then using it again to see where they're at, at the end. So I always try and keep my data so I see improvement. That's what

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I'm really looking for, I guess with an individual student, that they're improving and they're not stagnating, and they are improving, and they are learning new things (ISIT6).

This statement, although not directly addressing the issue of the purpose of assessment was a positive indication of the teacher making judgements of the progress of student learning. However, this view may not be uniformly held, considering the contradiction in the following statement:

So I try – it's just the way I do things. I like numbers. So I give scores and keep track of it that way so I can see – use percentages and things like that just with a little workbook I've created. That way, I can see if most of the class or the majority of the class is really doing well in one area (ISIT6).

This statement suggests the predominant use of summative assessment results to indicate the positioning of students in the class in relation to their learning, rather than making judgements to be informed of student learning and development progress.

The 'purpose of assessment' was also interpreted in terms of reporting and accountability. This was indicated in the following response:

I guess too, assessment then allows us to inform those parties that are involved – like parents and other staff. I think that's part of our accountability as well (ISIT3).

The grouping of students according to ability was seen as a purpose of assessment. As one teacher indicated:

I think it helps you know within your class the range of abilities, and who's where. Especially if it's even pre-testing, so you're not at the start of the year – well where are the students at? I think that helps you then drive your teaching. So you make it more specific, based on what they're lacking and what they need. Then even in terms of differentiation, we're able to put them into groups so that they're not going back over something they already know, and you can really target their learning more specifically (ISIT1).

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An alternative interpretation of the purpose of assessment was voiced, and related to the coverage of curriculum content, as evidenced in the following statement:

I think it also shows you how effective you've been with how you've delivered the curriculum (ISIT1).

This wide variance of responses from teachers in the Inspection Stage highlighted their different perspectives and indicated the purpose of assessment was to:

1. Inform *them*, and not the students about student learning progress.

2. Feedback to students, but not how to improve in their learning.

3. Indicate the effectiveness of teaching practice.

4. Use summative assessment to indicate the positioning of students in the class.

5. Report to parents and for accountability purposes.

6. Group students according to ability.

7. Ascertain the teacher's competency in covering curriculum content.

Leadership Team and Curriculum Leader individual interviews. In order to gain a deeper understanding of the range of views, a discussion with the Principal, APA and Curriculum Leader were conducted regarding their perceptions of the use and purpose of assessment within their school. In response, the Principal and APA indicated that it was expected that teachers use the school's tracking tool system to pass on data from one year to the next. The Principal explained, "It's meant to inform, or give the teacher guidance at the beginning of the year as to what that starting point is for individuals in the class in terms of their learning". The Principal and APA indicated that there was support provided in the form of time allocated to input data into the school's tracking tool system. There was the expectation that teachers use this information in planning for learning at the beginning of the year. The APA did however state, "Whether everyone does that, I'm not certain". When asked if she believed that teachers were clear about the purpose and use of assessment in the school, the APA elaborated, "In a perfect world, yes, but probably

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not, because our vision is not that specific. We don't get down to quite that specific. But we do have those expectations and we do check in on teachers".

The Curriculum Leader confirmed this lack of clear direction or understanding surrounding the school's vision in relation to the purpose of assessment. She explained "In terms of clear assessment practices being articulated – I think it's not unspoken. We talk about it, but there's not a statement anywhere that says we use it for this, and we use it for that. There's certainly a lot of discussion, and maybe it's an implied expectation because it's not written down in terms of we'll need to do this, and you need to do that." The Curriculum Leader also indicated that teachers did not always align assessment to the achievement standards or content descriptors of the Australian Curriculum. She recognised the need for teachers to understand the purpose of assessment, and confirmed this by stating," If it doesn't have a purpose, unless it's for teachers to learn about their students earlier in the year, then why would you do it"?

The responses from the Leadership Team and Curriculum Leader relating to the purpose of assessment were interpreted as:

1. An expectation that teachers use the school's tracking tool system

2. Assessment is meant to inform, or give the teacher guidance

3. Teachers are to use assessment information in planning for learning

4. Time is allocated to input data into the school's tracking tool system.

5. Purpose and use of assessment is not specifically outlined.

6. There is a lack of clear direction or understanding surrounding the schools' vision in relation to the purpose of assessment.

The different perspectives held by the teachers and the Leadership Team in relation to what is considered the purpose of assessment will be addressed further in the Inspection Stage.

6.4.2   Issue 5

There are different priorities held and levels of support provided to ensure assessment is integral to the learning process.

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Teacher focus group interview. The Exploration Stage indicated that teachers were less inclined to support the notion of assessment as central to classroom practice. This was evident in the frequency analysis in Table 5.12 in the ISLDS, where only one teacher rated this item with a 10. Teachers in the Inspection Stage interviews indicated a variance of perceptions regarding this issue. A positive indication supporting the notion of assessment being integral to the learning process was the response by a lower school teacher, who expressed this understanding:

Ongoing. It has to be ongoing, absolutely, from the start. Before you even begin a particular unit of work or teaching concept I think you need to know. It doesn't always have to be a formalised test, it really doesn't. So definitely ongoing, it has to just work in between. Sometimes assessment may not necessarily be planned, it might just happen, and you think wow I'll take that, or it might be the response during group discussion. You've got to keep that in mind. So it doesn't always have to be such a formalised way of gathering information. That would certainly be the case in the early years. I think early year's teachers are very good at that. I don't know that teachers further up the scale are so open to that sort of incidental assessment (ISIT3).

Whilst this indicated a positive response for the use of assessment practices to be informed of student learning progress, there was an indication that this information was not used to inform future learning, or that students were informed of their progress. It was interesting to note the perception held by an early year's teacher regarding assessment as an on-going learning process, as particular to this section of the school. The perception that this was different in other sections of the school indicated there could be a lack of consistency in assessment practices, and assessment as part of the learning process across the school.

Another perception held in relation to assessment being integral to the learning process was interpreted by one teacher:

That depends on what you're trying to assess... A perfect one is History. The students had to give an oral presentation in History on a significant person from the past. For somebody

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that can't do an oral presentation – we did a PowerPoint instead with the same information. So what was I assessing – I wasn't assessing the oral presentation, I was assessing the content and how they deliver it (ISIT4).

In supporting this statement another teacher elaborated by saying:

Well they shouldn't be discriminated against because they can't stand up and deliver an oral presentation, it might be delivered another way. As long as they can give you what you're looking for (ISIT4).

These teachers saw assessment not as on-going, formative assessment, integral to learning, but as summative assessment to be used at the end of a learning episode. They indicated that students were assessed on the content knowledge of the learning, but had the belief that catering to individual student's preferred method of presentation was supporting their learning. There was no consideration of how to assist the students in deepening their understanding around the concepts of what had been taught, or to inform the next steps in their learning.

One teacher, who taught in the middle years, held a similar perception as evidenced when explaining the process of assessment as integral to learning:

So we generally do a cold piece. If it's writing or a pre-test of some sort we can see where they're at. Generally, we've written the unit and then we will adapt it if we can see from that pre-test whether we need to start back and maybe what we were planning is not there yet. Then we always have an end piece of assessment that we're working towards. As well as that we write a criteria sheet and we go through at the start of the unit and say, this is where we want to get to at the end with the students (ISIT6).

It appeared that there was limited evidence in the responses from teachers in the Inspection Stage to suggest that assessment was considered integral to the learning process across the school. This finding is supported by the differing views of:

1. How, and when, assessment is used as part of learning.

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2. Teachers considered assessment as their domain, and that assessment of student learning was used to meet their expectations.

3. Assessment practices described by most teachers as assessment of learning (summative), with some reference to assessment for learning (formative), and no mention of assessment as learning.

4. Student involvement was not considered as integral to the assessment process – assessment 'as' learning.

Leadership Team and Curriculum Leader individual interviews. With this wide variance of perception from teachers in the Inspection Stage regarding this issue, interviews were conducted with the Leadership Team and Curriculum Leader to shed further light on the support that is provided to ensure assessment is integral to the learning process.

In the initial interviews in the Exploration Stage of the study, the Principal, APA and Curriculum Leader indicated a number of assessment strategies that they expected teachers to use as integral to the learning process. With these expectations in mind, together with the data analysis from the ISLDS and the response by teachers in the Inspection Stage, the question of support provided to teachers to ensure assessment practices is integral to the learning process needed to be addressed.

In discussing the actions undertaken by the Leadership Team to support teachers regarding this issue, the Principal commented, "We have healthy and frequent conversations about how we report to parents and so obviously assessment feeds into that". The APA however indicated that the support provided surrounding this issue was in the form of allocating planning time for teachers to enter data in the school's tracking tool system, whilst the Curriculum Leader indicated support was provided in leading moderation with teachers. The Curriculum Leader did, however, indicate that she was frustrated by teachers who did not align the learning with Australian Curriculum achievement standards. She stated, "Again this year, in sitting down with people to moderate, we were pulling out pieces of work to compare. When we asked, so what was this to address in the

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achievement standard, one group of teachers replied, "You know, oh I don't know. It was surprising that there would be a year level where teachers who were very competent teachers and that happened".

It is evident that there is a variance in the perception of the support that teachers are provided by the Leadership Team in relation to this issue. What has been indicated is summarised in the following points:

1. Support is provided through dialogue with teachers about reporting to parents.

2. Support through allocating time for data entry in the schools' tracking tool system.

3. Support is provided for teachers through moderation processes.

6.5   Use of learning and development data

In this section, the use of learning and development data to inform student learning, development and progress is inspected to seek further clarification of three issues that were apparent at the end of the Exploration Stage of the study.

In Section 6.5.1, the sixth issue for discussion of the study, clarification was sought from the teacher-focus group and the Leadership Team as to the significance of the collection, analysis and interpretation of data to support student learning and development. Section 6.5.2 sought further illumination from the teacher focus group and the Leadership Team of the issue surrounding the use of data to take on meaning that informs the judgement of student learning and development. The final issue in Section 6.5.3, reports how both groups in the Inspection Stage perceive they could better use data to improve learning and teaching.

6.5.1   Issue 6

There are differing opinions as to the importance of the collection, analysis and interpretation of data to support student learning and development.

In the Exploration Stage of the study, the least positive endorsement from teachers was evident in Table 5.29: *Different Types of Data,* in comparison to all other scales in Section 5.3. The only item where four of the eight teachers indicated a 9 or 10 was: *Informal discussions with*

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previous teachers, gives data to inform me about student learning and development. This suggests that teachers do not positively value the use of data to inform their judgement, but also that they dismiss the expectation of the Leadership Team that data must be used to indicate, and be informed about, student learning and development. This was particularly evident in relation to teachers' use of the school's tracking tool system. In order to further clarify this issue, two points of discussion were raised in the teacher focus group interview to determine the significance that teachers place upon the collection, analysis and interpretation of data to support student learning and development in relation to this issue: firstly, the use of data and secondly, the use of data to inform planning.

Teacher focus group interview. The following response indicated the use of data to inform teacher judgement of student learning and development:

I think it's nice to have a range of types of data that you can collect. I mean a lot of the classroom data – some incidental, some planned, some written, some oral, and balanced with standardised or the national testing data, because it's nice as a teacher to get that – well just that wider range, particularly if they have been standardised against Australian norms. It can really support your judgements, in that, I'm not operating in isolation, and we're not in our own bubble. I'm happy with my judgements because I'm seeing this again and again. Or if something is standing out – it could be that we just didn't have a good day on that particular test. So it can give you a good picture of that child overall, and give you a bit of an idea of their story, if you can use that range of stuff (ISIT5).

Whilst this teacher indicated the use of data to inform her judgement in the statement: "to give a good picture of that student overall and give a bit of an idea of their story", it was not apparent that data was used to improve or extend students learning, or to inform students of their learning and development.

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The following comment, however, did show that data was used as an indicator to inform teacher judgement, in that it flagged for the teacher areas that needed to be investigated within a particular context of learning:

In the same way, if they've done the test one day and you think well maybe that wasn't a good day, in the same way if they absolutely fluke that test and you look back to how they've applied certain things in class, and you think well I don't actually think that that is where they're really at, they can't – for example apply that spelling in narratives and in recounts. So I wouldn't really say they're in that spelling phase (ISIT1).

The following responses indicated a different perspective. The use of data was seen as the means to inform teachers of the ability of students to place them into groups according to this ability. The following comment was typical of comments that indicated this perception:

I use it in particular with – at the beginning of the year we do a lot of standardised stuff in terms of when – for spelling and different things like that. So we use that data to then group the children to where they need to be. So they're not all clumped in the one place. Then with the other assessment data that I use, it then precedes the next part of the learning that needs to happen. So we've got this part but we don't all need to learn that part, so can I not then send different groups off doing different things, depending on what they need (ISIT4)?

Another teacher affirmed part of this response by stating:

Yeah, and that's what I was going to say, exactly with the standardised ones, is it helps with grouping (ISIT1).

There were further comments that indicated the use of standardised testing-data to group students according to ability, but across an entire year level. In this way, data was used as a benchmark to "come up with our streaming for English and Maths" (ISIT6). When asked to elaborate further, it was explained that the data from three different standardised tests were triangulated to "try and balance up the best we can where they're at. We look at the NAPLAN

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data, but I suppose it is six months since they've done it when you get it. So it's not as useful as it probably could be" (ISIT6).

Another teacher indicated that the use of assessment data was to test student recall and consolidation of curriculum concepts:

It's like today, before the holidays just – because we're doing numbers in the teens and – numbers up to 20 and done this quick little thing, number recognition, do they know them? Oh yes, because it was part of everything we were doing. Today we were doing another little activity and it was just using the walk on number line and it was really interesting because you could see because of the time – they'd been away from it, holidays, whatever. So it'd be interesting for me to do it again now to see. So it's almost like you could repeat the same piece of assessment and see has it really been consolidated or is that just because hey it's fresh in their mind, it's just what they've been doing. We know that's how teaching is. That's why from year to year teachers will go [gasps] do they teach this? ...Exactly. That's why that happens because children forget and so they need things repeated (ISIT3).

It was indicated in these responses that there were differing perceptions for the use of the collection, analysis and interpretation of data to support student learning and development. These responses are summarised by the following points:

1. A variety of data is gathered to inform teachers of where the students are in their learning.

2. Data helps to confirm teachers' judgements of student learning.

3. Data can point out areas that require further investigation.

4. Data is used to group or stream students according to ability.

5. Data can indicate the students' ability to recall content or concepts.

These findings then led to the second point of discussion, the significance of the collection, analysis and interpretation of data in teachers' planning for learning to support student learning and development. The following response indicated that it was important for planning, as it indicated:

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… what you're going to cover, and who you're going to target and then I suppose, in the same way looking at the curriculum as well and what is expected at the end (ISIT1).

This comment indicated that data was used to indicate the coverage of curriculum content. Another teacher elaborated upon this point by stating that the use of data enabled:

… using information. Looking at those benchmarks and where you start your learning, so that information really drives where you pick up with the individual group that's coming through each time. So it does affect the way that you do things because you have to look at the individuals that are coming to you and how what you do going forward, is going to actually benefit them rather than just leave them stagnant or alternatively where you actually miss a lot of things that they need to know. So I think that's the way – using that information can be beneficial (ISIT2).

This response was a positive indication of the use of data, as it provided information about individual student progress when planning for the whole class, however, only in reference to "things that they [students] need to know".

The significance of the collection, analysis and interpretation of data in teachers' planning for learning to support student learning and development can be summarised in the following two points:

1. Data is used to indicate the coverage of curriculum content.

2. Data provides information about individual student progress when planning for the whole class.

The responses in light of the two points of discussion surrounding the use of data and the use of data to inform planning indicated differing perceptions that teachers held in regard to these issues. To further clarify, responses from the Leadership Team and Curriculum Leader were sought.

Leadership Team and Curriculum Leader individual interviews. In the initial interviews in the Exploration Stage of the study, the Leadership Team and Curriculum Leader indicated that

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there needed to be both quantitative and qualitative measures of student learning, and that a variety of assessment strategies needed to be used by teachers to gather data around student learning and development. They also stated that the development of content knowledge was necessary.

In the Inspection Stage interview, the Principal indicated that the primary focus for the collection, analysis and interpretation of data to support student learning was "that starting point and moving people along". He clarified "moving people along" as "value-added progress" which he explained as meaning, "Well everybody progresses as they get older in some sense, and we all learn in spite of ourselves, but in a rich learning environment children have opportunities to learn beyond just being alive and breathing and so that's what we would hope to create". When asked whether his expectation was for teachers to use data to inform them about individual student's progress or to group students according to ability, he indicated, "It is common practice to try to get the best of both worlds between the two resources, but the greater goal is the individual and helping the individual to progress".

The APA saw the primary focus for the collection, analysis and interpretation of data was to "know your learners, because if you don't know your learners, then you've got no idea where you're starting, or where you're going or what you're doing". She explained that this was a problem, as many teachers often planned units of work over their holidays without knowing anything about their learners. The APA also indicated that the school's tracking tool system was considered the definitive source for data collection, and there was an expectation that teachers use to inform their planning. She did reveal however, that this was, "probably not the case in reality". She believed that teachers were focussed on curriculum coverage, rather than getting to know their learners.

The Curriculum Leader's perspective in response was succinct, by stating, "To inform your teaching. To inform the next phase of teaching and what needs to be taught and then in order to report on student's learning".

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The perceptions from the Leadership Team in relation to this issue about the primary focus of the collection, analysis and interpretation of data to support student learning and development are summarised in the following:

1. Data is a starting point to move students along.

2. To indicate value-added progress.

3. To inform teaching and the content that needs to be taught.

4. To inform reporting.

5. Data should be used to ascertain individual progress of learning.

6. Data helps teachers to know their learners.

7. Planning should not precede the interpretation of data.

8. The school's tracking tool system was expected to be used by the Leadership Team.

These findings along with the findings from the teachers from the focus group interview will be further explored in the Second Order interpretation in Section 6.6.

6.5.2   Issue 7

There are differing opinions as to how data takes on meaning that informs the judgement of student learning and development.

In the Exploration Stage, results from the ISLDS in Section 5.3.6 indicated a high level of positivity in the analysis of the responses in relation to this issue. Half of the teachers rated a 9 on the Likert scale regarding their level of competence and confidence in using data to ascertain the progress of student learning and development.   This was contrary to the results denoted in earlier sections of the ISLDS that suggested that teachers rated the use of data with the least positivity. They did not rate the use of data as significantly as other measures to ascertain student learning and development, even though they perceived they knew how to use it.

The Inspection Stage sought further clarification of this issue from the perspectives of teachers in the focus group interview.

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Teacher focus group interview. The use of data to take on meaning to inform teacher judgement of student learning and development was interpreted by one teacher in her statement: "You're doing something. Oh the child already knows that, why would I keep them there, just as you did" (ISIT3). This response indicated that the meaning taken from data was used to ascertain student knowledge and understanding in relation to curriculum content.

The following response is typical of the perception that data are the results or scores that students achieve to judge their learning and development:

> I guess, a lot of it, is formative in just putting numbers on things; that it doesn't really mean much to them, but it helps me a lot just to work out where they're all sitting, where they're at. Even just with simple weekly spelling tests, I can see just from getting an overall snapshot if one kid's getting seven, but all the rest are getting 10, then maybe they need to go back and revise some of it while the others can keep going. So just to teach the individual student, which I guess is where everything's heading is really important (ISIT6).

The following comment indicated a similar perception about the use of data to rank or score student achievement to indicate students' learning and development:

> I have one-on-one conferences all the time, so when the children hand in their assignment there's always a marking sheet with a teacher comment down the bottom, and I write a comment for everything that they hand in. So on their criteria sheet there's always room down the bottom there. Once they've got it back they have an opportunity to come up and see me and they do, all of them do, how could I have improved this, this and this. So you're giving them feedback and you say well here's your criterion, here's your five-point scale here, can you notice – how can you improve on that and make that one better? So I give a lot of written feedback to them and a lot of oral feedback, so that's one-on-one. Then I generally do a whole – there's a whole group feedback too, so I generally do whole group, individual, small group, it just depends (ISIT4).

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Whilst this teacher indicated the use of data related to criteria sheet marking and feedback to students to inform them of their progress, there was the assumption that students had the ability to diagnose their errors and make improvements to their learning.

The same perception was indicated again in the following response:

I see it a lot with my – the students who are really self-motivated already. They are striving for certain marks I suppose and they want to know how they're going all the time tracking towards making sure they are where they want to be, which is important for them. But I suppose it's just as important for the kids who are struggling to either let them know that even though you're finding it challenging, you're actually making progress. That's all that's expected, you're doing your best and we're going forward then we're on the right path (ISIT6).

These comments by teachers in the Inspection Stage interview indicated a perception that by using data and pointing out to the student where improvement is required is sufficient in improving student learning. There was no indication that the meaning interpreted from the use of data was used to diagnose difficulties or successes to improve or build upon student learning to achieve progress and learning development.

Leadership Team and Curriculum Leader individual interviews. It was indicated in the responses from the APA and the Curriculum Leader that there was an expectation that teachers take on meaning from the data gathered about student learning and development. The APA stated, "It's assumed that the first thing you do when you're planning is that you look at your learners, but maybe that's not explicit enough". In elaborating on this point she explained that teachers were given time to analyse and interpret the data but, "whether they use that time for that purpose, or whether they just go straight into the curriculum and plan their unit without even looking at the students involved, I'm not sure".

The Curriculum Leader, in relation to this issue succinctly stated, "Our interpretation of data is limited to this point."

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In summary, the meaning taken from the use of data to inform the judgement of student learning and development by teachers and those of the Leadership Team and Curriculum Leader can be discerned in the following:

1. Data is used to ensure covering the necessary curriculum.

2. The interpretation of data is to inform the teacher – not the students.

3. Data is used to point out to the student where improvement is required, assuming students are able to make the necessary adjustments to improve their learning.

4. Data is taken to mean the results or scores that students achieve.

5. The Leadership Team expects teachers to take on meaning from data to inform student learning and development, but there is limited support provided for teachers.

6. The perception that the interpretation of data is limited in this school.

This summary provides data for Second Order interpretation in Section 6.6.

6.5.3 Issue 8

There are differing opinions as to how data can be better utilised to improve learning and teaching.

The Exploration Stage of the study indicated that teachers did not highly regard the use of data to inform their judgement about student learning and development. Whilst this position was strongly endorsed, there were some teachers who reflected positively on the changes that they could make themselves to better utilise data to improve their teaching and student learning. Others, however, indicated the need for change should be led by the Leadership Team to better utilise data across the school.

The Inspection Stage responses from both the teacher focus group and those in Administrative roles were sought to gain a deeper understanding and clarity around this issue.

Teacher focus group interview. A response from one teacher indicated that a more consistent approach by all teachers in the use of data was required to better utilise data across the school:

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I think that in any large number of people, there are maybe degrees of how teachers use it [data] in different classrooms; how teachers use it, how effectively it's used or gathered – there's a bit of range. It's been put forward from the Leadership Team that this is an expectation (ISIT5).

The reinstatement of student portfolios was seen by teachers as a way to better improve the school's use of data to inform learning and teaching, as indicated in the following response:

… it's often mentioned even in the folios of work – it was something we began a while ago when the folios started. It went off the boil and it was restated this year about putting feedback – the feedback to and from the children goes in the folio, which for some was no great shift because it was practiced, for others it was a whole new thing. So that's an indicator that (a) the school is seeing it as important, but (b) maybe there's still that range there of how we implement it (ISIT5).

Another teacher supported this view by elaborating further:

Yeah, we send off a little sample. I don't know how much that's looked at but possibly if you're looking at one of your students and you think oh I might just check how they really went and that's useful. You probably wouldn't do it for all of your students but the ones that you might be concerned about they're the ones you go – and it's useful, even if it's just a handful it's worthwhile for those few students (ISIT3).

Teachers also made mention of the school's tracking tool system as a school-wide initiative, but agreed that the depth of analysis by teachers was questionable. This was attributed to a lack of time. This was verified in the following statement:

So it tells you a wide range, and you're probably going to get great data as well from the first couple of weeks of seeing them at school. But maybe there's more depth of analysis and I think we're maybe using it more surface, than depth of analysis and I think some of that is – some of it quite frankly would be time, the time to analyse all the different results and to tell us all. But I do see and hear a lot of people analysing those further than just

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there's the number. So again I think it depends on particular teachers or conversations that they may have, and how much further they might need to go (ISIT5).

Another teacher questioned the effectiveness of the system by stating, "When you click on it you can see that there are certain subjects where the data hasn't been put in, which can be frustrating when you're looking for that information, that a teacher hasn't done it". This suggested the need for improvement driven by the Leadership Team to ensure data was entered by all teachers for continued effectiveness of the school's tracking tool system to inform learning and teaching.

The focus group provided suggestions of how moderation could improve the use of data to inform student learning and development through:

…having more of an organised structure of moderating across the year levels. It may have not been mentioned for a while now but yes, I think something where there is a planned program of moderating across the year levels, and looking at that data more than just within your year level because then it's left to teachers in their own time to then meet with others, which is so difficult. You might get pockets of pictures, but I think generally teachers at this school are interested in that scope of not just what I'm doing in my own class, it is about the before and the after too. So that's where I think we could improve (ISIT5).

Professional learning was indicated by another teacher as a means to better utilise data to improve learning and teaching across the school:

I guess any form of PD I really enjoy going to, listening to people who have – that's their area of expertise I guess and hearing from them things that you haven't thought about (ISIT6).

There was a suggestion that using the newly implemented teacher goal setting model introduced by the Principal could be a way of instigating change or improvement in relation to this issue:

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So, I suppose using that model would actually make you think about things, that's what I've noticed from doing it. You've got to come up with all the answers. It makes you think about what you're doing. So that model could help (ISIT6).

Other teachers in the interview decreed that this was a "tricky question – it is really difficult to think okay, what is that one thing that I do want to change, or that I could change?" (ISIT2). Another confirmed this by stating: "It is, it's a tough one," (ISIT1) and this was met with general agreement among the group.

The wide range of responses and the body language indicating teachers' feeling of unease surrounding this issue, called into question the direction given for the better use of data to improve learning and development and teacher practice in this school. Responses were then sought from the Leadership Team and Curriculum Leader.

Leadership Team and Curriculum Leader individual interviews. When asked about how this issue could be addressed, the APA commented that the Curriculum Leader, in providing support for teachers in their planning, could encourage better use of data. She did reveal however, that discussion regarding the integral use of data to improve learning and teaching was limited to the Principal and the Curriculum Leader. "I know that they meet to discuss things like that. I'm not in on those meetings so I'm not sure exactly what happens there".

The Curriculum Leader could see better use of data by "Looking at NAPLAN data and effect sizes to do more on what this story tell us? What can we see? What patterns can we see for this child or for the year level as a whole"? She believed that in so doing, more targeted support would be available to assist student learning and development.

The Inspection Stage surrounding the use of data to improve learning and teaching in this school, elicited diverse responses. There were numerous suggestions made about the processes and procedures that could be introduced or improved upon regarding the better use of current practices in the use of data. Some of these processes and procedures included:

1. More consistency in entering data into the school's tracking tool system.

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2. Clear direction on the use of data from student portfolios.

3. A more organised structure around teacher moderation.

4. Targeted professional learning around the effective use of data.

5. Teacher goal-setting to focus on this issue.

6. The Curriculum Leader to focus on this issue in planning with teachers.

7. The use of NAPLAN data to interpret patterns and trends.

8. A general unease in addressing this issue by teachers.

This summary provides for further interpretation in the following section, Section 6.6 – Second Order Interpretation.

6.6   Second Order Interpretation

With the completion of the two steps from each stage, Exploration and Inspection as indicated in Section 4.4.5, the researcher now turns to the Second Order interpretation of this data. This examination of data informs "an in-depth understanding of the central phenomenon through description and thematic development" (Creswell, 2008, p. 254). Findings from the eight issues will be summarised in this section, Section 6.6, and further in Chapter 7, as a Third Order interpretation, where theoretical significance is developed and theoretical propositions are advanced.

6.6.1   Beliefs about how students learn

In relation to Issue 1, Section 6.2.1, it was evident from the analysis of the responses in both the Exploration and Inspection Stages of the study that teachers place limited emphasis upon how students learn or knowing them as learners. They do, however, have a jointly constructed belief that the learning environment needs to be conducive to learning through students feeling welcomed, safe, and supported. Teachers indicated that they enact their personal theory of learning, and that these personal theories are drawn from a variety of sources that are dependent on the meaning they give to them, acknowledging that their own classroom experience is

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prioritised. The meaning they attributed to knowing how students learn was the practices and strategies that *they* employ to ensure that students are learning and not '*how*' students learn.

The Leadership Team recognised that this is an area of concern, and identified that the solution to the problem would be addressed by external providers of professional learning in the future. The Principal acknowledged that this had not been considered a priority in the past and that he did not provide leadership in learning and teaching. He indicated that this responsibility was delegated to other members of staff including influential classroom teachers. Constraints of time and current curriculum change were seen as inhibitors attributing to the lack of focus around this issue. It is evident that the cultural norm of the leadership team aligns with instructional leadership being delegated to professional development providers and influential teachers within the school. The Curriculum Leader is not seen by the Leadership Team, or the teachers, as influencing their currently constructed meaning of 'Curriculum Leader,' and, therefore she is unable to impact the Leadership Team nor the teachers in this school in establishing the clear construction of definitive beliefs about the nature of knowledge and about how students learn.

In drawing a comparison between the responses by teachers, the Leadership Team and the Curriculum Leader, from Section 6.2.1 – Issue 1, it can be identified that the teachers draw upon their tacit knowledge of working in the classroom and from other influential teachers on staff. The meaning they attribute to knowing how students learn is constructed through interpreting and reflecting upon what they perceive as their role as a classroom teacher, as well interpreting the meaning that others hold, in similar roles in the school. As a result, there is no shared meaning across the school in relation to this issue, as there is limited clear direction, support or instructional leadership currently provided by the Leadership Team for teachers to deepen their understanding to inform their beliefs about how students learn at this school. The Leadership Team recognise that this is an area of concern, however see that the solution to the problem will be addressed by external providers of professional learning in the future.

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These findings from the Inspection Stage of the study have implications for the Leadership Team and teachers in this school in establishing clear and definitive beliefs about the nature of knowledge and about how students learn and can be summarised as:

1. *There is no commonly shared understanding by teachers, the Leadership Team or Curriculum Leader about how students learn in this school's environment.*

2. *There is limited direction or support provided for interaction between the Leadership Team, the Curriculum Leader, and teachers in knowing how students learn in this school's environment.*

6.6.2   Principles for learning

In the Exploration Stage of the study, of the ten possible principles for learning outlined in Section 3.3.1, only three principles were strongly endorsed. These included students being actively involved in their learning; having a positive attitude towards their learning; and being responsible for their learning. This common understanding indicates interaction among teachers on issues they believe as important. The focus group interviews in the Inspection Stage, in relation to Issue 2, indicated similar perceptions regarding principles for learning, namely students being actively involved in the learning and having a positive attitude. However, the commonly held interpretation of students' being responsible for their own learning meant that students intuitively engage in improving their own learning, as well as make connections for *themselves* to transfer their learning into real-life contexts. The teachers did not connect students being responsible for their learning with their role as teacher in guiding students in the construction of their own meaning or evaluating, monitoring or regulating their own learning and development.

It is not surprising then that the Leadership Team, in their responses in providing support for teachers deepening their knowledge and understanding of core principles for learning, indicated that this issue had not been considered a priority. Many of the responses by each member of the Leadership Team and the Curriculum Leader indicated that responsibility for this issue lay with others within the school and not with themselves. This unspoken symbol of the low priority placed on the principles of

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learning is indicated by the way interactions are encouraged. In this instance, the Principal delegated his authority as instructional leader of the school to the Curriculum Leader to lead change in learning and teaching, and believed his role was limited to the provision of funds for this to happen. In this case, the symbol of being in control of the money is placed in a higher priority to teaching and learning in the school. Moreover, the finding in Issue 1 above suggests that priority was given to professional development providers and influential teachers rather than the curriculum leader. Again the meaning of the role of the curriculum leader is attributed to the Principal and his belief that principles for learning could restrict the coverage of curriculum content. This meaning was interpreted by the Curriculum Leader as being a lack of direction around professional learning, and as a result, her efforts were frustrated by teachers continuing to draw upon their tacit knowledge to guide their thinking. According to the APA, the BCE's *Model of Pedagogy* was seen to be the core driver in the future and seen as the symbol of how to deepen teachers' knowledge and understanding of principles for learning.

The responses in the Inspection Stage relating to Issue 3, the learning processes that are considered important to ensure student learning and development, indicated that teachers were aware of some processes of learning that students needed to use to progress their learning and development, however, there was some confusion around what these learning processes were. The Leadership Team recognised the need for learning processes to be taught, and recognised that this was necessary for effective learning, however they had not prioritised this as an issue that needed to be addressed with teachers. The interpreted meaning for the teachers indicated that this was not important, and interactions among them that would advance this topic were not evident. It was clear through discussions, that there is not a shared understanding of effective processes for learning that students need to be taught to develop their learning. This area of cognitive development had not been considered a priority by the Leadership Team, consequently there is a lack of socially constructed meaning. Teachers are acting on the meanings they personally hold. These findings can be summarised as:

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1. *There are no socially constructed understandings of the core principles for learning as no support was provided for this to occur.*

2. *There are differing perceptions of what learning processes are considered important to ensure student learning and development.*

6.6.3   Judgement of student learning

In analysing the data from discussions with the focus group of teachers, in Issue 4, it could be seen that there exists a wide variance of understanding and knowledge about the purpose of the judgement of student learning and development. The interpretation of the judgement of learning was limited to assessment of learning, with some responses referring to assessment for learning. No suggestion aligned with current understandings of how students learn in that the purpose of assessment was to judge the growth and development of student learning. Whilst there was some indication of the use of formative assessment, and the need to give feedback to students, teachers did not indicate, that they explicitly taught students how to improve in their learning. Some of the responses indicated that teachers considered the purpose of assessment was to inform *them* [the teacher] of student learning. Assessment was seen by some as an indicator of the effectiveness of their teaching practice and their competency in covering curriculum content. While other teachers indicated that the purpose of assessment was to indicate the positioning of students in the class, to group students according to ability, and as a means to report to parents for accountability purposes. The teachers did not mention, or suggest, that students should be an integral part of the process through self-reflection, self-evaluation, self-monitoring or self-regulating their own learning and development.

Those in administrative roles indicated that there was no clearly stated or defined position regarding the purpose of assessment across the school, and that this issue was not a part of the school's *Vision for Learning and Teaching*. There was the expectation by the Leadership Team for teachers to use data from assessment to track student learning progress and to use it to inform their teaching and planning. It is not unreasonable to assume that the purpose of assessment in judging the growth and development of student learning is not considered a priority by

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Administration and this may indicate the paucity of understanding by teachers surrounding this issue. There was no individually constructed meaning within this co-constructed setting of the school that would support teacher meaning making of teacher judgement of student learning and development.

Issue 5 related to the perceptions held, and levels of support provided to ensure assessment is integral to the learning process. It would seem through the analysis of responses from the Inspection Stage in relation to this issue, that there was limited evidence of knowledge and understanding of the principles of assessment or assessment being integral to the learning process. Both teachers and the Leadership Team alike, viewed assessment as a measure at the end point of student learning. Whilst one teacher did mention that assessment should be on-going throughout the learning process, this information was not used to inform future learning, or to inform students of their progress or how to improve. It would seem that the Leadership Team and Curriculum Leader had not considered the importance of assessment 'for' or 'as' learning, and it was not evident that support or leadership was provided to co-construct a deep knowledge and understanding of the importance of assessment being integral to student learning and development.

Whilst it was evident that there was no shared understanding of the judgement of student learning and development in light of contemporary research or that assessment should be integral to the learning process, the following provides a summary of the findings:

1. *The purpose of assessment is not clearly understood, with diverse perceptions being held by the participants in this study.*

2. *Assessment is not considered to be integral to, or a priority, in the learning process with limited support being provided for teachers to ensure that assessment is individually constructed through a co-constructed learning process.*

6.6.4   Use of learning and development data

Section 6.5 addressed Issue 7: *There are different perceptions as to how data takes on meaning that informs the judgement of student learning and development* and Issue 8: *There are different*

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perceptions as to how data can be better utilised to improve learning and teaching. The first in this section, Issue 7, Section 6.5.1, analysed the differing perceptions held of the significance of collecting, analysing and interpreting data to support student learning and development. The findings in relation to this issue indicated a prevailing view that teachers' data-based decision making is used predominantly to group students according to ability, or to summatively ascertain students' understanding and knowledge of content and concepts taught. There were some teachers who indicated that they used data to confirm their judgement of students' learning, or used data to flag their concern in areas of students' learning. Some indicated that data is used to point out to the student where improvement is required, assuming students are able to make the necessary adjustments to improve their learning. They considered this was sufficient in improving student learning. There was no indication that the meaning interpreted from the use of data was used to diagnose difficulties or successes to improve or build upon student learning to achieve progress. For these teachers, they are acting on the use of data based on the meaning they themselves have, as they do not seem to have a socially constructed understanding.

The Leadership Team also held similar perceptions regarding the use of data to make summative decisions in informing reporting processes and to ascertain coverage of curriculum content. There were however, two points that indicated that the Leadership Team had some understanding of the importance of gathering, analysing and interpreting of data, firstly that data is necessary to ascertain individual progress of learning, and, secondly, that planning should not precede the analysis of data informing teachers about the strengths and areas for growth in learning and development for each student. The Leadership Team had the expectation of teachers to take on meaning from data to inform student learning and development, but there was no support provided for teachers in how to do this. Whilst these statements indicate some knowledge and interpretation of how data should be used to inform student learning and development, there is limited evidence to support a clear or consistent understanding or co-constructed meaning about

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the purpose of the collection, analysis and interpretation of data to provide evidence of student learning progress and growth in development.

The final issue, Issue 8, pertaining to how data can be better utilised to improve learning and teaching, indicated diverse responses from teachers, the Leadership Team and Curriculum Leader. There were numerous suggestions made about the processes and procedures that could be introduced or improved upon regarding the better use of current practices in the use of data, however, there was some body language of unease evident when in responding to this issue by some teachers. Teachers indicated that there needed to be a clear direction on the use of data from student portfolios. A more organised structure was needed around teacher moderation and teacher professional learning needed to focus on the effective use of data. To achieve improvement in teacher competency and confidence, planning using data, including NAPLAN data was seen as important, as well as consistency in entering data into the school's tracking tool system.

It was evident that whilst teachers, the Leadership Team and Curriculum Leader see the need for better use of data in this school, there is a question of teachers' confidence and competence in analysing, and then interpreting the data, to effect change and improvement in student learning and development and teacher practice. This situation was compounded by the lack of interaction among the Leadership Team, the Curriculum Leader and teachers about the links that need to be made between assessment data and student learning and development. These findings can be summarised as:

1. *A socially co-constructed understanding about the purpose of the collection, analysis and interpretation of data is not evident indicating a lack of shared understanding of how to support the development of student learning and development.*

2. *A deep understanding of the use of data to take on meaning that informs student learning and development and teacher practice, is not evident.*

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3. *Support for teachers to develop increased confidence and competence in the use of data, with clear links to effect change and improvement in student learning and development and teacher practice is not evident.*

In summary, the findings from Section 6.6, Second Order Interpretation are:

Beliefs about how students learn:

1. *There is no commonly shared understanding by teachers, the Leadership Team or Curriculum Leader about how students learn in this school's environment.*

2. *There is limited direction or support provided for interaction between the Leadership Team, the Curriculum Leader, and teachers in knowing how students learn in this school's environment.*

Principles for learning

1. *There are no socially constructed understandings of the core principles for learning as no support was provided for this to occur.*

2. *There are differing perceptions of what learning processes are considered important to ensure student learning and development.*

Judgement of student learning

1. *The purpose of assessment is not clearly understood, with diverse perceptions being held by the participants in this study.*

2. *Assessment is not considered to be integral to, or a priority, in the learning process with limited support being provided for teachers to ensure that assessment is individually constructed through a co-constructed learning process.*

Use of learning and development data

1. *A socially co-constructed understanding about the purpose of the collection, analysis and interpretation of data is not evident indicating a lack of shared understanding of how to support the development of student learning and development.*

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2. *A deep understanding of the use of data to take on meaning that informs student learning and development and teacher practice, is not evident.*

3. *Support for teachers to develop increased confidence and competence in the use of data, with clear links to effect change and improvement in student learning and development and teacher practice is not evident.*

As a way of shedding light on the theoretical perspective of these findings from the Inspection Stage, the following chapter, Chapter Seven, will develop and discuss these issues and associated findings in accordance with the research literature.

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Chapter Seven - Review and Synthesis

7.1   Introduction

Prior to the commencement of this study, my observations of my colleagues provided the anecdotal evidence to suggest that how and why learning and development data is gathered and interpreted is an area of confusion and uncertainty for teachers. This was problematic for me as a Curriculum Leader across a number of schools, with the expectation from Principals, the BCE system and government education authorities, that teachers should be using data to inform improvement in student learning and development, and teacher practice. These increasing demands made on teachers to use data as a tool of accountability for improved educational standards has been brought about as a result of heightened political, social, and professional expectations surrounding student assessment in recent years. Education in schools is based upon the teaching of a curriculum, and an integral component of the teaching and learning of this curriculum is the judgement of student growth and development through assessment and reporting processes. Assessment is considered an ongoing part of the teaching and learning process, and is of utmost importance to principals, teachers, parents, students, education systems, universities and the wider community. This study has therefore sought to understand the beliefs teachers hold about how students learn, which then informs judgement of student learning and development. Judgement of student learning and development involves assessment and data as evidence to achieve continuous improvement in student learning and improved teacher practice.

The overarching research question that has driven this research is: *What beliefs do some teachers hold about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning development and teacher practice?*

In order to explore this question fully, four sub-questions were generated through a review of the literature and they subsequently guided the research:

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1. What beliefs do teachers in one BCE primary school hold about how student learn?

2. What principles for learning do these teachers base their beliefs upon?

3. How do these teachers judge student learning and development?

4. How do these teachers use learning and development data to inform their teaching practice and improve student learning?

At the conclusion of Chapter 6, findings were identified that inform these sub-questions that resulted in a second order interpretation at the conclusion of Chapter 6.

In this chapter, these findings are discussed in Section 7.2 in light of existing literature providing Third Order Interpretation (Neuman, 2007, p.160) of data, leading to the theoretical significance of the findings. In contributing to a more sophisticated understanding of each of the sub-questions of the study, the theoretical findings led to theoretical propositions being advanced. In Section 7.3 the study presents a model that seeks to provide new understandings about teacher judgement to improve student learning and development. In Section 7.4, the limitations of the study are identified, and Section 7.4 concludes the research with recommendations for future study.

7.2   Theoretical Significance and Propositions

Three theoretical propositions are advanced in this section of the thesis, through analysing and then interpreting the data from the Exploration Stage and the Inspection Stage of the study.

In relation to the first two sub-questions 1) *Beliefs about how students learn* and 2) *Principles for learning*, it was determined that these sub-questions are closely aligned and are considered together in the following section that leads to one theoretical proposition. This approach is constructed on the assumption that, if beliefs about how students learn are based upon sound knowledge and understanding of contemporary learning, then it is reasonable to presume that key principles for effective learning would be closely aligned with these beliefs. Many organisations, in defining their mission statement, vision or charter, define what they believe and value in order to establish a set of guiding principles to set goals and to indicate the direction for improved practice, and this was the case when this school was first established. A further example of this can

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be found in *The Melbourne Declaration on Educational Goals for Young Australians* (2008). This document provided the foundation for educational change and curriculum reform in Australia from 2008 by declaring beliefs and values in relation to 21st century learning and teaching. From these beliefs and values, guiding principles inform goals for improved student learning and teacher practice in education for Australia into the future. It is from this example, along with similar examples, that has led the researcher to combine *Beliefs about how students learn* and Principles *for learning* in Section 7.2.1.

7.2.1 Beliefs about how students learn and principles for learning

Findings in this study from *Beliefs about how students learn* indicated that*:*

1. *There is no commonly shared understanding by teachers, the Leadership Team or Curriculum Leader about how students learn in this school's environment.*

2. *There is limited direction or support provided for interaction between the Leadership Team, the Curriculum Leader, and teachers in knowing how students learn in this school's environment.*

These findings align with Chapter 3, the literature review, where it was outlined that for teachers to make informed and authentic judgement of student learning and development, a sound knowledge and understanding of how students learn, guided by core principles for learning is needed to underpin their judgement of student learning and development (Atkin, 1996). However, teachers' beliefs are defined broadly as tacit, and are often unconsciously-held assumptions that cannot be readily articulated. These implicit beliefs are drawn from one's concept of what they believe they should be teaching and what learners should be learning, and the respective roles of teachers and learners in pursuing both (Chan, 2001; Errington, 2004; Kagan, 1992). As a consequence, classroom decision-making and actions are based on these beliefs (Chan, 2001; Clark & Peterson, 1986; Marland, 1994). Personal beliefs or dispositions are "individualistic and particularistic", varying from teacher to teacher and even from context to context for the same teacher (Chan, 2001, p.2). They are not limited to just the teaching of knowledge and skills, but

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also encompass views about learners and learning, perceptions of 'worthwhile' knowledge and the organisation of learning (Errington, 2004). Consequently, teachers hold a wide variety of beliefs about how students learn (Masters, 2013; National Research Council, 1999).

Findings from *Principles for learning* indicated that*:*

1. *There are no socially constructed understandings of the core principles for learning as no support was provided for this to occur.*

2. *There are differing perceptions of what learning processes are considered important to ensure student learning and development.*

These findings are also consistent with the literature review presented in Chapter 3 where it was evident that school practices and policies are often inconsistent with modern understandings of learning (Masters, 2013; National Research Council, 1999). More recent researchers posit that schools need to focus on learning rather than teaching, by collaboratively working together on all aspects of learning, and to be accountable for ongoing results that substantiate continual learning and development, and improvement (eg. DuFour, 2007). The argument presented in the research literature outlines that learning is an extensive and complex process and many theories are drawn from diverse areas of educational, developmental, cognitive, social and clinical psychology in order for it to be fully explored and understood (Illeris, 2007). There is, however, the recognition that contemporary 21st century learning is "interconnected across cognitive, physical, social and emotional domains" (Duchense, McMaugh, Bochner, & Krause, 2013, p. 237). It is also advocated in contemporary literature that schools need to draw upon a set of core principles for learning to provide a framework for discussion about how students learn (Atkin, 1996, Ambrose et al. (2010). These principles of how students learn address the student as a 'whole' and are seen as important for teachers to understand explicitly. This understanding would ensure that teaching and learning are not only based upon current and sound educational theories and research, but that these principles are foundational to teacher practice and discernment of how to improve student learning and development. This view is supported by a review on Finnish schools (Hofmann, 2013). The

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indisputable success of Finnish pupils in successive international tests such as the Programme for International Student Assessment (PISA) can in part be attributed, according to the authors, to the fact that all teachers in both primary and secondary sectors have a Master's degree in Education, giving Finnish teachers substantial theoretical understanding based upon current principles of how students learn. These principles provide the basis for their pedagogical practice and curriculum decision-making. The following provides a summary of a more sophisticated understanding of the theoretical findings from *How Students Learn* and *Principles for Learning* leading to the first theoretical proposition.

In recent research literature, Lunenburg (2010) maintains that "the Principal, as instructional leader, needs to be the keeper of the vision, and is the one who needs to keep articulating it" (p. 3). Further literature supports this notion, by maintaining that the continued modelling and reinforcement of vision-related behaviours plays a substantial role in the success of the professional learning community (DuFour, Eaker, & DuFour, 2006), and should be revisited periodically to ensure that the vision remains relevant (Lunenburg, 2010). In continuing to make the vision for learning and teaching relevant, a shared understanding by all staff members would ensure a socially agreed and united approached. This vision, based upon how students learn, would then inform the improvement process (DuFour & Eaker, 1998), that would focus on discerning what is valued by the school community as a whole, as well as contributing to shared goal setting, curriculum direction and planning, shared teacher practice and ultimately improved student learning.

The school, in establishing their initial *Vision for Learning and Teaching* (Appendix 9) for the whole school community, outlined particular beliefs about student learning, from which certain principles for learning informed teaching and learning practices. The analysis of the data from the Exploration and Inspection Stages of the study revealed that this vision was no longer valued by any member of the community and as a consequence, provided no meaning for teachers in constructing their understanding about how students learn or the principles that should underpin these beliefs. Instead teachers drew from their tacit knowledge for their work in the classroom and

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from the co-constructed meanings that influential teachers brought to teacher interactions. Unfortunately, these influential teachers were not current in their views. This finding is consistent with the earlier work of Chan (2001) and others as outlined above.

What this study provides in the way of new understanding is that when using the symbolic interactionist lens, it can be argued that the teachers are indeed "social products who are influenced by external factors, [and]…are capable of maintaining distance and able to initiate individual action through interpretative processes" (Blase & Blaze, 1999, p. 355), where they act in response to the meaning things have for them. It would appear that this is how teachers are operating with respect to beliefs about how students learn and principles for learning. The lack of instructional leadership resulted in teachers continuing to teach the way they always have as the meaning they took from the principal's inaction was that they can work with their own beliefs. This position was continually reinforced by the ongoing lack of instructional leadership, evidenced by the lack of whole school discussion on the beliefs about how students learn, and the principles for learning. Moreover, discussions with the teachers suggested that they were able to have different ideas, and this was acceptable, as they were working in the privacy of their own classrooms. The role of influential teachers also needs to be considered, as they managed to influence teachers to accept their practices and beliefs, although outdated, about how students learn and principles for learning. Without challenge, their choices and interactions will continue to guide other teachers' actions for the worse.

The findings for beliefs about how students learn and principles for learning led to the first theoretical proposition.

Theoretical Proposition One:

School leaders and teachers will engage with beliefs about how students learn and principles for learning on the basis of their personal meanings, if social interaction among the professional community is not promoted. When social interaction is promoted, it will result in an interpretative process leading to a shared understanding, with new cultural

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norms being advanced on beliefs about how students learn, and associated principles for
learning.

7.2.2 Judgement of student learning

The findings from this study indicated that:

1. *The purpose of assessment is not clearly understood, with diverse perceptions being held by the participants in this study.*

2. *Assessment is not considered to be integral to, or a priority in, the learning process, with limited support being provided for teachers to ensure that assessment is individually constructed through a co-constructed learning process.*

These findings are consistent with much of the literature. In particular, judgement of learning and development is referred to as 'assessment', which is defined by the Victorian Government's Department of Education and Early Childhood Development (2013), "as the ongoing process of gathering, analysing and reflecting on evidence to make informed and consistent judgements to improve future student learning" (para. 2). Assessment according to Masters (2013) "needs to be about evidence of progress in the growth of knowledge, understanding and skills" (p. iv). This developmental growth perspective to assessment places the judgement of student learning not just as "success in specific learning content, but also judging how students are developing in understanding", knowledge and skills (Masters, 2013, p.5).

Just as our knowledge and understanding of how students learn has deepened and expanded over recent time, it would be presumed that this has filtered through to the classroom impacting our understanding of making informed judgements about student learning and development. This may not necessarily be the case, as much of the literature reviewed maintains that the dominant theories and past models of assessment judgements about learning continue to operate as the default framework affecting and driving current practices and perspectives (Black & Wiliam, 1998; Masters, 2013; Shepard, 2000).

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Throughout many countries today, assessments are used to indicate national educational standards progress by focusing on standards and test-based accountability. Policy makers have used these accountability measures to provide the pressure necessary to force change, the logic being that such testing will pressure students to work harder and that teachers will improve their teaching (Jones & Egley, 2007). This high-stakes testing regime has come under a great deal of censure in much of the current literature reviewed where, for example, the difficulties many teachers in England have faced in conducting effective in-class assessment have been extensively documented by Ofsted. In 2008, it reported to TES Newspaper that, "Too many teachers still fail to see the connection between accurate and regular assessment and good teaching which leads to learning (Mansell, 2008).

These same results have been documented in this study. It is only when we look at these results through the symbolic interactionist lens that we can begin to understand why change has not occurred. Fundamentally, there are diverse understandings held by the participants in this study. When normal social interactions between the participants are examined, it is evident that they do not discuss the purpose of assessment beyond assessment as a tool to ascertain how well they had covered the curriculum, and to determine student ability in learning the content. Current research on assessment as an ongoing process to determine the progress of student learning and development has not been discussed by this school community. The Principal, as instructional leader, has not provided any school-wide discussions to guide or promote these understandings and to challenge existing understandings, even though they are reflected in the school's vision statement. As a result, teachers have interpreted this as approval of their own individual 'understandings,' as they have meaning for 'them'.

For this school community, assessment is not considered to be integral to, or a priority in, the learning process. It is evident in the literature, that when teachers' conceptions are more closely linked with the learning experiences of the students and how students learn, their pedagogy reflects assessment as integral to the learning process. When students are actively involved in their own

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learning, teachers' goals shift to helping students develop their own learning-to-learn skills (OECD, 2005). This notion is described by Hattie (2012) and he refers to learning as being "visible." For learning to be visible, three distinct approaches of assessment judgements – assessment "of, for, and as learning" are seen by Earl (2003, p.26), as a summary of educational evaluation and should be integral to teacher judgement of student learning and development.

Results from this study demonstrate that the teachers used assessment as a tool to gauge an end result, or summative outcome, and not as on-going, formative assessment, integral to learning. The interpretation of the judgement of learning and development was limited to assessment of learning, with some responses referring to assessment for learning. No suggestion aligned with current understandings of how students learn, in that the purpose of assessment was to judge the growth of student learning and development or the need for student involvement in assessment as integral to the learning process.

Again using the symbolic interactionist lens, it becomes clear that without social interaction that challenges these views, teachers will continue to act towards assessment as they always have in the past. Social interactions designed to promote discussion and deepen teacher knowledge and understanding around the judgement of student learning and development should be provided by the Leadership Team. When provided, the resulting interaction will challenge currently held beliefs, which will lead to a shared understanding that will ultimately lead to changed beliefs, with new social and cultural norms that will continue to shape teacher actions.

Theoretical Proposition Two:

Collaboratively shared and socially constructed knowledge will lead to common understanding of the judgement of student learning and development, and its effective integration, which is central to the learning process. Cultural norms that include assessment of, for, and as learning are equally important to inform students so that they know how to improve their learning; teachers to know how to improve student learning

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and their teaching practice; and for leadership to know how to support teachers to improve

teaching and student learning.

7.2.3   Use of learning and development data

The findings from this study indicated that:

1.   *A socially co-constructed understanding about the purpose of the collection, analysis and interpretation of data is not evident indicating a lack of shared understanding of how to support the development of student learning and development.*

2.   *A deep understanding of the use of data to take on meaning, that informs student learning and development and teacher practice, is not evident.*

3.   *Support for teachers to develop increased confidence and competence in the use of data, with clear links to effect change and improvement in student learning and development and teacher practice is not evident.*

These findings align with the research literature and result in the same problems. It is important for schools and teachers to know where they and their students are, define where they and their students want to get to and measure progress along the way (Holcomb, 2004). To do this, a range of data can provide evidence-informed approaches to support improvement and change (Campbell & Levin, 2009), where assessment data is categorised, calculated, and with connections, summaries, and conclusions being drawn (Schildkamp & Kuiper, 2010), to become information that attaches meaning, relevance and purpose to guide future action.

Consistent with the research that has been reported in this study, it is not common practice in most schools for teachers and administrators to base their decision-making on the routine use of data that effects instructional practices and student learning achievement (Brunner et al., 2005; Hattie, 2005; Schildkamp & Kuiper, 2010). Rather they tend to rely on anecdotal evidence, intuition and their experience as practitioners (Ingram et al., 2004). There are many reasons as to why this might be the case, but what is suggested in the literature, is that teachers, and often administrators, lack sufficient training, knowledge and expertise in analysing and interpreting data

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(Choppin, (2002); Lachat & Smith, (2005); Mandinach, (2012); there is limited access to available data for teachers (Choppin, 2002); lack of time to gather, analyse and interpret data (Ingram et al., 2004); a scepticism about the usefulness of data-gathering; and teachers have difficulty in making connections with data and the interventions necessary to improve student learning (Lachat & Smith, 2005; Piety, 2013) .

In a recent report funded by the Queensland College of Teachers (QCT) in relation to teachers' use of data and effective teaching practices, researchers from the University of Queensland maintain that,

> The leadership of principals is crucial in establishing the culture of assessment within the school. The principal's role is situated strategically between the demands and expectations of the schooling system and policy-makers on the one hand, and the actual circumstances of classroom teachers and their students on the other (Renshaw, Baroutsis, van Kraayenoord, Goos, & Dole (2013).

This notion is supported by the seminal work of Shepherd (2000) who maintains that the implications for principals, administrators and teachers, in reflecting and enacting on current views of teaching and learning, is that it re-positions the use of assessment data as essential to the process of learning, as it focuses on the strategies and processes students are attempting to use, and not just an end result or product. Data used in this way can inform teachers about the nature of student learning, which can help them to provide better feedback to students, which in turn can improve student learning (Black & Wiliam, 1998b; Hattie, 2012; Masters, 2013).

Measurement of student learning and development, using data to identify strengths and areas for growth, is recognised in much of the literature as an important school and classroom process. However, for data to become an integral part of a culture of continuous inquiry (Park & Datnow, 2009), it relies heavily on teachers' and administrators' beliefs that the use of data supports decisions with regard to having to make improvement, rather than just simply uncover problems

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(Ingram et al., 2004). There exists the implication that data used to identify the strengths and weaknesses of student learning achievement reflects upon a teacher's own pedagogy.

Despite the flow-on effects, much of the recent literature surrounding the use of data-based decision making advocates the positive impact it has on student learning achievement, particularly when the ownership of the data resides with teachers, students and schools themselves. Current literature indicates that students should be instructed to analyse and interpret their own data and to set their own learning goals (Hattie, 2012). Expectations for student learning should be made explicit to students, and feedback should be provided in a clear and timely manner (Hattie 2012; Mandinach, 2012). One of the best ways to build these beliefs is to assist learners to see the progress they are making over time. According to Hall and Burke (2004),

> Helping children to understand what it is they are doing that causes their success or failure is the aim of this kind of teaching. If they know what to do to improve they can then 'close the gap' between what they can do or know and what they need to do or need to know. In other words, it is better to focus on causes of success and failure, than to praise performance on the basis of the final product or completed task (p. 10).

This means that the data collected is owned by the student, as well as the teacher, and the school. This shifts the student to an active role, rather than being the passive participants on whom their data gathered, analysed and interpreted by government and educational systems (Farrell, 2014: Kerr et al., 2006 Schildkamp & Kuiper, 2010; Wayman & Stringfield, 2006). There are strong demands placed on schools to provide data as evidence for determining educational improvement. If teachers however, do not see the use of assessment data as essential to the process of learning and improving teacher practice, or that learning and development data can constructively and proactively improve learning, then changing their assumptions will be a challenge for school leadership. As Masters (2013, p. 12) explains:

> Professional practice at all levels of school education requires dependable information to establish starting points for action, to understand areas of strength and weakness, to monitor

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improvements over time, to evaluate the effectiveness of programs and interventions, to motivate [student] improvement and encourage self-monitoring, and to provide feedback to guide further action (p.12).

The results from this study support the findings from other research, but where the findings from this study differs from other research, is that close attention to the social interactions among teachers provides insights as to why these problems continue to exist. Using the symbolic interactionist lens, it is clear that a socially co-constructed understanding about the purpose of the collection, analysis and interpretation of data is important. The data gathered for this study provides evidence that data was seen to be useful in providing information about an individual student for reporting purposes, using data to group students according to ability, and to ascertain student recall and consolidation of concepts. There was no common agreement between the Leadership Team and the teachers with regard to the importance of analysing and interpreting data to inform planning for teaching and learning. Although there was an expectation by the Leadership Team that teachers would enter data into the school's tracking system, they did not see this as valuable either, and consequently, they had an ad hoc approach to fulfilling this expectation that was allowed to continue. For the teachers, the lack in monitoring this requirement was an indication that the leadership agreed with them that it was not valuable, believing instead that the tool had limited relevance to ascertaining student progress in learning and development. By using the symbolic interactionist lens, it is possible to begin to see why educational change with regard to the use of learning and development data is not forthcoming. This lack of co-constructed meaning, where those who had current knowledge on this aspect of assessment such as the Curriculum Leader, did not seem to be given the authority to promote a shared practice that would inform the outdated practices of the influential teachers in the school. It is here that the instructional leadership of the principal or the whole Leadership Team had not been supportive through the provision of professional learning, or dedicated time in staff or planning meetings. Had this been the case, this would have allowed for teacher engagement with current research on how to use data to diagnose

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difficulties or successes to improve or build upon student learning to achieve progress, or how this knowledge could assist them when planning learning episodes.

This then leads to the final theoretical proposition.

> ***Theoretical proposition Three:***
>
> ***A socially constructed purpose, with deep meaning and shared understanding of the use of data is needed for teachers and leadership to actively engage with the progression of student learning and development, the effectiveness of teacher practice and instructional leadership of the school.***

7.3   A model to support student learning and development.

The theoretical propositions advanced above lead to a model, see Figure 7.1 below, that addresses the research question: *What beliefs do some teachers hold about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning and teacher practice?* It provides the context for analysing improved student learning and development, improved teacher practice and informed and improved instructional leadership. It utilises a symbolic interactionist lens by drawing out underlying issues through the three tenets in this study.

The meanings that teachers, the Leadership Team and Curriculum Leader have in this school for knowing about how students learn, would indicate a limited knowledge and understanding of contemporary approaches to learning. There are a number of issues that can be attributed to this: 1) the lack of higher degree study in education by teachers that would provide them with currency of knowledge and understanding of educational change; 2) the introduction in recent years of the Australian Curriculum and the need for professional learning; 3) the Curriculum Leader not being considered a member of the Leadership Team, which resulted in her being perceived by the teachers as not having the authority to initiate change through professional discussions. Instead, the influential, more experienced teachers who do not have contemporary knowledge about learning, seemed to hold some level of authority, so much so that they appeared

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to be perceived by the other teachers as having the controlling word. This meaning attribution is derived from the social interaction that teachers have with one another, which is always "emerging in a state of flux and subject to change" (Cohen, Manion & Morrison, 2011, p.20). What should have been provided first and foremost, are opportunities for a socially constructed and shared knowledge and understanding of contemporary learning that underpins a shared vision for learning and teaching, as indicated in the outer circle of the model in Figure 7.1 below:

With strong instructional leadership a socially constructed, shared knowledge and understanding of contemporary learning would result in shared beliefs about how students learn and principles for learning, as indicated in the first circle on the upper left-hand side of the model. This would then lead to a new cultural norm, and change, providing renewed direction in relation to the shared beliefs about how students learn and the establishment of clear and definitive principles for learning.

A socially shared and co-constructed knowledge and understanding, in line with contemporary learning regarding the principles for the judgement and assessment of, for and as learning, would result in the change needed to ensure that these are integral to teacher planning, as well as including students' judgement of their own learning progress. The significance of this issue is identified in the upper right-hand circle of the model.

A socially constructed and shared understanding of learning and development data to provide meaning for improved learning and teaching is identified in the bottom circle of the model. For a change to teachers' constructed understanding in relation to this issue, a revisiting of current practice in light of current research in this area needs to be led by the instructional leader. Although teachers need to be supported through extended professional learning and time allocated for the gathering, analysing and interpreting of data, it is most important that they engage in professional discussions so that an aligning of beliefs is possible. This will not happen overnight, therefore discussions throughout the school year, would provide a continuous process for the construction of greater meaning to improving the effectiveness of teacher practice and student learning progress

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and development. This would also provide for improved effectiveness of the leadership of the school.
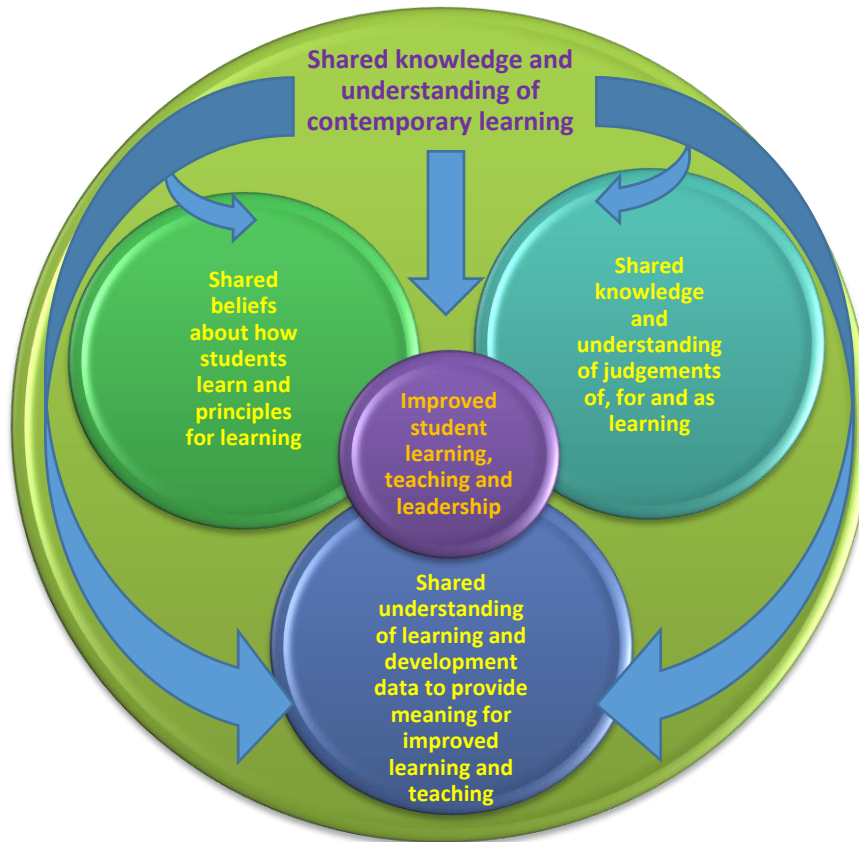
Figure 7:1:

A model for informed and improved effectiveness in student learning, teacher practice and instructional leadership

In summary, this model for analysing the context for informed and improved effectiveness in student learning and development, teacher practice and instructional leadership, contributes to the work conducted within this field of educational research. The significance of this model is underpinned by contemporary knowledge and understanding of learning, in combination with the three tenets outlined, that are needed to develop an informed holistic, interconnected and interrelated approach to improved teaching and learning. With this shared knowledge and understanding of contemporary learning in relation to each of the three tenets, teachers and the

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Leadership Team could achieve a common and unified direction to improve learning, teaching and leadership within the school.

7.4   Limitations of this Study

This study has focussed on the beliefs teachers from one school hold about how students learn, the judgement of student learning, and the use of learning and development data for the purposes of improving student learning development and teacher practice. Whilst this limitation is acknowledged, this single school context has provided this study with a rich description to support a more sophisticated understanding of the four sub-question of the study:

1. What beliefs do teachers in one BCE primary school hold about how students learn?

2. What principles for learning do these teachers base their beliefs upon?

3. How do these teachers judge student learning and development?

4. How do these teachers use learning and development data to improve student learning and inform their teaching practice?

This description provided the opportunity to examine in detail the perceptions held by the Principal, APA, and Curriculum Leader, as well as teachers throughout the school in regard to these research questions. As a consequence, the findings are specific to this school, and do not claim to represent all schools. The narrow breadth of the research could engender questions as to its validity, if an attempt to generalise was made, but this study does not do that. Rather the findings are particular to the participants in this school.

The research design adopted by this research makes no claims regarding proven hypotheses, empirical testing, or objective knowledge. The researcher is concerned with the socially constructed realities of individual participants enacting their roles in the context of a classroom, as members of a school community, and as members of the Leadership Team. It is the participants' perceptions of how students learn, and how they make judgements about student learning and development based on those realities, that "is aimed at informing educational judgements and decisions in order to improve educational action" (Bassey, 1999, p. 39). This

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study did not set out to judge the meaning-making that teachers and members of the Leadership Team in this school hold about how teachers use data to inform their teaching practice and the progress of student learning and development, but for the researcher to interpret those realities from the point of view of the participants; not to re-interpret or re-design their actions and experiences, but rather to understand them.

In understanding the point of view of the participants, the researcher as the primary instrument of collection and analysis of the data (Merriam,1998), brings attributes, biases, assumptions, expectations and a personal history that sets apart my perceptions of data differently from another researcher (Denzin, 1989). While my professional career included working across many schools, and with a variety of teachers, it has provided me with a range of contexts and practices, and has enabled me to understand what it is like to be in the participant's shoes, given my close association and experience (Dance et al., 2010). This reciprocity provides a connection with the participants and a richer understanding of their contexts and the opportunity to create new findings and knowledge in the research process.

In so doing, symbolic interactionism as methodology allows for an exploration of how people define and act on the values, attitudes, and beliefs emerging from their meaning making (Blumer, 1969; O'Donoghue, 2006) that has allowed me to add new understandings as to why educational change in relation to some teachers' beliefs about how students learn, how they judge learning, and their use of learning data to improve student learning, and teacher practice is not occurring. These new understandings now allow me to make recommendations for further research.

7.5 Recommendations for Further Research

This study has sought to address the research question: *What beliefs do some teachers hold about how students learn, the judgement of student learning and the use of learning and development data for the purposes of improving student learning development and teacher practice?* In so doing, what has become evident is that there exists an interconnectedness and

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interrelatedness of each of the sub-questions of the study however, for the most part, researchers continue to treat each of these areas independently of each other. This small scale study focussing on one school could provide the foundation for additional research that would greatly complement the investigation of this phenomenon. In so doing, the following recommendation for future research would be to provide:

A systematic investigation on a large scale. Such an investigation needs to consider the interconnectedness and interrelatedness of schools' shared and common visions for learning and teaching based upon contemporary knowledge and understanding of how students learn, with a clear direction for core principles for learning. The shared understanding and co-constructed meaning of the judgements "of", "for", and "as" learning and development; the purpose and integration of assessment; and how learning and development data, provides evidence to determine the progress of student learning, the effectiveness of teacher practice and the leadership of the school in Australian school settings.

7.6   Conclusion

This study arose from a pragmatic concern for how teachers use data to inform the progress of student learning and development and their improved teaching practice. I commenced this study with the intention of developing a more informed and sophisticated understanding of this phenomenon. What I came to realise is that there was more to this than was originally anticipated. The use of data by teachers to inform the progress of student learning and their teaching practice was only one slice of the whole cake. There were many other implicating factors that needed to be explored more deeply. What became evident in the study was that teachers and the Leadership Team in the school need a shared and common vision that was supported by a shared and co-constructed understanding of how students learn, with a clear direction from core principles for learning and teaching. Once this is established, then it could be presumed that the judgement of student learning, with a clear and defined understanding of the purpose and integration of

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assessment as central to the learning process, would follow. It would then be possible for judgement of learning derived from learning and development data to provide meaning and evidence to determine the progress of student learning, the effectiveness of teacher practice, and improved quality of leadership in the school.

In conducting this research, it is hoped that understanding the beliefs teachers hold about how students learn, the judgement of student learning, and the use of data for the purposes of improving student learning and development and teacher practice, would provide to some degree:

...an ideal world, where the teacher would have precise and current knowledge of each student's starting points, and also what assistance each student requires to move to the next level (Fullan, Hill & Crevola, 2006, p.34).

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Appendix 1:   Ethics Approval – ACU

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Human Research Ethics Committee
Committee Approval Form

Principal Investigator/Supervisor: Janeen Lamb
Co-Investigators: Deborah Robertson
Student Researcher: : Vicki Thorpe

Ethics approval has been granted for the following project:
Exploring how learning development data is understood by teachers as a means of improving student learning in a Brisbane Catholic primary
for the period: 3/08/2012 to 31/12/2015
Human Research Ethics Committee (HREC) Register Number: 2012 178Q

<u>Special Condition/s of Approval</u>
Prior to commencement of your research, the following permissions are required to be submitted to the ACU HREC:
Brisbane Catholic Education Office and school principals

The following <u>standard</u> conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

(i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
- security of records
- compliance with approved consent procedures and documentation
- compliance with special conditions, and

(ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
- proposed changes to the protocol
- unforeseen circumstances or events
- adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

K. Pashley.

Signed: .... Date: .... 03.08.2012.....
(Research Services Officer, McAuley Campus)

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Appendix 2: Information Letters and Consent Forms

A study of teachers' understanding of learning,
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TITLE OF PROJECT: **Exploring how learning development data is understood by teachers as a means for improving student learning in two Brisbane Catholic primary schools.**

PRINCIPAL SUPERVISOR: Dr Janeen Lamb

CO-SUPERVISOR: Dr Deborah Robertson

STUDENT RESEARCHER : Mrs Vicki Thorpe

PROGRAMME IN WHICH ENROLLED: Doctor of Education

Dear Participant,

You are invited to participate in a study that will explore how teachers use student learning data to improve student learning and improve upon their teaching practice.

The study will require your participation in two focus group interviews with the researcher; observation of your classroom teaching at a time convenient to you, and the completion of an online survey at your discretion. The focus group interviews will take approximately one to one and a half hours; observation of classroom teaching – one hour; on-line survey: 25-30 minutes.

Your participation will assist you in deepening your knowledge and understanding about how children learn and how this aligns with your own beliefs, so that not only can you choose more relevant and effective student learning data generating strategies, but also more ably analyse the data and apply its information towards improving your teaching practices. For Principals, a deeper knowledge and understanding across your school of teacher beliefs of how students learn and the judgement of that learning, as well as the understanding and practices of using learning development data to improve student learning and teacher practice.

You are free to refuse consent altogether without having to justify your decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason.

Confidentiality will be protected during the conduct of this research and in any report or publication arising from it. Your identity will not be disclosed to anyone other than the researcher and a pseudonym will be used as an identifier.

If you have any questions regarding this project, please contact:

Principal Supervisor: **Dr Janeen Lamb PhD**
Lecturer in Education l Course Coordinator Bachelor of Education (Primary)
Australian Catholic University
PO Box 456, Virginia. Qld. 4014 l 1100 Nudgee Rd., Banyo. Qld. 4014
T: 3623 7318 F: 3623 7247 E: Janeen.Lamb@acu.edu.au

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Co-Supervisor: **Dr Deborah Robertson**
                   Senior Lecturer, School of Educational Leadership,   Australian Catholic
                   University, Locked Bag 4115, Fitzroy MDC, Fitzroy, Vic 3065
                   T: 03 9953 373; 0419939864 E: 236oberts.robertson@acu.edu.au and/or

Student Researcher: **Mrs Vicki Thorpe**
                   Primary Curriculum Leader
                   St Agnes, Mt Gravatt: T. 3349 5130
                   St Ignatius, Toowong: T. 3371 1094
                   M: 0408 742113
                   vthorpe@bne.catholic.edu.au

Appropriate feedback will be made available to participants on the results of the project.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern, or if you have any query that the Supervisor and/or Student Researcher have not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

QLD: Chair, HREC
C/- Research Services
Australian Catholic University
Brisbane Campus
PO Box 456
Virginia QLD 4014
Tel: 07 3623 7429
Fax: 07 3623 7328

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CONSENT FORM

Copy for Researcher ☐   *Copy for Participant to Keep* ☐

TITLE OF PROJECT: Exploring how learning development data is understood by teachers as a means for improving student learning in two Brisbane Catholic primary schools.

PRINCIPAL SUPERVISOR: Dr Janeen Lamb

STUDENT RESEARCHER: Vicki Thorpe

.... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in this study and participate in two focus group interviews, classroom observation by the researcher and an online survey. I understand that these activities will be audio taped. I realise that I can withdraw my consent at any time, without adverse consequences. I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT: ....

SIGNATURE ....   DATE ....

SIGNATURE OF PRINCIPAL INVESTIGATOR (or SUPERVISOR):...
                                                        DATE:...........................

SIGNATURE OF STUDENT RESEARCHER: ....
                                                        DATE:...........................………

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CONSENT FORM for PRINCIPAL/ ADMINISTRATION TEAM

Copy for Researcher ☐   *Copy for Participant to Keep* ☐

TITLE OF PROJECT: Exploring how learning development data is understood by teachers as a means for improving student learning in two Brisbane Catholic primary schools.

PRINCIPAL SUPERVISOR: Dr Janeen Lamb

CO-SUPERVISOR: Dr Deborah Robertson

STUDENT RESEARCHER: Vicki Thorpe

….. (the participant) have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants – Principal/Administration Team. Any questions I have asked have been answered to my satisfaction. I agree to participate in this study and participate in two focus group interviews and an online survey. I understand that these activities will be audio taped. I realise that I can withdraw my consent at any time, without adverse consequences. I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT: ....

SIGNATURE …...Date: ……………………………………

SIGNATURE OF PRINCIPAL SUPERVISOR): …………………………… Date:………………

SIGNATURE OF STUDENT RESEARCHER: ………………………..Date: ……………………

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Appendix 3: Text to codes, theme identification and development of theory

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Research Question: What processes of learning do you think students should be taught?			
Selecting relevant text	**Coding**	**Theme**	**Theory**
Teacher 1: I think in using success criteria – showing them and applying it to how it's going to benefit them. So this is what it will look like at the end, or this is what you'll find out. Teacher 5: I think questioning and investigating. Questioning as in looking for links from something which makes them think of something else or questioning within the task.	Success criteria Teacher modelling Relevance of learning Final product of learning Two learning processes Making connections Inquiring	Processes of learning that should be taught in the classroom	A shared, and socially co-constructed meaning is needed for teachers to construct their own interpretation.
Research question: What in your opinion best describes the role of the teacher?			
Selecting relevant text	**Coding**	**Theme**	**Theory**
Online Survey Section 1/Item 8: The role of a teacher is to assist in student self-directed learning. Two of the nine respondents indicated that, this was 'most like me,' with a rating of 10.	Teacher support of student self-directed learning	Student self-directed learning	Individuals construct their own actions. For these to change, meaning needs to be socially constructed to align their actions to those of others.

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Appendix 4: Interview Questions Administration – Exploration Stage

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Interview Questions

Administration Team

Date: 19/11/2012

What constitutes learning?
1. How do you define learning?
2. What factors do you attribute to your beliefs about how students learn? Where did it come from?
3. Do you think that teachers' beliefs about learning have an effect upon their students' learning? Why and how?
4. What do you consider is the role of a teacher?
How Children Learn
5. If you could describe a set of core principles that would provide a framework for discussion about how children learn, what would they be?
Judgement of Learning
6. What strategies would you expect teachers to use to know that a child's learning is developing?
7. What changes would you expect teachers to make as students' improve in their level of learning?
8. How would you expect teachers to ascertain the degree of change that a child has made in their learning development so they can judge their relative improvement?
Use of learning development data
9. What learning development data does the school currently use to inform student learning development?
10. How frequently is this data used to ascertain the progress of students' learning?
11. Is the current use of data effective in informing you and the teaching staff about student learning development?
12. Do you consider the data from standardized testing such as NAPLAN, Trends in International Mathematics and Science Study (TIMSS); Program for International Student Assessment (PISA) etc. significant in assisting/informing you and the teachers about the progress a of a child's learning development? Why or why not?
13. How do you think the use of learning development data could be more effective in your school?
14. How would you generally describe the level of confidence and competence that teachers at your school have in using student learning data to inform them of a child's learning development?
15. What change/s would you expect to see if all staff used learning development data more effectively?

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Appendix 5:   Pilot version of the Improving Student Learning and Development Survey (ISLDS)

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Would you please complete the following details:

＊1. How many years have you been teaching?

[   ]

2. What is your highest level of teacher education?

◯ Diploma of Education

◯ Bachelor of Education

◯ Post Graduate Degree

◯ Masters Degree

◯ Doctor of Education

◯ PhD

Other (please specify)

[   ]

＊3. Do you have an ET 5 or ET 6 classification?

◯ ET 6

◯ ET 5

◯ Neither

＊4. In which section of the school do you teach?

◯ Prep - Year 2

◯ Years 3,4,5

◯ Years 6,7

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Section 1: The following section it going to ask you about your beliefs abo...

✱5. How do you believe students learn best within a school environment?

[text box]

✱6. What has had the greatest influence upon you in establishing your beliefs about how students learn? Please rate each on a scale of 1-10 (10 being the highest). Add any other influences not mentioned.

	1	2	3	4	5	6	7	8	9	10
Life experience has influenced my beliefs about how students learn.	○	○	○	○	○	○	○	○	○	○
Learning from my colleagues has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
Professional development has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My professional reading has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
Research has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
Working in the classroom has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My own experiences when I was at school have influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My pre-service training has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My post -graduate study has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

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*7. Rate each of the following statements from 1 -10 (10 being highest) that best describes in your opinion the role of a teacher? If you would like to comment further please do so at the end of the question.

	1	2	3	4	5	6	7	8	9	10
The role of a teacher is to support students in their learning.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to assist in student self-directed learning.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to provide learning opportunities to cater for all students.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to encourage life-long learning.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to cover the necessary curriculum content.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to transmit knowledge and skills.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to have students learn from each other.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to create an engaging learning environment.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to ensure success for all learners.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to ensure progression to the next year level.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to focus on the processes of how to learn.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to teach students to think about their thinking.	○	○	○	○	○	○	○	○	○	○

Comment further...

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Section 2: Principles of learning.

The following provides a set of core principles that could provide a framework for discussion about how students learn. Please indicate the level of importance on a scale of 1-10 (10 being highest) in each section that you believe should be evident in the classroom. Please add any others in the comment boxes at the end of each section.

*8. Involvement in learning.

	1	2	3	4	5	6	7	8	9	10
To ensure that students are actively involved in learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students are engaged in learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students are encouraged to be responsible for their own learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students construct their own meaning.	○	○	○	○	○	○	○	○	○	○
To ensure that learning focuses on processes not content.	○	○	○	○	○	○	○	○	○	○
To ensure that students monitor their own learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students are encouraged to take risks.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

*9. Social participation.

	1	2	3	4	5	6	7	8	9	10
To ensure that student learning is constructed with other learners.	○	○	○	○	○	○	○	○	○	○
To ensure that students are supported in their learning.	○	○	○	○	○	○	○	○	○	○
To ensure that every student is valued.	○	○	○	○	○	○	○	○	○	○
To ensure that students reach a level of independence before moving on to new concepts.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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✳10. Meaningful activities and creating motivated learners.

	1	2	3	4	5	6	7	8	9	10
To ensure that learning is drawn from real-life contexts.	○	○	○	○	○	○	○	○	○	○
To ensure that learning is conneced to personal experience.	○	○	○	○	○	○	○	○	○	○
To ensure that learning motivates the learner.	○	○	○	○	○	○	○	○	○	○
To ensure that clear learning intentions are given.	○	○	○	○	○	○	○	○	○	○
To ensure that students see value what in what is learnt.	○	○	○	○	○	○	○	○	○	○
To ensure that learning provides new experiences.	○	○	○	○	○	○	○	○	○	○
To ensure that learning is relevant for all students.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

✳11. Relating new information to prior knowledge.

	1	2	3	4	5	6	7	8	9	10
To ensure learning is built on prior knowledge.	○	○	○	○	○	○	○	○	○	○
To ensure that learning is connected to new and prior knowledge.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

✳12. Being strategic.

	1	2	3	4	5	6	7	8	9	10
To ensure that learning improves thinking and remembering.	○	○	○	○	○	○	○	○	○	○
To ensure that students think about their own thinking.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

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＊13. Self-reflection and self- regulation strategies.

	1	2	3	4	5	6	7	8	9	10
To ensure that students engage in self-reflection.	○	○	○	○	○	○	○	○	○	○
To ensure that students engage in regulating their own learning.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

＊**14. Transferring knowledge and understanding**

	1	2	3	4	5	6	7	8	9	10
To ensure that students are able to transfer learning to different contexts.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

＊**15. Taking time to practice.**

	1	2	3	4	5	6	7	8	9	10
To ensure that students are given time to practice.	○	○	○	○	○	○	○	○	○	○
To ensure that students are given time to process information.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

＊**16. Developmental and individual differences.**

	1	2	3	4	5	6	7	8	9	10
To ensure developmental differences are accomodated.	○	○	○	○	○	○	○	○	○	○
To ensure individual differences are accomodated.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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*17. The Learning Environment

	1	2	3	4	5	6	7	8	9	10
To ensure that students feel safe and cared for in the classroom environment.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Other (please specify)

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Section 3: Judgement of Student Learning

This section focusses on the judgements that you as teacher make about the progress of student learning.

*18. The strategies below are some that can be used to ascertain the development of a student's learning. Rate on a scale of 1-10 (10 being highest) the strategies that you use most often to know that a student's learning is developing? Please add any others at the end of this section.

	1	2	3	4	5	6	7	8	9	10
I use judgement of prior knowledge to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use the measurement of improvement against clear learning intentions to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student think-a-louds to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student feedback to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I give students explicit criteria to know that student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student self-reflection strategies to know that a student's work is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student self-evaluation strategies to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I focus on a student's strengths as a strategy to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use the strategy of giving students specific direction for improvement to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use the collection of data throughout the learning process to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use formative (ongoing) assessment to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

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I use summative (giving a final result or grade) assessment to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use the comparing of data with pre-testing data to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use standardised testing results to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use the measurement of student competencies (carrying out processes) to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use observations of students at work to know that a student's work is developing.	○	○	○	○	○	○	○	○	○	○
I use the writing of anecdotal notes to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use running records to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use the school's tracking tool to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I align student work with with Australian Curriculum standards to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I diagnose student learning difficulties in the classroom to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use student's self-regulation of their own progress to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use my own judgement to ascertain the progress of a student's learning development.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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✱19. To the best of your knowledge, which of the strategies listed in the previous question are used across the school most frequently? Please rate these according to the level of frequency on a scale of 1-10 (10 being the highest).

	1	2	3	4	5	6	7	8	9	10
In my school we test for prior knowledge to know students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we measure improvement against clear learning intentions to know students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use student think-a-louds to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we give feedback to students to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we give explicit criteria to students to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use the strategy of student self-reflection to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use student self-evaluation strategies to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we focus on strengths as a strategy to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we give the students specific direction for improvement to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we collect data throughout the learning process to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use formative (on-going) assessment to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use summative (giving a final result or grade) assessment to know that students'	○	○	○	○	○	○	○	○	○	○

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learning is developing.

Statement										
In my school we use the comparing of data with pre-testing data to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use standardised testing to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we measure student competencies (carrying out processes) to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use observations of students at work to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school the writing of anecdotal notes is used to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use running records to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use the tracking tool to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we align student work with standards from the Australian Curriculum to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we diagnose student learning difficulties in the classroom to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school, teachers use their own judgements to ascertain the progress of students' learning development.	○	○	○	○	○	○	○	○	○	○

Please specify any others

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*20. What changes do you make as a student improves in their level of learning? On a scale of 1-10 (10 being highest) rate each of the following strategies that you use most often. Please add any others at the end of the question.

	1	2	3	4	5	6	7	8	9	10
As student learning develops, I make the content more complex.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I teach them more complex strategies.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I teach them a variety of approaches to solve problems.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I adapt my program.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I respond to individual need.	○	○	○	○	○	○	○	○	○	○
As a student learning develops, I have them peer tutor other students.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I allow them to work independently.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I give them time to practice what they have learnt.	○	○	○	○	○	○	○	○	○	○
As student learning develops, I allow them to transfer what they have learnt to a different context.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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∗21. The following gives a list of possible principles that classroom assessment should be based upon. On a scale of 1-10 (10 being highest) rate according to the level of importance you would give to each.

	1	2	3	4	5	6	7	8	9	10
Assessment is part of effective planning.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment needs to focus on how students learn.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment is central to classroom practice.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment is a key professional skill.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment has an emotional impact.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment affects learner motivation.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment promotes commitment to learning goals and assessment criteria.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment helps learners know how to improve.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment should encourage self-assessment.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Assessment should recognise all achievements.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

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Learning Development Data

This final section explores your use and the school's use of data to inform the progress of students' learning development.

*22. How you do measure the degree of progress that a student has made in their learning development so that you can judge their improvement? Rate each on a scale of 1-10 (10 being highest) to the measures you use most often. Please add any others at the end of the question.

	1	2	3	4	5	6	7	8	9	10
I measure the degree of progress through results from classroom testing.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by comparing pre and post testing data.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through my observations.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by measuring against Australian Curriculum standards.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through student self-evaluation.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through my own teacher judgement.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by the improved level of competence of students to complete tasks.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through moderation with other teachers.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress using standardised testing data.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through the information on the school's tracking tool.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by looking at previous end of Semester reports.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by looking at my own anecdotal notes.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by students regulating their own improvements.	○	○	○	○	○	○	○	○	○	○

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Other (please specify)

*23. Different types of data informing you about student learning development is used by the school. On a scale of 1-10 (10 being highest) rate the data gathering tools that you consider to be the most useful in informing you about your students. Please list any others not included in the list at the end of the question.

	1	2	3	4	5	6	7	8	9	10
The data from NAPLAN informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The information from student profiles inform me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from PAT Maths standardised testing informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from Words Their Way in spelling informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from the TORCH standardised tests informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from First Steps Writing informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from First Steps Reading informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from First Steps Speaking and Listening infroms me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from the school tracking tool informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The information from end of semester reports in previous years gives data to inform me about student learning development.	○	○	○	○	○	○	○	○	○	○
Informal discussions with previous teachers gives data to inform me about student learning development.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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*24. On a scale of 1- 10 (10 being highest) rate whether you consider the use of data significant in informing you about student learning development. Add a comment if required.

◯ 1   ◯ 2   ◯ 3   ◯ 4   ◯ 5   ◯ 6   ◯ 7   ◯ 8   ◯ 9   ◯ 10

Comment

[text area with scrollbar]

*25. On a scale of 1-10 (10 being highest) please rate the following statements. Please feel free to give a reason for your rating at the end of the question.

	1	2	3	4	5	6	7	8	9	10
The school uses data effectively and productively to inform teachers about student learning development.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
The school uses data effectively and productively to inform parents about student learning development.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
The school uses data effectively and productively to inform students about their learning development.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Comment

[text area with scrollbar]

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∗26. On a scale of 1-10 (10 being highest) rate the level of confidence and competence in using student learning data to ascertain the progress of a student's learning development? Comment if you wish to clarify further...

	1	2	3	4	5	6	7	8	9	10
I feel confident and competent in using data to ascertain the progress of a student's learning development.	○	○	○	○	○	○	○	○	○	○
Teachers at my school are confident and competent in using data to ascertain the progress of a student's learning.	○	○	○	○	○	○	○	○	○	○

Comment

∗27. What change/s if any, would you make to improve your effectiveness and productivity and/or your level of confidence and competence in using data to inform you of the progress of a student's learning development in your classroom? Please explain...

∗28. What change/s if any would you expect to see if data was used more effectively and productively with higher levels of confidence and competence to ascertain students' learning development across the school? Please explain...

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Appendix 6: Improving Student learning and development Survey (ISLDS)

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Would you please complete the following details:

*1. How many years have you been teaching?

[_____]

2. What is your highest level of teacher education?

- ○ Diploma of Education
- ○ Bachelor of Education
- ○ Post Graduate Degree
- ○ Masters Degree
- ○ Doctor of Education
- ○ PhD

Other (please specify)

[_____]

*3. Do you have an ET 5 or ET 6 classification?

- ○ ET 6
- ○ ET 5
- ○ Neither

*4. In which section of the school do you teach?

- ○ Prep - Year 2
- ○ Years 3,4,5
- ○ Years 6,7

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＊5. How do you believe students learn best within a school environment?

[text box]

＊6. What has had the greatest influence upon you in establishing your beliefs about how students learn? Please rate each on a scale of 1-10 (10 being the highest). Add any other influences not mentioned.

	1	2	3	4	5	6	7	8	9	10
Life experience has influenced my beliefs about how students learn.	○	○	○	○	○	○	○	○	○	○
Learning from my colleagues has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
Professional development has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My professional reading has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
Research has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
Working in the classroom has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My own experiences when I was at school have influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My pre-service training has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○
My post-graduate study has influenced me about how students learn.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

✱7. Rate each of the following statements from 1 -10 (10 being highest) that best describes in your opinion the role of a teacher? If you would like to comment further please do so at the end of the question.

	1	2	3	4	5	6	7	8	9	10
The role of a teacher is to support students in their learning.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to assist in student self-directed learning.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to provide learning opportunities to cater for all students.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to encourage life-long learning.	○	○	○	○	○	○	○	○	○	○
The role of a teacher is to cover the necessary curriculum content.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to transmit knowledge and skills.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to have students learn from each other.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to create an engaging learning environment.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to ensure success for all learners.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to ensure progression to the next year level.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to focus on the processes of how to learn.	○	○	○	○	○	○	○	○	○	○
The role of the teacher is to teach students to think about their thinking.	○	○	○	○	○	○	○	○	○	○

Comment further...

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The following provides a set of core principles that could provide a framework for discussion about how students learn. Please indicate the level of importance on a scale of 1-10 (10 being highest) in each section that you believe should be evident in the classroom. Please add any others in the comment boxes at the end of each section.

*8. Involvement in learning.

	1	2	3	4	5	6	7	8	9	10
To ensure that students are actively involved in learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students are engaged in learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students are encouraged to be responsible for their own learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students construct their own meaning.	○	○	○	○	○	○	○	○	○	○
To ensure that learning focuses on processes not content.	○	○	○	○	○	○	○	○	○	○
To ensure that students monitor their own learning.	○	○	○	○	○	○	○	○	○	○
To ensure that students are encouraged to take risks.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

*9. Social participation.

	1	2	3	4	5	6	7	8	9	10
To ensure that student learning is constructed with other learners.	○	○	○	○	○	○	○	○	○	○
To ensure that students are supported in their learning.	○	○	○	○	○	○	○	○	○	○
To ensure that every student is valued.	○	○	○	○	○	○	○	○	○	○
To ensure that students reach a level of independence before moving on to new concepts.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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*10. Meaningful activities and creating motivated learners.

	1	2	3	4	5	6	7	8	9	10
To ensure that learning is drawn from real-life contexts.	○	○	○	○	○	○	○	○	○	○
To ensure that learning is conneced to personal experience.	○	○	○	○	○	○	○	○	○	○
To ensure that learning motivates the learner.	○	○	○	○	○	○	○	○	○	○
To ensure that clear learning intentions are given.	○	○	○	○	○	○	○	○	○	○
To ensure that students see value what in what is learnt.	○	○	○	○	○	○	○	○	○	○
To ensure that learning provides new experiences.	○	○	○	○	○	○	○	○	○	○
To ensure that learning is relevant for all students.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

*11. Relating new information to prior knowledge.

	1	2	3	4	5	6	7	8	9	10
To ensure learning is built on prior knowledge.	○	○	○	○	○	○	○	○	○	○
To ensure that learning is connected to new and prior knowledge.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

*12. Being strategic.

	1	2	3	4	5	6	7	8	9	10
To ensure that learning improves thinking and remembering.	○	○	○	○	○	○	○	○	○	○
To ensure that students think about their own thinking.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

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*13. Self-reflection and self- regulation strategies.

	1	2	3	4	5	6	7	8	9	10
To ensure that students engage in self-reflection.	○	○	○	○	○	○	○	○	○	○
To ensure that students engage in regulating their own learning.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

*14. Transferring knowledge and understanding

	1	2	3	4	5	6	7	8	9	10
To ensure that students are able to transfer learning to different contexts.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

*15. Taking time to practice.

	1	2	3	4	5	6	7	8	9	10
To ensure that students are given time to practice.	○	○	○	○	○	○	○	○	○	○
To ensure that students are given time to process information.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

*16. Developmental and individual differences.

	1	2	3	4	5	6	7	8	9	10
To ensure developmental differences are accomodated.	○	○	○	○	○	○	○	○	○	○
To ensure individual differences are accomodated.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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*17. The Learning Environment

	1	2	3	4	5	6	7	8	9	10
To ensure that students feel safe and cared for in the classroom environment.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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Section 3: Judgement of Student Learning

This section focusses on the judgements that you as teacher make about the progress of student learning.

＊18. The strategies below are some that can be used to ascertain the development of a student's learning. Rate on a scale of 1-10 (10 being highest) the strategies that you use most often to know that a student's learning is developing? Please add any others at the end of this section.

	1	2	3	4	5	6	7	8	9	10
I use judgement of prior knowledge to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use the measurement of improvement against clear learning intentions to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student think-a-louds to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student feedback to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I give students explicit criteria to know that student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student self-reflection strategies to know that a student's work is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use student self-evaluation strategies to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I focus on a student's strengths as a strategy to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use the strategy of giving students specific direction for improvement to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use the collection of data throughout the learning process to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
I use formative (ongoing) assessment to know that a student's learning is developing.	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

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Statement	○	○	○	○	○	○	○	○	○	○
I use summative (giving a final result or grade) assessment to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	
I use the comparing of data with pre-testing data to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use standardised testing results to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use the measurement of student competencies (carrying out processes) to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use observations of students at work to know that a student's work is developing.	○	○	○	○	○	○	○	○	○	○
I use the writing of anecdotal notes to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use running records to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use the school's tracking tool to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I align student work with with Australian Curriculum standards to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I diagnose student learning difficulties in the classroom to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use student's self-regulation of their own progress to know that a student's learning is developing.	○	○	○	○	○	○	○	○	○	○
I use my own judgement to ascertain the progress of a student's learning development.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

[text box]

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*19. To the best of your knowledge, which of the strategies listed in the previous question are used across the school most frequently? Please rate these according to the level of frequency on a scale of 1-10 (10 being the highest).

	1	2	3	4	5	6	7	8	9	10
In my school we test for prior knowledge to know students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we measure improvement against clear learning intentions to know students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use student think-a-louds to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we give feedback to students to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we give explicit criteria to students to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use the strategy of student self-reflection to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use student self-evaluation strategies to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we focus on strengths as a strategy to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we give the students specific direction for improvement to know that their learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we collect data throughout the learning process to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use formative (on-going) assessment to know that students' learning is developing.	○	○	○	○	○	○	○	○	○	○
In my school we use summative (giving a final result or grade) assessment to know that students'	○	○	○	○	○	○	○	○	○	○

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learning is developing.

In my school we use the comparing of data with pre-testing data to know that students' learning is developing.

In my school we use standardised testing to know that students' learning is developing.

In my school we measure student competencies (carrying out processes) to know that students' learning is developing.

In my school we use observations of students at work to know that their learning is developing.

In my school the writing of anecdotal notes is used to know that students' learning is developing.

In my school we use running records to know that students' learning is developing.

In my school we use the tracking tool to know that students' learning is developing.

In my school we align student work with standards from the Australian Curriculum to know that their learning is developing.

In my school we diagnosis student learning difficulties in the classroom to know that students' learning is developing.

In my school, teachers use their own judgements to ascertain the progress of students' learning development.

Please specify any others

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*21. The following gives a list of possible principles that classroom assessment should be based upon. On a scale of 1-10 (10 being highest) rate according to the level of importance you would give to each.

	1	2	3	4	5	6	7	8	9	10
Assessment is part of effective planning.	○	○	○	○	○	○	○	○	○	○
Assessment needs to focus on how students learn.	○	○	○	○	○	○	○	○	○	○
Assessment is central to classroom practice.	○	○	○	○	○	○	○	○	○	○
Assessment is a key professional skill.	○	○	○	○	○	○	○	○	○	○
Assessment has an emotional impact.	○	○	○	○	○	○	○	○	○	○
Assessment affects learner motivation.	○	○	○	○	○	○	○	○	○	○
Assessment promotes commitment to learning goals and assessment criteria.	○	○	○	○	○	○	○	○	○	○
Assessment helps learners know how to improve.	○	○	○	○	○	○	○	○	○	○
Assessment should encourage self-assessment.	○	○	○	○	○	○	○	○	○	○
Assessment should recognise all achievements.	○	○	○	○	○	○	○	○	○	○

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Learning Development Data

This final section explores your use and the school's use of data to inform the progress of students' learning development.

＊22. How you do measure the degree of progress that a student has made in their learning development so that you can judge their improvement? Rate each on a scale of 1-10 (10 being highest) to the measures you use most often. Please add any others at the end of the question.

	1	2	3	4	5	6	7	8	9	10
I measure the degree of progress through results from classroom testing.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by comparing pre and post testing data.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through my observations.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by measuring against Australian Curriculum standards.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through student self-evaluation.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through my own teacher judgement.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by the improved level of competence of students to complete tasks.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through moderation with other teachers.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress using standardised testing data.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress through the information on the school's tracking tool.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by looking at previous end of Semester reports.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by looking at my own anecdotal notes.	○	○	○	○	○	○	○	○	○	○
I measure the degree of progress by students regulating their own improvements.	○	○	○	○	○	○	○	○	○	○

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Other (please specify)

□ ▲
□ ▼

✱23. Different types of data informing you about student learning development is used by the school. On a scale of 1-10 (10 being highest) rate the data gathering tools that you consider to be the most useful in informing you about your students. Please list any others not included in the list at the end of the question.

	1	2	3	4	5	6	7	8	9	10
The data from NAPLAN informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The information from student profiles inform me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from PAT Maths standardised testing informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from Words Their Way in spelling informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from the TORCH standardised tests informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from First Steps Writing informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from First Steps Reading informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from First Steps Speaking and Listening informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The data from the school tracking tool informs me about student learning development.	○	○	○	○	○	○	○	○	○	○
The information from end of semester reports in previous years gives data to inform me about student learning development.	○	○	○	○	○	○	○	○	○	○
Informal discussions with previous teachers gives data to inform me about student learning development.	○	○	○	○	○	○	○	○	○	○

Other (please specify)

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*24. On a scale of 1- 10 (10 being highest) rate whether you consider the use of data significant in informing you about student learning development. Add a comment if required.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7   ○ 8   ○ 9   ○ 10

Comment

*25. On a scale of 1-10 (10 being highest) please rate the following statements. Please feel free to give a reason for your rating at the end of the question.

	1	2	3	4	5	6	7	8	9	10
The school uses data effectively and productively to inform teachers about student learning development.	○	○	○	○	○	○	○	○	○	○
The school uses data effectively and productively to inform parents about student learning development.	○	○	○	○	○	○	○	○	○	○
The school uses data effectively and productively to inform students about their learning development.	○	○	○	○	○	○	○	○	○	○

Comment

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✱26. On a scale of 1-10 (10 being highest) rate the level of confidence and competence in using student learning data to ascertain the progress of a student's learning development? Comment if you wish to clarify further...

	1	2	3	4	5	6	7	8	9	10
I feel confident and competent in using data to ascertain the progress of a student's learning development.	○	○	○	○	○	○	○	○	○	○
Teachers at my school are confident and competent in using data to ascertain the progress of a student's learning.	○	○	○	○	○	○	○	○	○	○

Comment

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✱27. What change/s if any, would you make to improve your effectiveness and productivity and/or your level of confidence and competence in using data to inform you of the progress of a student's learning development in your classroom? Please explain...

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✱28. What change/s if any would you expect to see if data was used more effectively and productively with higher levels of confidence and competence to ascertain students' learning development across the school? Please explain...

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Appendix 7:   Teacher Focus Group Interview Questions – Inspection Stage

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Teacher Focus Group Interview Questions

Inspection Stage

Survey

1. An important part of my study was the collection of data from the online survey. I am interested to know why you did or didn't complete the online survey or why you think others might not have completed the survey?

How do teachers describe Learning?

2. For the moment, put aside the particular practices and strategies you use, and tell me how you think students learn best in the school environment?

What principles of learning do teachers base their beliefs upon?

3. What do you think it is more important to student learning: knowledge and skills or being actively engaged and motivated to learn or that they have a positive attitude, are willing to take risks and are responsible for their own learning?

4. What processes of learning do you think students should be taught?

5. To what degree do you think students should be responsible for their own learning?

How do teachers judge or support student learning?

6. For you (pause), what is the purpose of assessment?

7. How do you think assessment should be planned for in the learning process?

How do teachers' use learning development data to improve student learning?

8. How do you use assessment data?

9. Are there any ways that you think you could change your current practice to better utilise assessment data?

10. Is your use of assessment data integral to your planning?

11. Do you think that using assessment data helps you to progress student learning development?

12. Do you think there are ways you could more effectively use assessment data that could inform your teaching but that you have not introduced yet? What do you think would assist you to make better use of assessment data?

13. How do you provide feedback directly to students? Does this impact on the way they learn?

14. Is the collection, analysis and interpretation of data to inform student learning development important in this school?

15. What practical examples can you tell me that show how data is valued? Do you think a whole school approach would be beneficial? Why?

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Appendix 8: Administration Interview Questions – Inspection Stage

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Questions for Interview with Administration – Inspection Stage

November 2013

1. **So few completed the survey.**

   Fifteen began- only eight completed. Some the responses to this were: lack of time; unsure – new to school; beneficial – made me think/reflect; too lengthy; hard to answer; hard to remain motivated after hours; required deep thinking; tricky. Do you think there might be any other reasons as to why so few completed the on-line survey?

   Sub-question 1: How do teachers describe learning?

2. **How do you think students learn best in a school environment?**

   Every school environment is different and has its own requirements. Teachers were asked to focus on their students and not their practice in this question, yet whilst there were some responses around how they think students learn best in a school environment they said things like: give success criteria; teacher modelling; teacher expectations; teacher enthusiasm. Is there anything else that is important that you do in this school that supports teachers in knowing how students learn?

3. **In the survey:**

   Life experience, classroom experience and working with colleagues were considered the strongest influences upon the teachers' beliefs about how students learn. The teachers did not believe that understanding of current theories of learning and changes to education; professional reading and research were important for them.

   i.   As a member of the leadership team, do you have the opportunity to lead teachers to deepen their knowledge and understanding of the current body of knowledge surrounding student learning?
   ii.   If not, do you have someone else who can do this with the teachers?

4. **What do you do to lead and support teachers in enhancing their instructional practice?**

   When the teachers completed the survey there was a difference of opinion about the importance of the different instructional practices listed. Given that BCE now have a model of pedagogy that is based on current research around principles and

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practices of teaching students, and the teachers all seem to have different priorities, have you taken any measures to support teachers' understanding of the different principles and practices in improving their practice to progress student learning development? If so, what, and please explain them. Sub-question 2 – What principles of learning do teachers base their beliefs upon?

5. **What processes of learning do you think students should be taught?**

There is a dichotomy between the processes of learning such as problem solving; metacognition; analysing; synthesing etc. and the teaching of content. How do you see this dichotomy and when can you imagine teachers would favour one over the other and why?

Expected answer, get ready for exams, cover the syllabus, etc.

6. **Why do you think this is so? What do you think the implications are?**

Teachers in the on-line survey agreed that students should be actively involved in their own learning. In the interviews they indicated that students need to be responsible for their own learning. **How do you see student input working, to improve their learning?**

Sub-question 3: How do teachers' judge or support student learning?

7. **What is the purpose of assessment?**

When I was talking to the teachers they provided me with all sorts of uses they have for the data that is collected on the students. **Can you tell me what you consider important uses for the data and why?**

Possible answers

i. Grouping students
ii. Inform teaching practice.

What and how do you support teachers to change their current instructional practices if it is to inform teaching practice?

8. **How do you see teachers planning assessment in the learning process?**

The teachers described their use of a range of summative and formative assessment practices in both the survey and the interviews.

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    i.   **As part of your vision for learning, is there a school-wide expectation about the purpose and use of formative and summative assessment?**

    ii.   **What actions are you currently taking to assist teachers to engage with this vision?**

Sub-question 4: How do teachers' use learning development data to improve student learning?

9.   **How do you see the use of assessment data?**

Teachers seem to collect data for a lot of different purposes.

    i.   What do you see as the primary focus for the collection, interpretation and analysis of data to support student learning?

    ii.   How do you support teachers in the use of data to interpret and take on a meaning that informs the judgement of student learning achievement?

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Appendix 9:   School's Vision for Learning and Teaching

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OUR *Mission*

engaged in and empowered by a challenging, relevant and holistic curriculum, within a positive and respectful Catholic environment.

OUR *Vision*

To empower our students, staff and members of our school community by providing opportunities for them to nurture their educational and spiritual development, so that they may make a life long contribution to the benefit of society.

Vision for Learning and Teaching

Growing in Courage, Wisdom and Faith

We believe that the learning environment greatly influences students' success.

Learning environments are flexible in order to respond to learners' needs and promote a positive outlook towards learning.

We cater for those with physical impairments (sound field systems, ramps). Tables are arranged for collaborative learning. A variety of multiple use facilities is provided, eg. Sheepstation Gully Environmental Learning Centre.

We believe all individuals are unique and can achieve success.

We create diverse opportunities for individuals to achieve.

Units of work include choices for learners to demonstrate their learning. Students' progress is assessed to inform planning. A variety of enrichment activities are offered to students, eg. band/choir/sports/gardening/Tournament of Minds.

We take personal responsibility for maintaining a sustainable environment.

We believe we are stewards of God's creation.

Lunch waste is recycled. We pick up our rubbish. Wrapper – free lunches. We limit use of photocopying and laminating.

We believe in the Gospel and the teachings of the Catholic Church.

We live out the Gospel values of love, respect and forgiveness.

Our positive Behaviour Program includes the daily meditation and class prayer. We teach messages and morals from the Bible. We celebrate liturgies. We raise funds for charities.

We engage in a challenging and relevant curriculum which enables learners to progress and develop to their potential.

We believe in key habits of success.

Students are active in their learning, including use of ICTs. Learning is linked to previous learning. Learning is connected to real-life situations.

We take personal responsibility to communicate openly and foster positive relationships.

We value positive and supportive relationships.

Students are encouraged to be confident and stand up for self and others. Parents are invited to email, call or meet. We offer: parent information sessions, weekly newsletter, Open Classrooms and Showcase Evening, Years 6 & 7 Prep buddies.

Parents are active participants in their children's learning.