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Preservice teachers’ assessment learning: Change, development and growth

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ABSTRACT

This study investigated how eight preservice teachers in one primary teacher education programme learned about assessment and how that effected change, development and growth in their assessment beliefs, understandings and practices. In addition, the study explored to what extent the preservice teachers felt prepared to use classroom assessment practices to improve teaching and enhance learning.

Learning to use assessment for multiple purposes is a complex process. Preservice teachers build confidence and competence in assessment understandings and practices in different settings over time. A literature review revealed a lack of evidence on how preservice teachers learn about assessment, particularly from their perspectives as learners. Within the context of New Zealand educational assessment policy, which has a vision of building assessment capable teachers and students who are independent and self-regulated learners, the purpose of this study was to understand how learning about assessment occurred. Bransford, Brown, and Cocking’s (2000) three core principles of how people learn were used as a theoretical lens to view the study.

Using a qualitative, case study approach within an interpretive research paradigm, eight primary preservice teachers were interviewed four different times during the final year of their three year teacher education programme. Interviews were also conducted with the principals/school leaders and associate teachers from the preservice teachers’ final practicum schools, as well as the teacher educator of their compulsory assessment course. These interviews established those educators’ understandings and practices of assessment and their perceived roles in helping preservice teachers learn about assessment. Artifacts and documents the participants considered relevant to the teaching and learning of assessment were collected. An interactive qualitative data analysis approach was utilised to conduct a thematic analysis of the data.

There was evidence that the preservice teachers’ assessment beliefs, understandings and practices had changed considerably. Their learning about assessment resulted from the influences and interactions of their individual beliefs, dispositions, understandings and experiences of university coursework and school practicum. The preservice teachers were able to articulate how the processes of learning about assessment and being assessed during their teacher education programme helped or hindered their learning. Alignment of
educational assessment policy and classroom practice enabled the preservice teachers to make connections between assessment theory and practice but also to reflect on and learn from instances of dissonance. The preservice teachers displayed varying levels of metacognition and self-regulation in their own learning about assessment. Despite the preservice teachers’ individual assessment learning pathways, they all came to some common understandings about assessment and appeared ready to graduate with a reasonable level of confidence in their assessment knowledge and practices. All were oriented towards ongoing professional learning about assessment as beginning teachers and were willing to seek support to improve their practice, thus demonstrating emerging adaptive expertise. The preservice teachers’ change, development and growth in assessment learning provided a foundation for using assessment to improve learning and promote student engagement in assessment and learning.
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During my doctoral study, I was fortunate to be a research assistant on a national project related to preservice teacher assessment education called Learning to be assessment capable teachers. Through this experience I worked with Professor Bronwen Cowie, Associate Professor Alison Gilmore, Dr Alex Gunn and Professor Lisa Smith, as well as my supervisor Mary. I am truly grateful for people of their personal calibre and academic expertise to have shown genuine interest in my study and for their continued support.

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CHAPTER ONE:

Introduction to the study

This chapter introduces the study by providing the context and background information necessary for the reader to get a sense of the nature of the thesis. To understand the motivation behind the topic a short description is provided of the origin of the researcher’s personal interest in the field of assessment education. This is followed by background information relevant to the study and justification of the significance of the research topic. The aim of the study is expressed, together with the research questions to be answered. The theoretical lens through which the study was viewed is presented. The final section is an overview of the thesis structure to indicate the approach taken to the content of the chapters and how they are related to each other.

The researcher’s interest in the study

My interests in preservice teacher education and educational assessment stem from my own experiences as a ‘mature’ student completing my primary teacher education programme. I did not begin to understand the complexities of using assessment to improve teaching and learning until I undertook a fourth year Bachelor of Teaching with Honours course on educational assessment. This course provided the opportunity to think more critically about the links between assessment theory and classroom practice and to understand how skilled teachers needed to be to use evidence of learning to enhance student achievement. The importance of this quickly became clear to me in my first year of teaching. Initially I felt overwhelmed with the constant decision making required about where each child was at and what to do next to move their learning forward. I realised assessment was not a separate aspect of my classroom practice but integral to it. At the same time, I began to understand how even young children aged 5-6 years could be included in the assessment process so that they were playing an active part in their learning.

Prior to embarking on the challenge of a doctoral thesis I spoke to several preservice teachers on their final practicum in the primary school where I taught. What they seemed most worried about as future beginning teachers in their own classroom was a lack of knowledge and confidence in using assessment effectively. They also experienced some conflict regarding what they had learned at university about assessment through various subject and professional education courses and the contrast with some of their practicum
experiences of classroom assessment. These discussions reminded me of the concerns I had experienced about being responsible for the impact of assessment decisions on my students’ learning. Even though I was a more experienced classroom teacher by then, my assessment practice was something I constantly sought to improve, particularly in respect of using feedback and feed forward more effectively.

Around the same time, the proposed implementation of National Standards for literacy and numeracy in primary schools for Years 1-8 was creating a great deal of discussion and debate about assessment in New Zealand school staffrooms and year level teams. This was also occurring in the community and wider education sector. Once I commenced my doctoral study, I became a research assistant on a national research project entitled Learning to become assessment capable teachers. My involvement in this large scale investigation of assessment education programmes in four universities was further motivation to pursue a complementary study that provided rich qualitative description. Thus, it was the convergence of several factors that led to my particular interest in how preservice teachers learn about assessment and how teacher education programmes could foster an attitude of ongoing professional learning about assessment.

Throughout the thesis, I will refer to myself as ‘the researcher’ when describing actions undertaken by me in relation to the research process. I will also use ‘in this study’ when it is necessary to differentiate between this and other studies that may be referred to in the same sentence or paragraph.

**Research in teacher education**

In a report on teacher education, the American Educational Research Association (AERA) Panel on Research and Teacher Education called for “research that explores the interrelationships of teacher education strategies and arrangements, what teacher candidates actually learn, how they use what they learn in schools and classrooms, and what and how much their students learn” (Cochran-Smith, 2005, p. 302). A chain of empirical evidence demonstrating the links between teacher preparation programmes, preservice teachers’ learning, their classroom practices and student learning was also recommended. Similarly, Feiman-Nemser (2001) and Nolen, Horn, Ward, and Childers (2011) suggested the need for research on what a professional learning continuum from initial preparation through the early years of teaching might look like.
Excellent teaching has been identified as being a major influence on high quality outcomes for diverse students (Alton-Lee, 2003; Darling-Hammond, 2006; Hattie, 2003, 2009). The role of teacher education programmes in preparing teachers is fundamental to improving teacher quality (Darling-Hammond, 2006) yet such programmes were criticised for being ineffective in preparing preservice teachers for the realities of classroom practice (Korthagen & Kessels, 1999; Wideen, Mayer-Smith & Moon, 1998). In fact, it was asserted by Kane (2005) that little had changed in teacher education programmes over the last few decades despite new research findings and ongoing educational reforms. However, Darling-Hammond, Hammerness, Grossman, Rust, and Shulman (2005) pointed out the demands of teaching teachers and argued “teacher educators must constantly model practices; construct powerful learning experiences; thoughtfully support progress, understanding, and practice; carefully assess students’ progress and understandings; and help link the theory and practice” (p. 441).

Zeichner and Tabachnick (1981) concluded that there was a need for research in teacher education regarding the impact of university courses on the educational beliefs and practices of preservice teachers, as the effects of teacher education were being ‘washed out’ by school experiences. Three decades on, Korthagen (2010) argued that “the disappointing impact of teacher education on teacher behaviour and teacher learning” is still a major issue for teacher educators (p. 98). Teacher education is both demanding and difficult. According to Darling-Hammond (2006) one of the core dilemmas of teacher education is “the difficult process of helping people learn to enact their intentions in complex settings” (p. 41).

One ongoing issue in teacher education has been linking theory and practice (Brouwer & Korthagen, 2005; Korthagen, Loughran, & Russell, 2006). The transfer problem, as it is called in teacher education, is well-known and Korthagen and Kessels (1999) considered three of the major causes to be:

- preservice teachers’ preconceptions about learning that often do not agree with theories taught in teacher education programmes
- preservice teachers having personal concerns or encountering concrete problems with teaching leading to lack of motivation
- preservice teachers’ need for action-guiding knowledge in the classroom differing from the more abstract, theoretical knowledge presented by teacher educators.
Korthagen and Kessels (1999) acknowledged the polarising debate about whether teacher education should start with theory or practice but argued that the more important question was “how to integrate the two in such a way that it leads to integration within the teacher” (p. 4). In contrast, Grossman, Smagorinsky, and Valencia (1999) stated that research on teacher education should focus on the different social contexts that teachers progress through when learning to teach. Using activity theory as an analytical framework, Grossman et al. (1999) stated “the effects of teacher education programs can only be viewed in conjunction with a variety of variables having to do with settings in which teachers learn and practice their work” (p. 2). For example, they argued that various participants in teacher education, whether university or school-based, all hold beliefs about how a person learns to teach. Sometimes these belief systems are in conflict, resulting in different conceptions of the ‘ideal teacher’ which can cause preservice teachers to experience dissonance in what is expected from them in regards to being a competent teacher.

The concept of socialisation, in which people acquire the attitudes, values, skills and culture of the groups of whom they become a member, is one of the explanations for the gap between theory and practice in preservice teachers’ coursework and fieldwork (Brouwer & Korthagen, 2005; Lortie, 1975; Nolen et al., 2011; Zeichner & Tabachnick, 1981). A study by Valencia, Martin, Place, & Grossman (2009) used an ecological approach involving multiple data sources to research nine preservice teachers’ experience of learning to teach on field placement or practicum. They examined the complex interactions of the three key triad members, namely the preservice teacher, cooperating teacher and university supervisor. Valencia et al. (2009) identified lost opportunities for learning to teach and found “discrepant goals for student teaching, strained interactions within the triad, tenuous ties between coursework and fieldwork, unclear criteria for field placements, and lack of support for cooperating teachers and university supervisors” (p. 318).

Contrasting with the theory-practice debate, Grossman and McDonald (2008) proposed a programme of research in teaching and teacher education to: (a) identify key components of teaching, (b) inform the content of teacher education, (c) examine the organisational contexts in which learning to teach occurs and (d) consider how variances in teacher education programmes lead to differences for teachers. In addition, Grossman, Hammerness, and McDonald (2009) suggested a new direction for teacher education “to reorganize the curriculum around a set of core practices and then help novices develop
professional knowledge, and skill, as well as an emerging professional identity around these practices” (p. 277). They argued against an underlying assumption of a theory-practice divide in which theory is learned in university coursework and practice is enacted in school practicum experiences:

This method of providing teachers with academic knowledge that they then take out to apply in practice continues to reinforce a dichotomous view of theory and practice. Principles developed in the absence of assisted practice lack the depth required for novice teachers to enact such principles in practice. At the same time, learning to enact instructional routines reinforces a view of teaching as a set of techniques. Rather we suggest a more iterative and interactive relationship between teachers’ development of principles for teaching and practical tools. (Grossman et al., 2009, p. 278)

In New Zealand, Ell (2011) noted that teacher educators were also beginning to consider practice as being central to the teacher education curriculum. She recommended investigation of how teacher education programmes can be designed and implemented to produce high quality teachers who are effective teachers, for example, in respect of raising the achievement of Māori and Pasifika students. This type of empirical research would enable teacher educators to make “evidence-based decisions on curriculum design and implementation” when making curriculum changes (Ell, 2011, p. 439). Similarly, an advice paper for the New Zealand Minister of Education on raising the quality of teaching stated “there is no one best model for initial teacher education and induction”, although the literature suggests teacher education “which links practicum with theory and where providers, schools and teachers are connected, lead to better outcomes” (New Zealand Government, 2010, p. 12). Factors affecting the quality of preservice and beginning teachers included teacher education programme entry standards and selection, programme content, weak application of professional standards and lack of training for associate and mentoring teachers (New Zealand Government, 2010).

More recently, two discussion papers informing policy and promoting discussion on initial teacher education and induction of beginning teachers were commissioned by the Ministry of Education. One proposed an inquiry-oriented model for New Zealand graduate teacher standards (Aitken, Sinnema, & Meyer, 2013) and was designed to support high quality standards leading to improved outcomes for all learners. The companion paper described practice-based experiences that would support preservice teachers to meet the standards. This paper envisioned the preparation of teachers “as adaptive experts [who] actively seek
in-depth knowledge about the content of learning and how to teach it effectively to their particular students and in their specific context” (Timperley, 2013, p. 5). Novices can become ‘routine’ experts through repeated practice, often becoming quite skilled and efficient, yet they do not have flexibility and adaptability when faced with variations or new problems (Hatano & Inagaki, 1984). In contrast, ‘adaptive’ experts demonstrate flexibility, innovation and creativity that go beyond routine competencies to modify procedures, solve problems or find better solutions (Hatano & Oura, 2003). McNaughton and Lai (2009) argued that teachers need to be adaptive experts “to be more effective with culturally and linguistically diverse students” (p.59). For example, they reported that supporting teachers to expand their expertise through modification of existing instructional approaches and innovation contributed to increased literacy achievement of Māori and Pasifika students in their study (McNaughton & Lai, 2009). Some teacher education programmes are adopting adaptive expertise as “the gold standard for being a professional” (Bransford, Derry, Berliner, Hammerness & Beckett, 2005, p. 76). The challenge for teacher education researchers is to identify learning experiences that can develop adaptive expertise so that teachers see themselves as ongoing learners who are flexible and adaptive in response to students’ learning needs (Bransford, Brown, & Cocking, 2000; Hammerness et al., 2005; Hatano & Oura, 2003; Timperley, 2013). A critical component of adaptive expertise is the teacher’s knowledge and use of assessment.

The importance of learning about assessment

Effective assessment practices have a significant effect on learning (Alton-Lee, 2003; Black & Wiliam, 1998a; Crooks, 1988; Hattie, 2009). Over the last fifteen years there has been a move from assessment primarily being used for assessing achievement during or at the end of certain points of teaching and instruction to assessment having a more central role of supporting learning and improving teaching (Black & Wiliam, 2006a; Shepard, 2000). Additionally, there is now a greater emphasis on students’ active participation in assessment to promote independent learning (Earl, 2013). These different purposes of assessment have generally been referred to as summative and formative assessment or assessment of, for and as learning. This exemplifies the complex nature of assessment and its role in teaching and learning.

Teachers need to know how to use assessment to inform their teaching, measure student outcomes and support learning. Assessment literacy involves teachers making appropriate
decisions on administering, interpreting and responding to assessments (Brown, 2008; Popham, 2011). Stiggins (1999) stated that typical classroom teachers can spend one-third to one-half of their time on assessment related activities, therefore they need the competence to do it well. Hence, it is important for teachers to have a sound understanding of the theoretical and philosophical understandings that underpin effective classroom assessment practice and form part of assessment literacy (DeLuca & Klinger, 2010). Popham (2009) argued that assessment literacy is an essential professional capability and therefore teacher education programmes should pay attention to it as part of assessment education. Preservice teachers’ levels of assessment literacy prior to graduation were found to be relatively low or inconsistent (DeLuca & Klinger, 2010; Mertler, 2003; Volante & Fazio, 2007). The literature suggests that preservice teachers often graduate and enter classrooms without being adequately prepared to meet the challenges of classroom assessment (Absolum, Flockton, Hattie, Hipkins, & Reid, 2009; Popham, 2009; Shepard et al., 2005).

Assessment in the New Zealand context

Educational restructuring and reforms in New Zealand since the late 1980s and 1990s have led to growing demands for school accountability and increased expectations of achievement (Crooks, 2011; Mutch, 2012; Philips, 2000). Most recently, the introduction of National Standards in literacy and numeracy in Years 1-8 has been contentious (Crooks, 2011: Thrupp & White, 2013). One of the arguments against National Standards is that labelling students in relation to a standard would do nothing to alleviate growing inequalities perceived in New Zealand schools (Thrupp & White, 2013). Groups of students who have traditionally not experienced success in New Zealand’s schooling system have been identified as ‘priority learners’ in an effort to accelerate their achievement (Education Review Office (ERO), 2012).

In New Zealand, there is an increasing policy emphasis on developing teachers’ and students’ assessment capability, with a focus on placing the student at the heart of assessment (Absolum et al., 2009). Having the ability or capacity to obtain and use assessment information to make decisions about teaching and learning for all students and groups of students is only one part of being assessment capable (Ministry of Education (MOE), 2010). Going beyond assessment literacy, assessment capability emphasises the participatory role of students (Booth, Hill, & Dixon, 2014; Crooks, 2011). Assessment capability also includes: having a disposition that motivates a teacher or student to seek out
the assessment information; understanding the significance of that information; and using it in a way that empowers students to develop self-regulatory processes, autonomy and control over their learning.

To support students to develop assessment capability, teachers must also have the abilities and dispositions that demonstrate what it means to be assessment capable (Flockton, 2012). There has been very little research into New Zealand preservice teachers’ assessment education, including development of assessment capability (Hill, Cowie, Gilmore, & Smith, 2010; Smith, Hill, Cowie & Gilmore, 2014).

The significance of the research study

Assessment is an integral part of the teaching and learning process, therefore an important part of teacher preparation (Shepard et al., 2005). Investigation is needed into how teacher education programmes can produce high quality teachers who can connect theory and practice (Darling-Hammond, 2006). There has been a call for research that explores how preservice teachers learn to acquire and apply knowledge in teaching rather than just the content of what they learn (Cochran-Smith, 2005; Feiman-Nemser, 2008).

Some research has investigated preservice teachers’ beliefs and preconceptions about assessment (Brown & Remesal, 2012; Crossman, 2004; Levin & He, 2008; Pajares, 1993). There is also evidence of the measurement of preservice teachers’ assessment literacy (Chen, 2005; Maclellan, 2004; Mertler, 2003; Volante & Fazio, 2009). However, there is a lack of empirical research into how preservice teachers learn about assessment. It has been argued there is a need for researchers to investigate how different aspects of assessment education influence preservice teachers’ assessment beliefs, understandings and practices, as well as their readiness to use effective assessment after graduation (Hill et al., 2010; Cowie & Hill, 2011; DeLuca, Chavez, Bellara, & Cao, 2013; Moss, 2013).

The aim of this study was to investigate how the university coursework and school practicum experiences of preservice teachers impacted on their assessment beliefs, theoretical understandings and practices. The investigation focused on the experiences and perceptions of preservice teachers in the different contexts in which they learned about assessment. Exploring the roles of educators involved in the preservice teachers’ assessment education sought to determine alignment between theory and practice. The intention was to
address gaps in the literature about how preservice teachers acquire and develop assessment knowledge and understandings then learn to apply it in practice. Accordingly, the overarching research question that guided this study was:

How do preservice teachers learn about assessment in university and school practicum settings during their primary teacher education programme?

The following sub-questions provided a framework for the study:

a) How do preservice teachers’ assessment beliefs and understandings change during their teacher education programme?

b) How does university coursework influence preservice teachers’ learning about assessment theory and practice?

c) How do school practicum experiences influence preservice teachers’ learning about assessment theory and practice?

d) How do preservice teachers make connections between their theoretical understandings of assessment and their experiences of classroom assessment?

e) How do preservice teachers perceive their assessment capabilities as they move into the first year of teaching?

Applying a theoretical lens: The principles of how people learn

As Chapter Two will demonstrate, the gap in the literature appears to be an understanding of how preservice teachers learn about assessment during their teacher education programme. Bransford et al. (2000) conducted an influential synthesis of the scientific literature on cognition, neuroscience, learning, development and culture and identified three core principles of how people learn. They argued that knowledge was emerging “to improve significantly people’s abilities to become active learners who seek to understand complex subject matter and are better prepared to transfer what they have learned to new problems and settings” and called for “rethinking what is taught, how it is taught, and how learning is assessed” (Bransford et al., 2000, p. 13). The authors stated that the three principles of learning provided a lens with which to view practice in the classroom, as well as preparation
of teachers. Consequently, the three principles of how people learn were considered an appropriate theoretical lens for this study on preservice teachers’ learning about assessment. These principles are:

1. Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for the purposes of a test but revert to their preconceptions outside the classroom.

2. To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organise knowledge in ways that facilitate retrieval and application.

3. A ‘metacognitive’ approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them. (Bransford et al., 2000, pp. 14-18)

Thinking about learning and having an awareness of the principles of learning is important for teachers so they can integrate these understandings into their teaching (Donovan & Bransford, 2005). More recently, Earl (2013) has incorporated this theory of learning into her argument for emphasising the role of the student in the assessment process. She stated “these principles portray learning as an interactive process by which learners try to make sense of new information and integrate it into what they already know” (Earl, 2013, p. 39).

While these principles have implications for teaching, learning and assessment, Bransford et al. (2000) also made specific note of their application to teacher preparation:

- Schools of education must provide beginning teachers with opportunities to learn: (a) to recognise predictable preconceptions of students that make the mastery of particular subject matter challenging, (b) to draw out preconceptions that are not predictable, and (c) to work with preconceptions so that children build on them and, when appropriate, replace them.

- Teachers need to come to teaching with the experience of in-depth study of the subject themselves. Before a teacher can develop powerful pedagogical tools, he or she must be familiar with the progress of inquiry and the terms of discourse in the discipline, as well as understand the relationships between information and the concepts that help organise that information.

- Developing strong metacognitive strategies and learning to teach those strategies in a classroom environment should be standard features of the curriculum in schools of education. (pp. 20-21)

Learning to teach is not a passive process. Questions about teacher learning are becoming more focused on “how teachers acquire, generate and learn to use knowledge in teaching”
(Feiman-Nemser, 2008, p.700). Bransford et al.’s (2000) three principles of how people learn provide a framework within which preservice teachers learn about assessment and learn how to use it as an active process in teaching and learning.

**The structure of the thesis**

This thesis is organised into seven chapters. Chapter One provided an introduction to the study. Chapter Two reviews the literature relevant to this study in four sections. The first explains current assessment theory and practices taught in New Zealand teacher education programmes and enacted in school classrooms. The second contextualises the study within New Zealand educational assessment policy, which has a vision of building assessment capability in teachers and students in order to promote self-regulated learning (SRL). The third section explores the use of assessment to develop SRL. In the fourth section, the challenge of learning about assessment is conveyed through the literature on the influence of pre-existing beliefs and preconceptions, developing assessment literacy and studies of assessment education programmes. The chapter concludes with a summary of the literature and suggests gaps in the research on how preservice teachers learn about assessment.

Chapter Three outlines the research process. The first section re-states the research questions and explains the selected qualitative methodology and case study approach. The second provides information about the study’s research methods, participants, settings and the consideration given to ethical issues. Following this, the data collection procedures are described. The fourth section explains the interactive qualitative data analysis approach begun as soon as data collection commenced. In the concluding section, evidence of the trustworthiness of the study is presented and discussed.

Chapter Four introduces the findings in the form of eight assessment timelines, one for each individual preservice teacher. The assessment timelines create an overview of the preservice teachers’ learning about assessment over their three year teacher education programme. Specific incidents relating to university coursework and school practicum are noted and help identify emerging patterns, while also highlighting the differences in individual learning pathways.

Chapter Five shifts to answer the question of how these preservice teachers learnt about assessment through eight themes that emerged through data collection, analysis and
interpretation. Each theme is introduced with a cameo focused on a particular preservice teacher’s experience related to the theme and is linked to the three principles of how people learn. Supporting or contrasting evidence is mainly presented through excerpts from the participants’ transcripts.

Chapter Six discusses the findings, with reference to the research literature. Although there were differences in individual preservice teachers’ assessment learning, they came to some common understandings. The discussion is organised around the three principles of how people learn in respect of the preservice teachers’ change in assessment beliefs and perceptions, development of assessment knowledge and understandings, and growth of metacognition and an orientation towards ongoing learning.

In the final chapter, conclusions are drawn, limitations of the study are acknowledged and implications for assessment education practice and educational assessment policy are considered. Suggestions for future research are made, including the development of metacognitive and self-regulatory skills as part of assessment learning.
CHAPTER TWO:
Review of the literature

Introduction
The purpose of conducting this literature review was to demonstrate where this study sits in the body of knowledge relating to assessment and preservice teachers’ assessment education. Current understandings of assessment theory and practice are examined. Empirical research that investigated the development of preservice teachers’ assessment beliefs, understandings and practices is presented. The literature is further considered within the context of New Zealand educational assessment policy which has a vision of building assessment capability in teachers and students in order to support SRL.

To discover relevant research studies and identify gaps in the field of educating preservice teachers about assessment, a range of literature was sourced, read, analysed and summarised. Consideration was given to the relevance of the research questions, methodologies and findings of each source. The validity of conclusions drawn and implications for future research in each study were critiqued. In conducting a systematic search of the literature, the following processes, parameters and criteria were used for selection purposes:

- Electronic education databases including EBSCO, ERIC, Google Scholar, Index New Zealand, NZCER Journals Online, ProQuest Education Journals and SAGE Full-Text Journal Collection were searched using the keywords and key phrases independently or combined in basic and advanced searches.

- Keywords and key phrases searched independently or in combination were: assessment; formative assessment; summative assessment; assessment for learning; assessment of learning; assessment as learning; assessment literacy; assessment capability; assessment theory; assessment practice; assessment education; educational assessment policy; beliefs about assessment; self-assessment; self-monitoring; self-evaluation; feedback; self-regulation; self-regulated learning; self-regulated learners; metacognition; metacognitive strategies; elementary education; primary education; teacher education; teacher education programmes; preservice
teacher; preservice teaching; preservice teacher training; student teacher; initial teacher education; practicum; placement; field experience; teacher beliefs; preservice teacher beliefs; beginning teachers; graduate teachers.

- Seminal writers associated with the fields of educational assessment and teacher education, both in New Zealand and internationally, were sourced.

- The literature was mostly drawn from published works post-1990, with some exceptions. This was due to the significant changes in the last 20-25 years in the field of educational assessment and the effects on preservice teachers’ assessment education.

- Further relevant writers and studies were found through references cited in journal articles, books, reports, unpublished theses and conference presentations, as well as recommendations from supervisors, peers and colleagues.

The literature review is structured in four major sections, each with a number of sub-sections. The first positions theoretical understandings of assessment in which multiple purposes of assessment are discussed in relation to three interlinked but distinct approaches to contemporary assessment practice. The synergies and tensions between the different approaches highlight the complexity of classroom assessment that preservice teachers need to learn. New Zealand educational assessment policy from 1990 onwards, culminating in the current vision of building assessment capability and SRL in teachers and students, is considered next. Preservice teachers need a conceptual understanding of the influence that past and present national assessment policy has on their assessment practice, as well as knowledge of the curriculum requirements and the regulatory framework in which they are required to demonstrate accountability for student achievement.

Given the current emphasis in New Zealand on developing self-regulated learners, the third section explores the complex process of defining SRL, the relationship between SRL and academic achievement and research on fostering SRL in the classroom and assessment practices that support it. SRL is a multifaceted construct comprising a range of metacognitive and strategic actions that preservice teachers need to be capable of enacting themselves, as well as teaching.
Finally, the fourth section reviews studies regarding influences on preservice teachers’ learning about assessment. Research about their preconceptions about learning and assessment is reviewed, along with studies that reveal what and how they learn, including their adoption of effective assessment practices. Findings regarding the development of assessment literacy are examined alongside how preservice teachers’ assessment beliefs and understandings change and develop throughout their teacher education programme. Concluding this section, research into the effectiveness of assessment education in New Zealand is reported.

**Theoretical understandings of assessment**

Assessment is an integral part of quality teaching and learning. The terms ‘summative’ and ‘formative’ were used to differentiate purposes of assessment, with summative assessment being regarded as assessment of learning and formative assessment considered to be assessment for learning (Broadfoot, 2007; Brookhart, 2001, 2007; Ewing, 2010; Hall & Burke, 2004; Harlen, 2008; Looney, 2013; Newton, 2007; Stiggins, 2007). A third conception is assessment as learning, the purpose of which is to emphasise students’ active participation at the centre of assessment and learning (Earl, 2003, 2013). These multiple purposes suggest the complexity of assessment and its role in effective teaching and learning. Preservice teachers need to develop a foundation of assessment knowledge within a theoretical and conceptual framework that enables them to apply that knowledge purposefully and effectively in the classroom to improve learning (Bransford et al., 2000). The following sub-sections review current theoretical understandings and research in respect of assessment purposes and practice.

**Multiple purposes of assessment**

Effective assessment informs teaching and improves student learning (Alton-Lee, 2003; Black & Wiliam, 1998a; Shepard et al., 2005). There are many ways to gather evidence of learning, and assessment can refer to a wide variety of formal and informal methods and processes used by teachers and students to interpret information about teaching and learning (Davies & Hill, 2009; Ewing, 2010). According to Brown, Irving, and Keegan (2008), the fundamental purposes for assessment are to improve teaching and learning, to make schools and teachers accountable, and to make students accountable. Moreover, Boud (2000) argued that every act of assessment has more than one purpose and used the phrase “assessment doing double duty” (p. 159). For example, as well as judging whether learning
outcomes have been achieved, an assessment activity also communicates what knowledge is valued and the cultural norms of practice being followed (Boud, 2000).

Graduating teachers need an understanding of the multiple purposes of assessment including tracking learning, improving teaching practice and promoting learning (New Zealand Teachers Council (NZTC), 2007; Shepard et al., 2005). However, the different purposes for assessment can sometimes be conflicting or place competing demands on teachers (Earl, 2013). Preservice teachers need to learn how “to keep the purposes of each type of assessment in mind as this is fundamental to helping them learn to judge the appropriateness of one over the other” (Andrade, 2010a, p. 348).

Over the last 15-20 years, there has been a significant shift in the functions of educational assessment to include teaching and testing set learning objectives as well as a greater emphasis on using assessment to determine what students know and are able to do, in order to identify the next steps in their learning (Black, Harrison, Lee, Marshall & Wiliam, 2003; Broadfoot, 2007; Gipps, 1994; Timperley & Parr, 2010). Assessment is now considered central to the teaching and learning process, rather than seen only as the end-point of instruction (Shepard, 2000). Black and Wiliam (2006a) explain that “assessment in education must, first and foremost, serve the purpose of supporting learning” (p. 9). However, while assessment can have positive effects on learning it can also have negative impacts on students such as decreasing intrinsic motivation and self-efficacy for learning, as well as reducing the effectiveness of feedback (Black & Wiliam, 1998b; Crooks, 1988; Hattie & Timperley, 2007; Kluger & DeNisi, 1996).

**Assessment of learning**

Assessment of learning is summative in that it is used for determining if learning goals were achieved, for tracking progress, for certification of achievement and for publicly reporting achievement information (Harlen, 2008). Aggregated results for groups of students can be used within and across schools for accountability and comparison purposes (Harlen & Gardner, 2010). Formal assessments are necessary to track students’ performance and progress. They provide evidence of learning that “can assist teachers in making more valid and reliable professional judgements” (Davies & Hill, 2009, p. 55). In addition, research has shown that when teachers examine evidence of student achievement to improve their teaching practice, achievement has been raised (Timperley & Parr, 2004).
Shepard (2006) defined summative assessment as “the assessments carried out at the end of an instructional unit or course of study for the purpose of giving grades or otherwise certifying student proficiency” (p. 627). Grades, marking standardised tests, exams and assignments are often associated with summative assessment. Results can be combined into one grade using symbols such as letters, numbers and percentages or contained within a narrative comment when reporting achievement over a certain period of time (Brookhart, 2013). A comparison of results enables performance to be assessed for a number of purposes such as comparing students’ performances with each other (norm-referenced), comparing performance against established criteria or standards (criterion-referenced) and comparing performance to students’ own previous performance (self-referenced or ipsative) (Brookhart, 2013; Brown et al., 2008). It is essential that teachers consider issues of validity, reliability, equity and inclusiveness in all assessment activities, processes and tasks (Davies & Hill, 2009; MOE, 1994). Decisions regarding design, administration and scoring of assessments, together with interpretation of assessments and any comparisons made as a result, must be fair and unbiased (Brown et al., 2008; Gipps, 1994).

Crooks’ (1988) extensive review of the literature on the impact of classroom assessment practices on students concluded that too much emphasis had been placed on grading of student achievement and, consequently, too little on the role of assessment and feedback to assist students to learn. He stated that the certification function of assessment needed to be put into perspective and there was little justification for using normative grading until the end of high school. Furthermore, overuse of standardised testing in formal exam conditions gave prominence to the ‘score’ instead of learning about strengths and weaknesses or what students could or could not do using criterion-referenced assessment. Additional research has supported the view that summative assessment, particularly frequent high-stakes testing, can have a negative impact on students’ motivation for learning (Harlen, 2005; Shepard et al., 2005). Crooks (1988) argued the most important message from his review was that “as educators we must ensure that we give appropriate emphasis in our evaluations to the skills, knowledge, and attitudes that we perceive to be the most important” (p. 470). A broader definition proposed by Crooks (2002) stated that “assessment of learning (often described as summative assessment) aims to provide a well-founded, clear and up-to-date picture of a student’s current capabilities or attitudes, progress over time or further growth needs and potential” (p. 241).
Because of the impact of grades and statements of achievement on students’ lives and futures, summative assessment must be “credible and defensible”, requiring teachers to provide “accurate and sound statements of proficiency or competence” (Earl, 2013, p. 30). As previously indicated, accuracy depends on the validity and reliability of the assessments and the competence of the teacher (Brown et al., 2008). A review of research on classroom summative assessment practices from 1999 to 2011 was conducted by Moss (2013). She reported a gap between teachers’ perceived and actual competence in designing, using and interpreting assessments for summative purposes. When teachers lacked the skills to make accurate and reliable summative judgements, it often resulted in misinterpretation of student achievement. There was evidence that “many teachers habitually include nonachievement factors like behavior and attitude, degree of effort or perceived motivation for the topic or assignment in their summative assessments” (Moss, 2013, p. 236). In contrast, she found research evidence demonstrated that when teachers had training or coaching from other teachers with expertise in summative assessment practices they became more aware of their assessment competencies and took steps to address any lack of skills and understandings.

One way of ensuring dependable summative assessment is the process of moderation of teacher judgements, particularly for external reporting or accountability requirements (Harlen, 2005). The aim of moderation is to “achieve consistency in assessment in order to enhance quality” (Gipps, 1994, p. 72). It involves teachers interpreting and discussing criteria and standards in regard to authentic student work samples and negotiating consistent judgements. Gipps (1994) argued this type of group moderation resulted in valuable professional development in subject knowledge and assessment. Wyatt-Smith, Klenowski, and Gunn (2010) conducted a study in Queensland, Australia, on how teachers used stated standards to achieve consistency of judgement through a moderation process. Analysis of teacher talk in moderation meetings demonstrated that explicit knowledge available through the provision of standards, a guide document and annotated student work samples did not necessarily result in shared understandings or aid teachers’ decision-making in awarding a final grade. Additional resources were used by the teachers, including knowledge of ‘in the head’ standards and the types of tacit knowledge that Sadler (1989) argued teachers developed through experience and brought to acts of assessment. In addition, the teachers’ knowledge of student attributes and dispositions influenced their grading decisions. Wyatt-Smith et al. (2010) found that the teachers in the study experienced tension between their
tacit and explicit knowledge when faced with the challenge of achieving assessment consistency.

A review of empirical studies regarding teachers’ grading practices by Brookhart (2013) reported some positive changes in teachers’ use of grading within a more balanced assessment system, however teachers continued to “mix effort and behavior into their academic grades, especially for lower achieving students” (Brookhart, 2013, p. 269). In addition, Brookhart (2013) recommended investigating how learning-focused grading practices could “contribute to valid reporting and meaningful student learning” (p. 270). As these studies show, the ability to summarise achievement and use that information to improve learning is both complex and challenging. Nevertheless, assessment of learning is an important part of effective assessment practice and therefore a necessary element of teacher preparation programmes and teacher professional development (Moss, 2013).

**Assessment for learning**

The terms ‘assessment for learning’ and ‘formative assessment’ have often been used synonymously. Distinguishing between the two has been debated over the last 10 years (Stiggins, 2005; Swaffield, 2011). For the purposes of this study both terms are used interchangeably following Black et al. (2003) and Wiliam (2011). Black and Wiliam (1998a) published a major review summarising the previous ten years’ research on classroom assessment with a focus on formative assessment, which they defined as “encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged” (pp. 7-8). They argued the research evidence demonstrated that formative assessment improved learning. Bennett (2011) critiqued their review and concluded that formative assessment could not yet be defined in one specific set of practices and was still considered a work-in-progress. Similarly, Perrenoud’s (1998) response to Black and Wiliam’s (1998a) review sought to widen the conceptual field of formative assessment by arguing that greater emphasis on the individualised regulation of learning, rather than the review’s particular focus on the practice of feedback, was the cause of enhanced achievement.

Black and Wiliam (2006b), taking on board the critiques, agreed that theory of formative assessment needed to be developed within more comprehensive theories of learning,
regulation and implementation of pedagogical practices (see, for example, Wiliam, 2011). Consequently, in 2009 they sought to build on their earlier definition of formative assessment, stating:

Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited. (Black & Wiliam, 2009, p. 9)

Formative assessment, or assessment for learning, includes pedagogical practices such as effective questioning and student-teacher dialogue, the giving and receiving of quality feedback, understanding learning goals and success criteria, and the development of peer and self-assessment (Black & Wiliam, 1998b; Black et al., 2003; Clarke, 2005; Looney, 2011). After two years of research in classrooms at all grade levels, Leahy, Lyon, Thompson, and Wiliam (2005) reported five broad but powerful assessment for learning strategies: (1) clarifying and sharing learning intentions and success criteria; (2) engineering effective classroom discussions, questions, and learning tasks; (3) providing feedback that moves learners forward; (4) activating students as the owners of their own learning; and (5) activating students as instructional resources for one another (p. 20). More extensive explanations of these five key strategies can be found in Wiliam (2007) and Wiliam (2010).

In England, the Assessment Reform Group (ARG) published 10 research-based assessment for learning principles to guide classroom practice:

Assessment for learning:

- is part of effective planning
- focuses on how students learn
- 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
- recognises all achievements (ARG, online, 2002).
Two significant classroom-based research studies into different types of formative assessment provided practical guidelines for teachers to reflect on and develop their practice. They were published after Crooks’ (1988) review and close to the time of Black and Wiliam’s (1998a) review. Firstly, in the United Kingdom, Torrance and Pryor (1998) conducted empirical research into formative assessment of four to seven year olds. They identified two different approaches to assessment and accordingly developed a conceptual framework of convergent assessment (whether the child knows, understands or can do) and divergent assessment (what the child knows, understands or can do). Although the different approaches appeared to be derived from teachers’ philosophies of learning and assessment, the authors were not asserting divergent assessment that emphasised the learner’s understanding should always be adopted. Instead, Torrance and Pryor (1998) proposed “understanding the possibilities of both convergent and divergent assessment and developing the ability consciously to manipulate them would seem to be the prerequisite for teachers to make the most of formative assessment” (p. 155). Further classroom-based research resulted in the descriptive and analytic framework of the processes of formative assessment reported in Torrance and Pryor (2001).

The second research study, in New Zealand, investigated formative assessment in 10 science classrooms of students aged 11 to 14 years (Bell & Cowie, 2001a, 2001b). A model was developed to describe and explain two types of formative assessment carried out by the teachers. In planned formative assessment, teachers were eliciting, interpreting and acting on assessment information. Assessment tasks were generally done with the whole class at the beginning and end of a topic or unit to establish what the students knew and could do in respect of getting through the curriculum. In contrast, during interactive formative assessment, teachers were noticing, recognising and responding to learning and understanding in individuals or small groups. This type of assessment was not planned and tended to arise out of classroom learning activities and student-teacher interactions, thus enabling “teachers and students to recognise and respond to student learning in order to enhance that learning, during the learning” (Bell & Cowie, 2001b, p. 536). Teachers switched between planned and interactive formative assessments depending on the purpose of the assessment. Bell and Cowie (2001a) argued “it is the taking action and responding that determines whether the assessment is in fact formative or not” (p. 94).
More recent literature has continued to redefine formative assessment and its impact on teaching and learning, including the students’ role in monitoring their learning (Cizek, 2010; Shepard, 2006; Stobart, 2008; Wiliam, 2010). For example, Andrade (2010a) considered the “essence of formative assessment” to be “informed action” (p. 345). McMillan (2013) suggested it has been the most highly researched element of classroom assessment over the last twenty years. However, he pointed out there were methodological flaws in many formative assessment studies and argued that more studies were required “to map and understand the dynamics of formative assessment . . . . to show how specific aspects of formative assessment are related to student learning and motivation . . . . [and] to know more about the conditions that support formative assessment” (McMillan, 2013, p. 12).

Many books were written with the aim of supporting teachers and school leaders to understand the theory of formative assessment and assessment for learning principles, including their application in practice (see, for example, Absolum, 2006; Clarke, 2005; Clarke, Timperley & Hattie, 2003; Davies & Hill, 2009; Heritage, 2010, 2013).

**Mutually supportive formative and summative purposes**

For quality use, assessments must be valid, reliable, fair, manageable and inclusive to gather accurate evidence of students’ learning (MOE, 1994). How that evidence is interpreted and used separates the formative from the summative purposes of assessment (Harlen, 2008; Harlen & James, 1997; Sadler, 1989). Nevertheless, with the increasing emphasis on the need to use assessment in the service of learning it appears there was a growing tension between teachers seeing formative as ‘good’ and summative as ‘bad’ (Brown et al., 2008). It has been suggested that any apparent conflict between formative and summative functions of assessment could be resolved by educators understanding how the purposes and practices of the different assessments can be mutually supportive (Black, 2013; Harlen, 2005; Wiliam & Thompson, 2008). Absolum et al. (2009) stated that assessments of almost any kind can be used to inform learning and to make judgements about learning. They recommended focusing on “agreed understandings about what evidence of learning looks like, and the importance of students sharing such understandings” (Absolum et al., 2009, p. 10). Similarly, Hargreaves (2005) suggested that “the duality ‘summative/formative’ or ‘of learning/for learning’ may not be the opposite poles of assessment” (p. 223). Bennett (2011) goes further, arguing that “we should be able to design assessment systems in which summative tests, besides fulfilling their primary purposes, routinely advance learning, and...
formative assessments routinely add to the teacher’s overall informal judgments of student achievement” [emphasis in original] (p. 7).

Discussion about synergies and tensions between assessment for learning and assessment of learning (Crooks, 2011; Harlen, 2005; Mutch, 2012) has been taken up by the Organisation for Economic Co-operation and Development (OECD):

A long-held ambition for many educators and assessment experts has been to integrate summative and formative assessment more closely so that data from external assessments used for system monitoring may also be used to shape teaching and learning in classrooms, and in turn, classroom-based assessments may provide valuable data for decision makers at school and system levels. (Looney, 2011, p. 5)

Looney's (2011) report forms part of the OECD Review on Evaluation and Assessment Frameworks for Improving School Outcomes. It included current barriers and challenges for integrating summative and formative assessments, proposals for more effective integration and policy implications. Importantly, while this report was about assessment of student performance it did not emphasise the role of the student in assessment. On the contrary, the report was more focused on strengthening the teachers’ assessment roles.

Assessment as learning

One of the most significant recent shifts in educational assessment has been to view the student’s role in assessment as being an essential component of effective practice. When students are involved in their own assessment through self-monitoring, self-evaluation or self-reflection they take more responsibility for their learning and achievement outcomes are improved (Black & Wiliam, 1998a; Brookhart, 2001, 2007; Clarke et al., 2003; Earl, 2003; Earl & Katz, 2008; Harlen, 2007; Stiggins, 2007). Assessment as learning extends “the role of formative assessment for learning by emphasizing the role of the student, not only as a contributor to the assessment and learning process, but also as the critical connector between them” (Earl, 2003, p. 25). Furthermore, Andrade (2010b) believes that students should be considered “as key producers and consumers of formative assessment information” (p. 90).

Sadler (1989) argued that feedback was a key element of formative assessment. He stressed that it was necessary for the students to develop the skill of evaluating their own work during production rather than relying on the evaluative judgement of their teacher. Students
have to know what quality work, or work that meets the required standard, looks like. Sadler (1989) maintained that it was teachers’ responsibility to pass their evaluative knowledge on to students. From a combination of tacit conceptions of quality and experience of previous qualitative judgements teachers build “a form of guild knowledge” (Sadler, 1989, p. 126). Teachers gain this knowledge and experience through the hundreds of qualitative judgements they make each year in the classroom (Sadler, 1998). Students become more independent in monitoring their own progress through developing an ability to make accurate qualitative judgements. As students develop an understanding of what success looks like and how to use that understanding to do better the next time, they develop confidence in their ability to self-generate feedback and set their own learning goals (Stiggins, 2007).

Brown and Harris (2013) conducted a review of 84 empirical studies of student self-assessment in Years K-12. The studies suggested that high quality self-assessment contributed to improved learning outcomes but required active participation from both teachers and students. The instruction and provision of quality feedback required to develop self-assessment with accuracy seemed particularly beneficial for the low performing students, thus offering a potential avenue for closing the gap between high and low performing students. It seemed that it mattered less about the type of self-assessment and more about the level of cognitive engagement required to assess the quality of the work. Brown and Harris (2013) maintained that metacognitive and self-regulatory processes such as goal setting, self-reflection and self-monitoring against criteria contributed to improved outcomes and development of SRL.

Earl (2013) argued that despite years of evidence that assessment for learning could make a significant improvement in student achievement this promise had not materialised fully in either policy or practice. Any educational change is a complex process and may require the adoption of new beliefs, understandings and practices. She acknowledged that assessment as learning was a fundamental change in the role of assessment in optimising teaching and learning. Earl (2013) drew on Bransford et al.’s (2000) three core principles of how people learn to emphasise students’ active participation in their learning. Earl (2013) proposed that the teacher’s role is to model and scaffold the skills of self-monitoring and self-assessment so that students can practise and develop the capability of using assessment to improve their own learning.
Assessment in the New Zealand context

Assessment of, for and as learning underpin assessment education in New Zealand (Hill et al., 2010). Preservice teachers learn about assessment principles, purposes and practices within the context of educational assessment policy and the national curriculum, as well as the social and cultural contexts of university and practicum schools (Mutch, 2012). This section briefly reviews the development of New Zealand’s educational assessment policy and introduces assessment within the New Zealand Curriculum, National Standards and proposed future policy focused on building assessment capability to develop self-regulated learners. Due to the focus of this thesis on Years 1-8, information related to national secondary qualifications and secondary school assessment practices has been excluded.

New Zealand educational assessment policy

New Zealand is an island country of over 4.4 million people in the southwestern Pacific Ocean. It is a diverse and multicultural society. The domestic primary and secondary school 2011 roll summary reported 752,815 domestic students of which 10% were Asian students, 10% Pasifika students, 23% Māori students (New Zealand’s indigenous people), 55% students of European descent and 2% students of other ethnicities (MOE, 2011). Most children start school on their fifth birthday and complete Years 1-8 in primary and intermediate schooling. Secondary education occurs in Years 9-13, which all students are required to attend until at least 16 years of age.

In the late 1980s and 1990s, a substantial restructuring of the administration of education occurred when the national Department of Education and its regional boards (large school districts) were disbanded and supplanted by a centralised and smaller Ministry of Education. This restructuring was carried out in the context of significant economic and governmental changes (see, for example, Butterworth & Butterworth, 1998; Hill, 2000a). As a result, each school was required to become a self-managing and self-governing unit with a board of trustees (BOT) comprising parents and staff who make all decisions in respect of management and governance, including assessment and reporting. An independent audit and review agency named the Education Review Office (ERO) was created to ensure schools were accountable to their community for the rights and responsibilities contained in their individual charters and to confirm goals were achieved. Simultaneous development of a new levels-based national curriculum and assessment changes in the 1990s caused many
involved with education to become concerned with the pace of change and merit of the reforms (Hill, 1999; Philips, 2000).

School accountability was an essential tenet of the education changes, with assessment used to measure if expectations of student achievement were being met (Crooks, 2011; Mutch, 2012). The regulatory framework for accountability is contained within the National Education Guidelines (NEGs) and the National Administration Guidelines (NAGs). Schools are now required to use a range of assessment practices to: gather comprehensive information to evaluate students’ progress and achievement, identify students who are not achieving or at risk of not achieving and those with special needs, develop teaching and learning strategies based on identified needs and report to the school community on student achievement (MOE, 2013).

Despite the growing demands for accountability and increased assessment expectations on teachers and schools, New Zealand assessment policy has maintained a focus on improving student learning underpinned by assessment for learning principles, particularly in primary schooling (Crooks, 2011; MOE, 2010; Philips, 2000). Ministerial Working Party on Assessment for Better Learning (1990) released a report, Tomorrow’s Standards, which recommended a set of nine principles to be applied to assessment policy and procedures to improve the quality of learning and improvement of standards. The interests of the students were considered paramount and assessment was to be conducted in ways which maximised benefits for students, identified their strengths and guided improvement. MOE (1994) published Assessment: Policy to Practice as a handbook for school principals, staff and boards of trustees in developing each school’s assessment policy. It was consistent with the emphasis on using assessment to improve learning and raise achievement contained in The New Zealand Curriculum Framework (MOE, 1993). In 1999, a National Assessment Strategy highlighted assessment to improve teaching and learning, with a focus on:

- setting specific and challenging goals with students
- fostering partnerships in learning
- using information to improve learning
- developing high quality assessment tools
- developing teachers’ assessment literacy
• informing strategic planning (cited in Absolum et al., 2009, p. 12).

Currently, *The New Zealand Curriculum* (MOE, 2007) has a set of principles, values, key competencies and learning areas that provide a framework and direction within which schools develop their own curriculum that is meaningful to their school community. The curriculum continues to link assessment and improved learning and states “the primary purpose of assessment is to improve students’ learning and teachers’ teaching as both student and teacher respond to the information that it provides” (MOE, 2007, p. 39). For example, the goal of becoming lifelong learners is encouraged through students developing creative, critical and metacognitive processes that enable them to make sense of their experiences and reflect on their own learning. An aspect of effective pedagogy highlighted in the curriculum is that teachers inquire into the impact of their teaching on student learning. Evidence gained from purposeful assessment is fundamental to this inquiry process. The curriculum has prioritised assessment for learning and involving students in their own assessment (Crooks, 2011; MOE, 2007). This is demonstrated in the characteristics selected to describe effective assessment, which are that assessment:

• benefits students
• involves students
• supports teaching and learning goals
• is planned and communicated
• is suited to the purpose
• is valid and fair (MOE, 2007, p. 40).

In New Zealand there is no national testing in primary schools. Instead, in 2010, National Standards in literacy and numeracy for each year level of primary school (Year 1-8) were introduced for both English-medium schools and Māori-medium schools (Te Kete Ipurangi (TKI), online, 2011). The standards include key characteristics of reading, writing and mathematics at each level with exemplars to illustrate expectations of performance for each standard (MOE, 2009a, 2009b). From 2011, each school has been required to report to parents on student achievement against these National Standards descriptions. Every teacher must report twice a year to the school’s BOT whether every child is above, at, below or well below the National Standards specified for his or her year level. The purpose of the standards is to help teachers make judgements about students’ progress against clear learning goals to assist students, teachers, parents and families to agree on how to support
student learning and identify next steps. Teachers must gather and analyse a range of assessment evidence from multiple sources, using a variety of approaches, to make overall teacher judgements (OTJs) about individual students in reading, writing and mathematics. Possible sources of evidence include student-teacher conversations, observations and formal tests, including use of appropriate and standardised assessment tools. Teacher moderation ensures the dependability of evidence required to reach a valid OTJ (TKI, online, 2014).

No one single assessment should be used to determine achievement against National Standards. In order to assist teachers to make defensible decisions about assessment, the MOE has funded the development of a number of key assessment tools and resources, mostly focused on literacy and numeracy (Brown et al., 2008). Ongoing professional development in assessment has been supported by curriculum exemplars, assessment item resource banks, clearly articulated learning progressions, a national monitoring study of student achievement (formerly known as the National Educational Monitoring Project (NEMP)) and a range of assessment tools and online resources (Absolum et al., 2009; Mutch, 2012). The MOE has provided an online assessment resource, Assessment Online, which provides links to assessment tools, resources and research publications, as well as advice on selecting appropriate tools (TKI, online, 2013).

Despite their innovative design, National Standards have been contentious for many teachers, principals, BOT members, teacher unions and academics (Crooks, 2011; Mutch, 2012). In a small study of ten schools, Mitchell and Poskitt (2010) found it unsurprising that after only one year of implementation of OTJs and National Standards there was significant variance in interpretation of standards, agreement on implementation of OTJs and use of criteria and exemplars to assist with moderation. Continuous professional development in these areas was recommended. Furthermore, Crooks (2011) argued “these National Standards threaten to substantially raise the stakes associated with assessment of students in primary schools” as the new accountability pressures could lead teachers to “conduct a higher proportion of formal assessments that can be used as formal evidence to support their judgments” (p. 75). There is a concern that the contemporary emphasis on assessment for learning practices leading towards development of self-regulated learners could swing back towards the traditional standardised testing, which would appear inconsistent with the vision of recent assessment policy.
Since the initial studies regarding National Standards above, the Research Analysis and Insight into National Standards (RAINS) project, a three year qualitative case study, has investigated the enactment of National Standards in six primary and intermediate schools (Thrupp & White, 2013). Funded by the New Zealand Educational Institute Te Riu Roa (NZEI), which is New Zealand’s largest primary teachers’ union, a few favourable impacts of the use of National Standards were reported. These included increased teacher understanding of curriculum levels, motivation of some teachers and children, and some improved targeting of interventions. Nevertheless, Thrupp and White (2013) strongly asserted that “such gains are overshadowed by damage being done through the intensification of staff workloads, curriculum narrowing and the reinforcement of a two-tier curriculum, the positioning and labelling of children and unproductive new tensions amongst school staff” (p. i). The authors stated that an official fixation with data generated from the National Standards and the development of a target-setting culture would have a damaging effect on the culture of New Zealand primary schools. Moreover, they argued that this would do nothing to alleviate growing inequalities, which they considered to be the real problem in New Zealand schools.

Recently, an OECD evaluation reported “New Zealand has developed its own distinctive model of evaluation and assessment characterised by a high level of trust in schools and school professionals” (Nusche, Laveault, MacBeath, & Santiago, 2012, p. 3). However, it was noted that New Zealand had a diverse learner population and confirmed previous evidence of under-performance particularly in regard to Māori and Pasifika students. The reviewers suggested teachers needed to be more “sensitive to cultural and linguistic aspects of learning and assessment” as well as there being “a need to develop a wider range of assessment tools particularly adapted to Māori medium education” (Nusche et al., 2012, p. 9). In New Zealand, it is widely accepted that culture has an influence on the learning and the assessment of Māori students (see, for example, Mahuika, Berryman, & Bishop, 2011; Mahuika & Bishop, 2008). Using assessment to cater for diverse learning needs was also highlighted by ERO (2012) in their report on priority learners, who are described as “groups of students who have been identified as historically not experiencing success in the New Zealand schooling system. These include many Māori and Pacific learners, those from low socio-economic backgrounds, and students with special education needs” (p. 4).
A new vision of assessment capability

Given that not all students were benefitting equally from current assessment approaches, an assessment policy advice paper was prepared by Absolum et al. (2009) for the MOE entitled Directions for assessment in New Zealand: Developing students’ assessment capabilities (DANZ). The advice paper argued that New Zealand needed to build assessment-capable students who would develop into independent and self-regulated lifelong learners, with the imperative that assessment should benefit all students. This built on an Assessment Strategy Review commenced in 2006, which included a stocktake of the current national assessment strategy and the development of a revised assessment strategy. Sixteen papers by New Zealand assessment experts were commissioned to inform the assessment review process and policy advice paper and critique of these was commissioned from international experts in the assessment field.

DANZ promoted the vision of students at the ‘heart’ of the assessment process through the development of students’ capability to assess their own learning. In the past, students have seldom been involved in important assessment decisions as these were mostly made by adults on their behalf. Students, it advised, should take greater control of their learning through using assessment information, including feedback, to make decisions about their learning goals, monitor their achievement of goals and inform their next steps in learning. The authors described this as “assessment capability” which they defined as being “able and motivated to access, interpret and use information from quality assessments in ways that affirm or further learning” (Absolum et al., 2009, p. 6).

It was acknowledged in DANZ that students needed help from teachers and school leaders to develop their assessment capabilities, as well as support and understanding from parents, the wider school community and the MOE. Based on national and international empirical evidence, it was argued that the classroom is where there is most capacity to increase student achievement. Thus, an emphasis was placed on developing assessment capable teachers and school leaders. Accordingly, it was proposed that if students were to develop assessment capability then assessment capable teachers must:

- understand how students can use and value assessment as a powerful means of furthering their own learning
- take the lead in all assessment that students cannot manage without support
encourage students to feel deeply accountable for their own progress and support them to become motivated, effective, self-regulating learners

be knowledgeable about the curriculum and teaching

[have] well developed assessment capabilities and the motivation to use these to forge learning partnerships with their students

know how to gather assessment information that other stakeholders require, and how to pass it on in ways that are consistent with, and supportive of, student learning;

[have] awareness of the effects of assessment on learners

know exactly how an assessment should assist students to learn, and how to check whether it has done so

understand the meaning that students read into an assessment – and into the feedback that they subsequently receive

[provide] a classroom climate where mistakes are seen as opportunities, and where shared conversations about the nature of learning are commonplace (Absolum et al., 2009, p. 24).

The term ‘assessment literacy’ includes teachers’ knowledge and understandings of assessment practices used to measure student learning and influence decisions on future learning (DeLuca & Klinger, 2010; Popham, 2009; Stiggins, 1999). The new term ‘assessment capability’ introduced in DANZ includes these skills but goes further in emphasising the role of the students in using assessment to take responsibility for, and to further, their own learning (Booth et al., 2014).

While this vision of students being at the heart of assessment would seem to be a natural extension of the assessment as learning approach, a dilemma exists in linking this assessment policy to classroom practice. On the one hand, the rationale for developing assessment capability in students was explained by one of the DANZ authors, Flockton (2012), when he emphasised the individuality of students’ learning and the importance of developing student’s self-efficacy in relation to assessment. He argued that students must have a participatory role in classroom assessment practices in order to “develop both confidence and capability . . . . to be actively engaged in the process of judging, analysing, setting and monitoring goals” thus, teachers must be capable of “empowering students to be at the centre of quality assessment practice” (Flockton, 2012, p. 133). On the other hand, Flockton (2012) drew attention to contextual factors that can influence assessment practices in New Zealand schools. These factors span different system levels and include policy,
regulatory frameworks, curriculum and professional support, as well as pedagogical practices that impact students’ diverse learning needs. Furthermore, he acknowledged the challenges of changing assessment beliefs, understandings and practices if the vision of DANZ is to be realised.

Implications for others such as preservice and inservice teacher educators were also addressed in DANZ. It was asserted that often there was little, if any, effective infrastructure in teacher education programmes specifically related to assessment education, particularly in comparison to literacy and numeracy. It was stated in DANZ that assessment capable teachers would be able to select the most appropriate assessment approaches and tools. Evidence of achievement would be used to determine if the learning goals had been met and to make dependable decisions on future directions for learning. Suggestions for building teachers’ assessment capability included curriculum-specific assessment professional learning programmes, participating in moderation processes and using suitable exemplars (Absolum et al., 2009). However, despite professional development in assessment such as the Assess to Learn Professional Development Project (AtoL) project offered to inservice teachers in New Zealand, DANZ suggested there was some variability in the quality of professional development facilitation. Formal assessment-related training and postgraduate study were some of the ways highlighted to improve the quality of professional development. If an important goal for assessment is to develop students as self-regulated learners then teachers “can only support and model this goal for students when they are self-regulating learners themselves” (Absolum et al., 2009, p. 31).

An assessment position paper was published that incorporated a vision of assessment intended to sit above policy describing what “the assessment landscape should look like if assessment is to be used effectively to promote system-wide improvement within, and across, all layers of the schooling system” [emphasis in original] (MOE, 2010, p. 4). The MOE’s (2010) position paper also addressed the need for an assessment-capable system with teachers who could support students’ development of assessment capability. It has six key principles that summarise the evolution of and direction for New Zealand’s educational assessment policy and they are:

- the student at the centre
- the curriculum underpins assessment
- building assessment capability is crucial to achieving improvement
• an assessment capable system is an accountable system
• a range of evidence drawn from multiple sources potentially enables a more accurate response
• effective assessment is reliant on quality interactions and relationships (MOE, 2010, p. 6).

The MOE’s (2010) position paper on assessment clearly stated it was outlining a vision for a shared understanding of what assessment should look like across all layers of the schooling system and that it is “not a strategy or a policy statement. It does not describe in detail how to achieve the ideal assessment landscape” [emphasis in original] (p. 4). Flockton (2012) argued that sustained change in practice required time, belief in the value of the change, excellent leadership and “modelling of realistic, practical and credible strategies from those charged with leading professional learning and development” (p. 145). Without this, he cautioned that the vision of developing assessment-capable students could be lost. In addition, Mutch (2012) called for strategies incorporating all assessment approaches to come “from the top down . . . from the bottom up . . . and from around the sides . . . . to consolidate a sustainable assessment culture in New Zealand” (p. 384).

Using assessment to develop self-regulated learners

Due to the vision of an assessment capable system in New Zealand, a greater emphasis on metacognitive and self-regulatory teaching and learning processes is needed. Preservice teachers too, therefore, need to have knowledge and conceptual understandings of what SRL is, how it improves academic achievement and how assessment practices contribute to the development of self-regulated learners. In this section, these elements are addressed.

Self-regulated learning (SRL)

Finding a generally accepted singular definition of SRL is not straightforward as it is regarded as a complex process. Drawing on social cognitive theory, Zimmerman (2000) described SRL as “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” (p. 14). This definition was further augmented by Pintrich (2000):

A working definition of self-regulated learning is that it is an active, constructive process whereby learners set goals for their learning and then attempt to monitor,
regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features of the environment. (p.453)

According to Butler and Winne (1995), SRL is a way of engaging with tasks in which students use a set of powerful skills such as goal setting, strategy selection, monitoring and managing motivation in order to judge how well their cognitive engagement matches standards they set for achievement. Thus, the construct of SRL is complex and multidimensional (Andrade, 2010b; Boekaerts & Corno, 2005; Lombaerts, Engels, & Van Braak, 2009), and the emphasis on specific processes within SRL differs according to theoretical orientations (Greene & Azevedo, 2007; Paris & Newman, 1990; Paris & Paris, 2001; Winne & Perry, 2000; Zimmerman, 1990, 2001). However, despite these complexities, there is a common conceptualisation of self-regulated learners as metacognitive, motivated and behaviourally active participants in their own learning (Bransford et al., 2000; Greene & Azevedo, 2007; Paris & Paris, 2001; Zimmerman, 1990).

It is important to understand that defining learning as being self-regulated does not refer to socially isolated learning, but rather that the learner undertakes self-initiated processes to enhance academic achievement and displays perseverance in pursuing learning goals. Zimmerman (1998) stated that self-regulated learners “view academic learning as something they do for themselves rather than as something that is done to or for them” and processes like setting goals, the accuracy of their behavioural self-monitoring and the resourcefulness of their strategic thinking “enable these students to become controllers rather than victims of their learning experiences” (p. 1). SRL is not viewed as a mental ability or an academic skill, but rather as the self-directive process through which learners transform their mental abilities into task-related academic skills (Zimmerman, 1998, 2001). A simpler description of self-regulation suggested by Stobart (2008) involved “monitoring our work against high standards and taking personal responsibility to improve it” (p. 184).

**SRL and academic achievement**

Research and theory since the mid-1980s has clarified how SRL enables students to take control of their own learning, leading to improved academic achievement (Alton-Lee, 2003; Zimmerman, 2001). A wide variety of theoretical constructs are associated with SRL such as metacognition, goal orientation, attributions, motivation, self-efficacy, self-monitoring and strategic action (Montalvo & Gonzalez Torres, 2004). It is the broad nature of SRL that allows researchers to develop theories with differing emphases on how the metacognitive,

- delaying immediate gratification for later academic rewards
- forming an academic personal identity
- monitoring their performance-related feedback
- setting goals and forming expectancies regarding specific academic contexts
- remaining attentive despite situational distractions and adverse outcomes
- self-verbalising and co-constructing effective courses of academic learning
- cognitively constructing strategies and theories to master academic tasks (p. 303).

**Developing self-regulated learners**

In a seminal text on self-efficacy, Bandura (1997) stated that “a major aim of education is to prepare students to continue self-directed learning throughout their lifetimes” (p. 233). Not all students can or do achieve this expectation of becoming self-directed and teachers have the challenge of teaching them in ways that will enhance the development of self-regulated learners (Parr, 2010). Due to the complex nature of SRL, academics have called for more naturalistic and empirically valid studies to test SRL in an effort to develop a clear conceptual framework to guide teaching (Andrade, 2013; Boekaerts & Corno, 2005; Puustinen and Pulkkinen, 2001; Winne, 2005).

Some empirical studies supporting the effectiveness of SRL on academic achievement and its application in the classroom have been reported. For example, Dignath, Buettner, and Langfeldt (2008) conducted a meta-analysis of 48 studies researching SRL training programmes in primary school classrooms. They reported a positive effect on learning outcomes, motivation, knowledge of metacognitive strategies and their application. One conclusion was that even very young students could develop some competence in SRL. However, further investigation was recommended into the reported higher effects for researcher-directed interventions rather than interventions by the students’ regular teachers. There were questions in respect of the teachers’ beliefs about learning, their SRL training and application of appropriate SRL practices.
Supporting teachers to foster SRL

Some useful progress in understanding SRL and teaching has been achieved. In Canada, Perry has made a significant contribution to the field of developing self-regulated learners in classroom environments. Prior to Perry (1998) there were few studies investigating SRL in naturalistic settings, particularly with children under the age of 10. Using a multiple and embedded case study design, Perry (1998) examined the relationship between writing and portfolio activities in Grade 2 and 3 classrooms and those actions and activities thought to promote SRL. She was able to identify high-SRL classrooms in which teachers encouraged students to develop attitudes, skills and characteristics of self-regulated learners through: complex and open-ended activities, giving students choice in controlling challenge, students evaluating own work and that of peers through monitoring and collaboration, providing instrumental support through modelling and scaffolding, and giving mastery-oriented feedback when students attempted challenging tasks. In contrast, students in low-SRL classrooms perceived teachers as being in control of the writing, rejected opportunities to take responsibility for their work, chose ineffective strategies and displayed low efficacy in regards to writing.

Perry and VandeKamp (2000) and Perry, VandeKamp, Mercer, and Nordby (2002) built on Perry (1998), providing concrete examples of what occurred in high-SRL classrooms through observing and investigating the actions of teachers and students. They developed a framework to assist teachers design tasks, activities and classroom interactions that encourage SRL. Perry and her colleagues then used this framework to conduct a four year investigation into how primary preservice teachers could be mentored to develop classroom practices that promoted SRL (Perry, Hutchinson, & Thauberger, 2007). Each year a cohort of preservice teachers focused on promoting SRL approaches to teaching and learning. They were supported through explicit instruction and scaffolding in the practices associated with SRL by teacher educators and school-based mentors who were all selected because of their interest and expertise in promoting SRL. The results indicated that the preservice teachers “were designing tasks and engaging in practices that supported development of, and engagement in, self-regulated reading and writing in elementary school children” (Perry et al., 2007, p. 47). Analysis of preservice teachers’ interactions with their mentor teachers and faculty associates provided evidence of the importance of scaffolding, modelling, discussing and providing opportunities to engage in SRL (Perry, Hutchinson, & Thauberger, 2008; Perry, Phillips, & Hutchinson, 2006).
Assessment practices that support SRL

As previously discussed, SRL is an active and complex process encompassing a range of metacognitive and strategic actions that learners can take to gain autonomy in their learning. Two assessment practices critical to building SRL are feedback and metacognitive monitoring. They are now examined, along with research supporting their importance.

Giving and receiving feedback

A common feature of most definitions of SRL is a self-oriented feedback loop during learning in which students monitor their effective engagement in tasks and respond to the internal feedback generated by covert changes in self-perception or overt changes in behaviour (Carver & Scheier, 1990; Nicol & Macfarlane-Dick, 2006; Zimmerman, 2001). Butler and Winne (1995) hypothesised that self-regulated learners will also seek feedback from external sources when their self-monitoring reveals a discrepancy between current and desired performance or achievement. Bransford et al. (2000) stated “frequent feedback is critical: students need to monitor their understanding and actively evaluate their strategies and their current levels of understanding” (p. 78).

In Sadler’s (1989) theory of formative assessment, feedback is considered to be a key element. He drew on Ramaprasad’s (1983) definition of feedback as information used to alter the gap between the actual level of performance and the standard required. For students to use feedback effectively they must be able to monitor and regulate the quality of their product or performance while they are doing it so that improvement can occur. Sadler (1989) argued that the three indispensable conditions for feedback were:

The learner has to (a) possess a concept of the standard (or goal, or reference level) being aimed for, (b) compare the actual (or current) level of performance with the standard, and (c) engage in appropriate action which leads to some closure of the gap. [emphasis in original] (p. 121)

Feedback is now regarded as one of the foundations of formative assessment practice. Hattie (2009) argued that “the most powerful single influence enhancing achievement is feedback” (p. 12). A number of major reviews and meta-analyses were conducted on the effectiveness of feedback (see, for example, Kluger & DeNisi, 1996; Ruiz-Primo & Li, 2013; Shute, 2007). A review of the evidence relating to the power of feedback on teaching, learning and
achievement conducted by Hattie and Timperley (2007) led to a model of feedback based on three key questions asked by teachers and students:

1. Where am I going? (What are the goals?)
2. How am I going? (What progress is being made toward the goal?)
3. Where to next? (What activities need to be undertaken to make better progress?)

(Hattie & Timperley, 2007, p. 86).

The model asserted the effectiveness of feedback at four levels: task, process, self-regulation and self. Students who have developed self-regulatory skills such as self-monitoring and self-assessment know when and how to seek academic help by receiving feedback from others such as teachers and peers. They are committed to achieving their learning goals and see the effort required to seek feedback as worthwhile because it will help them reduce the gap between their current and desired performance.

Although there appears to be considerable literature available on what teachers need to know and understand about feedback, recent empirical research on improved assessment practice and increased achievement attributable to effective feedback is not as extensive. For example, Ruiz-Primo and Li (2013) conducted a meta-analysis of feedback practices in science, technology, engineering and mathematics (STEM) education and concluded that classroom-based research studies on teachers’ feedback practices were not as common as expected. Despite this, some research evidence about effective feedback practices exists. In England, Tunstall and Gipps (1996a, 1996b) investigated the different types of feedback teachers gave to young students aged six and seven. They developed a typology of teacher feedback to assist teachers reflect on their practice. A continuum was used to describe how the type, purpose and meaning of feedback changed as it moved from evaluative (judgemental) to descriptive (task-related). The descriptive types of feedback contributed to co-construction of learning and development of self-regulating strategies. Nicol and Macfarlane-Dick (2006) broadly defined good feedback practice as “anything that might strengthen the students’ capacity to self-regulate their own performance” (p. 205). Based on a synthesis of research literature, they developed seven principles of good feedback practice to facilitate self-regulation.

In New Zealand, a review of evidence relating to teachers’ use of feedback by Eyers and Hill (2004) suggested that teachers were not increasing their use of feedback to improve learning. Also in New Zealand, Dixon’s (2008) doctoral thesis focused on teachers’ feedback-related beliefs, understandings and practice. She found that these teachers had an
inadequate conceptualisation of the nature of quality learning intentions and criteria and their role in effective feedback. In contrast however, a small New Zealand study by Eyers (2009) investigated feedback interactions within writing conferences from the perspectives of both teachers and learners and noted examples of effective feedback practice. The study highlighted the interactive nature of giving and receiving feedback, as well as the complexity of teaching and learning interactions. It also demonstrated that students aged eight and nine were capable of engaging in self-regulatory behaviours such as motivation to achieve learning goals, articulation of thinking processes, selection of learning strategies and self-assessment. In spite of the range of findings, all of these studies support feedback being a fundamental element in the development of SRL, as argued by Earl (2013):

Effective feedback forms the core of assessment for self-regulation because learners are encouraged to articulate their existing motives, ideas, opinions, beliefs, and knowledgeable skills and make this tacit knowledge that is hidden within the learner transparent, explicit, and available. When feedback allows students to see the gap between their actual production and some reference point that makes sense to them, they are both motivated and able to work with their conceptions and make adjustments. (p. 115)

**Metacognitive monitoring**

A review of 30 years of literature on metacognition reported the complexities of defining the origins and nature of metacognition, as well as identifying and measuring it (Georghiades, 2004). However, it is generally accepted that the idea of a developmental progression for metacognition and cognitive monitoring emerged in the seminal work of John Flavell during the 1970s. He proposed a model of cognitive monitoring in which “the monitoring of cognitive enterprises proceeds through the actions of and interactions among metacognitive knowledge, metacognitive experiences, goals/tasks, and actions/strategies” (Flavell, 1979, p. 909). Metacognitive strategies are used to monitor cognitive progress (Bransford et al., 2000). Metacognition was described by Gipps (1994) as “thinking about thinking. It includes a variety of self-awareness processes to help plan, monitor, orchestrate and control one’s own learning” (p. 24).

Over the last 10-15 years, the constructs of metacognition, self-regulation and SRL have started to be used interchangeably and some confusion has occurred in respect of ascertaining measures used to assess them and in the interpretation of research (Schunk, 2008). A literature review of the use of these three constructs in empirical research
published in 2003-2007 was conducted by Dinsmore, Alexander, and Loughlin (2008). As a result they proposed core meanings and attributes for the three constructs as well as where they converged and diverged. For example, metacognition appeared to have expanded from Flavell’s conceptual definition to including both monitoring of cognitive knowledge and use of self-regulatory control processes. In contrast, Kaplan (2008) argued that the three constructs were not distinct concepts but rather sub-types of the conceptual phenomenon of self-regulated action. More helpful may be Bandura’s (1997) proposal that learning can be self-regulated through the use of metacognition:

Metacognition refers to cognitive appraisal and control of one’s cognitive activity; that is, thinking about the adequacy of one’s own thinking. In metacognitive functioning, individuals monitor their regulative thought; evaluate its adequacy in the solution of problems; and, if necessary, make corrective adjustments in the way in which they structure problems, construction solutions, and select strategies to implement them. (p. 230)

Metacognitive monitoring involves critical self-appraisal in which learners reflect on and make judgements about their learning processes or activities (Georgiades, 2004; Kuhn & Dean, 2004). It usually takes the form of an internal process or dialogue during the activity, which is neither seen nor articulated, and it may be incorrectly assumed that students will automatically develop this ability (Bransford et al., 2000; Heritage, 2013). Dunlosky and Metcalf (2009) emphasised that “accurate monitoring of learning and performance is critical, because if students are consistently overconfident in their knowledge, they may understudy, use ineffective strategies, and underachieve” (pp. 206-207). An extensive review of research on metacognition and the accuracy of monitoring judgements can be found in Serra and Metcalfe (2009).

As previously mentioned, students need access to teachers’ ‘guild knowledge’ of what constitutes quality if they are to develop the evaluative skills necessary to monitor their own work and increase confidence in self-generated feedback that will improve their learning (Sadler, 1989, 1998; Stiggins, 2007). Preparing teachers to understand and develop this type of guild knowledge, which includes assessment practices that support SRL, is an important part of assessment education. The influences on preservice teachers’ assessment education are addressed in the final section.
**Influences on assessment education**

Pre-existing beliefs and preconceptions about learning and assessment can influence teachers’ classroom practices and mediate preservice teachers’ adoption of new learning and their own practice. In this section, firstly the literature and research conducted on the relationships between teachers’ and preservice teachers’ beliefs, assessment conceptions and assessment practices is reviewed. Secondly, teachers’ assessment literacy is examined as well as the different ways this is incorporated into a range of teacher education programmes. Finally, research evidence from New Zealand regarding preservice teachers’ assessment learning sets the context for the study reported in this thesis.

**Teacher beliefs and assessment practices**

There is a powerful connection between teachers’ beliefs and their behaviours and classroom practices (Brown, 2004; Feiman-Nemser, 2008; Levin & He, 2008; Tatto & Coupland, 2003). Pajares’ (1992) review of teacher beliefs and educational research stated:

> Few would argue that the beliefs teachers hold influence their perceptions and judgments, which, in turn, affect their behaviour in the classroom, or that understanding the belief structures of teachers and teacher candidates is essential to improving their professional preparation and teaching practices. (p. 307)

Teachers’ beliefs can influence how they teach and what their students learn. However, truly knowing people’s beliefs is not always easy and they are often inferred from what people do or say. Teachers may not wish to reveal their genuine beliefs for a variety of reasons and Pajares (1992) noted that researchers had frequently failed to take this into account. His research review reported that beliefs are often formed early and he concluded that beliefs can be difficult to change, particularly during adulthood. His evidence suggested that beliefs persisted even when an individual was presented with contrary factually correct information. Bransford et al. (2000) also reported evidence of the persistence of pre-existing beliefs and understandings despite new learning and training.

Teachers can experience conflict between their beliefs about using assessment for different purposes such as improving learning and external accountability measures (Brown, 2004; Hargreaves, 2005; Klenowski, 2011). Two examples demonstrate how tensions between policy and practice caused some teachers, although not all, to act in conflict with their beliefs. Firstly, a case study by Hill (2000b) of teachers in two New Zealand schools...
investigated how competing demands for both increased accountability and student-centred assessment created conflict for some teachers in the use of assessment for learning to improve student achievement. She found clear differences in the teachers’ approaches to classroom assessment. Those who took an integrated systematic approach were able to balance accountability demands of monitoring and gathering evidence for summative reporting requirements with formative practices they believed would enhance learning. In contrast, other teachers found the competing discourses difficult to accommodate and tended to revert to focusing on ‘checklists’ for ticking off progress against curriculum achievement objectives.

Secondly, in England James and Pedder (2006) conducted research to ascertain similarities or differences between teachers’ assessment practices and values. They used a 30-item questionnaire with 558 teachers. Results revealed significant gaps between teachers’ practices and values in two of three identified assessment dimensions: making learning explicit and learning autonomy. Although the teachers were committed to the values of assessment for learning linked to the first two dimensions, the third dimension, performance orientation, was more associated with assessment of learning. They found it challenging to balance their belief in using assessment to improve learning with measuring performance of curriculum goals. The researchers suggested this was possibly a result of external constraints on teachers from current educational policy in England, much like those reported by Hill (2000b). Evidence from empirical studies such as these suggests that tensions between teachers’ assessment values and classroom assessment practices can arise from changes in curriculum and educational policy that may be contradictory and therefore challenging to enact. Thus, while research may report that assessment for learning improves learning and raises standards of achievement, it cannot be assumed that classroom teachers will, or can easily, adopt classroom practices associated with formative assessment (Black & Wiliam, 1998b; Pryor & Crossouard, 2008; Wiliam & Thompson, 2008).

A central tenet of current assessment theory and practice is the focus on students being involved in the assessment process yet teachers’ actions may reveal conflict between this tenet and their actual beliefs. Two studies in England provided evidence of the challenge for some teachers in changing their beliefs regarding student autonomy. In the first example, through observations and teacher interviews, Marshall and Drummond (2006) noted that only a fifth of the lessons observed captured the philosophy or ‘the spirit’ of assessment for
learning, which promoted student autonomy. These teachers spoke of the high value they put on learning independence in their students and involved students in making judgements about quality of work. Their assessment actions went beyond rigidly applying technique, with activities and tasks considered as opportunities for improving students’ performance. They also took responsibility for helping students to learn, as well as reflecting on their teaching to improve for the next time. In contrast, the technical procedures or ‘the letter’ of assessment for learning practices seemed most apparent in other lessons. These were four practices associated with formative practice by Black et al. (2003): questioning, feedback, sharing criteria with the learner, and peer and self-assessment. These techniques were used “more as surface features of the lesson providing pupils with only limited opportunity to extend and deepen their grasp of the central purpose of the lesson” (Marshall & Drummond, p. 143, 2006). Although the teachers of these technical lessons articulated the concept of student autonomy, their attitudes towards learning and observed actions were those more associated with traditional teaching. One secondary school teacher in the study believed her students were not ready for working and learning independently.

In a second example, Webb and Jones (2009) observed the practice of six primary school teachers who were participating in a professional development programme focusing on embedding formative assessment practices within all classroom teaching and learning. Data were collected through structured observations and interviews over two years. A barrier to development of formative assessment emerged as teachers tended to focus on formative assessment tools rather than understanding the philosophy underpinning the assessment practices. They found that “teachers could ‘talk the talk’ before changes were evident in their classrooms” and concluded that formative assessment techniques such as self-assessment and peer assessment “would only work effectively when the classroom culture had changed” (Webb & Jones, 2009, p. 178). They identified the highest level of classroom practice associated with formative assessment as being ‘embedded’. One of the characteristics of such classrooms was that teachers and students had a shared belief in taking responsibility for their own learning. Change occurred as participating teachers developed a philosophy of learning based on increasing student autonomy. Thus, teachers’ beliefs about assessment are linked to their beliefs about teaching and learning (Dixon, Hawe, & Parr, 2011). Changing beliefs may require teachers to draw on their knowledge of learners, content knowledge, curriculum knowledge and pedagogical content knowledge (Shulman, 1986, 1987).
Preservice teachers’ pre-existing beliefs

If teachers’ beliefs affect their practice then it follows that the beliefs of preservice teachers will likely influence their teaching and learning. Preservice teachers enter their teacher education programmes with pre-existing ‘naïve’ beliefs about teaching largely based on their experiences as school students (Feiman-Nemser, 2008). Pajares (1992, 1993) called preservice teachers ‘insiders’ as teacher education could be considered an extension of the educators and classroom practices they had experienced in their prior schooling. It was estimated by Lortie (1975) that students had spent approximately 13,000 hours interacting with teachers by the time they left secondary school. This was likened to serving a type of apprenticeship in teaching or the ‘apprenticeship of observation’. He noted “teaching is unusual in that those who decided to enter it have had exceptional opportunity to observe members of the occupation at work” (Lortie, 1975, p. 65). Preservice teachers may enter their training with strong preconceptions but these are “intuitive and imitative rather than explicit and analytical . . . based on individual personalities rather than pedagogical principles” (Lortie, 1975, p. 62). Furthermore, he concluded that beginning teachers may have understood the nature of their work but found it much more difficult and complex than their ‘apprenticeship’ or formal training had prepared them for. Thus, their beliefs and preconceptions may be less responsive to change. Darling-Hammond (2006) stated that “countering this apprenticeship of observation and the accompanying naive beliefs about teaching may be one of the most powerful challenges in learning to teach” (p. 36). In Wideen et al.’s (1998) review of 91 empirical studies on learning to teach, they found reference was often made to the apprenticeship of observation when asserting that preservice teachers entered teacher education programmes with strongly held beliefs and perceptions unlikely to be changed.

Preservice teachers’ beliefs were defined by Pajares (1993) as “the attitudes and values about teaching, students, and the education process that students bring to teacher education” (p. 46). Richardson (2003) argued that those entering beliefs of preservice teachers affected “what and how they learn, and eventually how they approach teaching in the classroom” (p. 9). Furthermore, she stated that one of the goals of teacher education is the developing and refining of teacher beliefs beyond superficial change. Although preservice teachers’ beliefs appear to change as they are exposed to the theoretical elements of teacher education, those beliefs could change back again when engaging in practice in classrooms. Pajares (1992) concluded from the research literature that beliefs are difficult to change and he argued that
“attempting to understand the beliefs of preservice teachers are essential to teacher education” (p. 328). This view was further supported by Wideen et al. (1998) noting that recent studies recommended examining and building on preservice teachers’ existing beliefs, rather than focusing on changing them. Challenging beliefs rather than focusing on changing them was proposed by Pajares (1993) as he stated “the argument is not one of belief unanimity or theoretical indoctrination, however, but of belief attention, exploration and challenge” (p. 52). In contrast, Tatto and Coupland (2003) suggested that teacher education programmes “for the most part strive to mold beliefs in teachers with the assumption that a set of beliefs is preferred over others” (p. 127). They argued that teachers are expected to share beliefs about teaching and learning guided by professional norms.

Some studies have investigated preservice teachers’ beliefs about assessment prior to and during their teacher education. A study reported by Levin & He (2008) explored the content and sources of beliefs of preservice teachers and the influence of their teacher education programme. Using content analysis of self-reported personal practical theories (PPTs) collected from 94 preservice teachers, a model of belief categories was developed. The findings revealed three major sources of preservice teachers’ beliefs:

(a) family background and their own K-12 education  
(b) observations and teaching experiences during their field experiences  
(c) coursework in their teacher education programme (Levin & He, 2008, p. 62).

The authors argued that their data demonstrated teacher education programmes were able to influence preservice teachers’ beliefs. Levin and He (2008) suggested more research was required on the connection between preservice teachers’ beliefs and their sources in relation to the influence of coursework and field experiences.

Preservice teachers’ beliefs about diversity can also be problematic and hard to change. Traditionally many of those entering teacher education programmes were white, middle-class students with little experience in cultures, ethnicities or socio-economic groups other than their own (Richardson, 2003). They may hold a deficit view of students who differ from their own ‘mainstream’ background by believing students’ potential to achieve is limited, based on cultural, minority or socio-economic status (Flores, Cousin, & Diaz, 1991). Preservice teachers who assume their cultural experiences are ‘normal’ are likely to have limited ability to connect with those who are ‘different’ or make judgements based on
unexamined beliefs and experiences (Timperley, 2013). These beliefs will likely underpin the preservice teachers’ expectations of learning and their assessment practice. An important criticism of studies about preservice teachers’ beliefs has been the lack of consideration given to issues such as multiculturalism and gender (Wideen et al., 1998). Indeed, in their literature review on teaching beliefs in preservice teacher education, Tatro and Coupland (2003) found relatively few studies that investigated preservice teachers’ beliefs about diverse learners or the influence of teacher education programmes on those beliefs. There also appears to be a gap in the assessment education literature on preservice teachers’ beliefs about using assessment to identify diverse students’ needs and strengths.

**Preservice teachers’ beliefs and preconceptions about assessment**

If preservice teachers’ beliefs about teaching and learning are based on their experiences of being a student and their previous life experiences of culture, ethnicity and socio-economic status, then it is likely that beliefs and preconceptions about assessment largely originated from the same sources (Brown, 2004). A small qualitative study in Australia by Crossman (2004) reported a number of factors that influenced preservice teachers’ perceptions of assessment before and during their teacher education. These factors were personal assessment histories, student-teacher relationships, assessment relevance, personalised assessment or feedback and assessment anxiety. It was assumed that the preservice teachers’ perceptions of assessment would influence their learning. Based on her findings, the author suggested that while individual assessment histories were influential on preservice teachers, they were only one factor in the dynamic and multi-faceted process of forming perceptions about assessment. Furthermore, the preservice teachers’ approach to learning and assessment depended on their perceptions of importance and relevance. For example, assessments linked to a final grade or field experiences were perceived as more relevant. Assessment in higher education, such as teacher education programmes, is used for credentialing and certification. Thus, Hawe (2007) argued that it is unsurprising preservice teachers “adopt an instrumental view of learning, focusing on the attainment of high grades frequently at the expense of developing and demonstrating understanding” (p. 324).

Drawing on her 2004 study, Crossman (2007) discussed how relationships and emotions influenced the way preservice teachers perceived assessment. When relating previous experiences of assessment, the preservice teachers’ stories “evoked the emotions of disappointment, a sense of failure, anxiety and suspiciousness about the fairness of grading
practices” (Crossman, 2007, p. 318). The author noted, however, that though there were many anecdotes that appeared rich in data, participants shared only what they chose to share and could not always identify why they acted or felt in particular ways. Similarly, the participants could relate powerful memories of positive or negative relationships with teachers when describing the effects on their assessment experiences. They held clear expectations of being treated objectively and fairly yet with empathy and understanding in regards to assessment, highlighting the complexity of student-teacher relationships.

In England, Winterbottom et al. (2008) examined how preservice teachers valued different classroom assessment practices, and if their own teaching complied with those values. They used the survey instrument developed by James and Pedder (2006) with a sample of 220 preservice teachers. The findings showed values-practice gaps were greatest in promoting learning autonomy and performance of prescribed curriculum goals. When compared with the results of James and Pedder’s (2006) study of inservice teachers, it appeared the values-practice gap was greater than that of the qualified teachers despite the preservice teachers’ apparent commitment to assessment for learning principles. However, this may be due to constraints on preservice teachers because of their position as ‘trainees’, which is a high-stakes situation, including externally imposed curriculum and assessment requirements of the school placement. Additionally, the data was collected after only eight weeks of coursework and one four-week school placement which is a short time for the preservice teachers to make sense of assessment beliefs, values and practices. It is not reported whether the preservice teachers’ difficulties in marrying their assessment values and practice had changed by the end of the teacher education programme.

Brown (2011) suggested that preservice teachers’ beliefs, understanding and attitudes, or ‘conceptions’, towards the uses of assessment may be one of the most significant changes they need to make during teacher preparation. Based upon the Teachers’ Conceptions of Assessment (TCoA) inventory, Brown (2004) developed a model of teachers’ conceptions of assessment focused on four major beliefs about the purposes of assessment:

(a) assessment improves students’ own learning and the quality of teaching
(b) assessment can be used to account for a teacher’s, a school’s, or a system’s use of society’s resources
(c) students are held individually accountable for their learning through assessment
(d) assessment, usually understood as a formal, organised process of evaluating student performance, has no legitimate place within teaching and learning (pp. 304-305).

Brown (2011) stated his research has consistently demonstrated that teachers believe the dominant purpose for assessment is to improve teaching and learning. However, using the Students’ Conceptions of Assessment (SCoA) inventory with secondary students, Brown (2011) noted the difference between the beliefs of students and teachers:

It is interesting that student endorsement of being evaluated or graded resulted in better grades, especially since this practice is not usually considered to be a legitimate part of assessment for learning practices that practising teachers are expected to implement. [emphasis in original] (p. 2)

When using the TCoA model for a cross-cultural comparison between preservice teachers in New Zealand and Spain, Brown and Remesal (2012) reported the original model for practising teachers was inadmissible and a revised model for preservice teachers was established. This model consisted of five factors:

(a) assessment improves student learning and teaching
(b) assessment is ignored and is inaccurate
(c) assessment is bad
(d) assessment measures school quality
(e) assessment grades students (Brown & Remesal, 2012, p. 82).

These results indicated that preservice teachers had different conceptions of assessment from those of practising teachers. Brown and Remesal (2012) suggested that two major differences had implications for teacher education. First, the preservice teachers did not appear to link valid, dependable assessments with assessment for improvement, suggesting they may not consider the quality of assessments in their own classroom practice. Second, preservice teachers associated accountability with improved student learning, for example, grading was considered an improvement function. The authors considered these findings may be due to the preservice teachers still identifying themselves as students with recent experiences of being graded and evaluated, and not yet having experienced using assessment formatively as classroom teachers to inform teaching and learning practice. Differences between the New Zealand and Spanish preservice teachers’ beliefs and
conceptions were attributed to cultural and societal priorities and purposes for assessment within the respective societies.

In the literature reviewed above, the term ‘beliefs’ is ascribed variations of meaning. Brown (2011) used the term ‘conceptions’ to bracket together assessment beliefs, understanding and attitudes. Pajares (1993) described preservice teachers’ beliefs in regard to attitudes and values, whereas the term ‘perceptions’ is used by Crossman (2004) and linked to emotions and experiences. Richardson (2003) defined beliefs as propositions that individuals accept as true which may be unwarranted, as opposed to warranted propositions accepted as knowledge. In their study, Levin and He (2008) described beliefs as preservice teachers’ personal theories. In the synthesis of research literature by Bransford et al. (2000), beliefs were linked with ‘preconceptions’, which are initial understandings of individuals’ experiences of the how the world around them works, often from a young age. These preconceptions may be accurate or they may be misconceptions that influence the integration of new concepts and information. This demonstrates the importance of being clear about terms used when drawing on the research literature to confirm or disconfirm the findings reported in this study. Nevertheless, the above studies support the need for further research into preservice teachers’ beliefs about assessment and how these are influenced by their teacher education programmes and the development of assessment literacy.

**Preservice teachers’ development of assessment literacy**

Popham (2009) argues that assessment literacy is an essential professional capability in educators and, therefore, an important aspect of preservice teachers’ assessment education. In Popham’s (2011) definition “assessment literacy consists of an individual’s understandings of the fundamental assessment concepts and procedures deemed likely to influence educational decisions” [emphasis in original] (p. 267). Linking assessment theory and practice is an important facet of DeLuca and Klinger’s (2010) definition of assessment literacy which involves “the understanding and appropriate use of assessment practices along with the knowledge of the theoretical and philosophical underpinnings in the measurement of students’ learning” (pp. 419-420). A slightly different emphasis on defensible decision making is apparent in Brown’s (2008) definition of an assessment-literate teacher as “one who creates, chooses, administers, interprets, responds to, records, and reports assessment information in such a way that those decisions can be shown to be adequate and appropriate” (p. 286).
Despite these different emphases, because classroom teachers can typically spend one-third to one-half of their time on assessment related activities (Stiggins, 1999), assessment literacy is an essential competency for preservice teachers. They require an understanding of the core issues in assessment and need to develop the ability to thoughtfully and skillfully use a variety of assessment tools and strategies in order to improve student outcomes (Black & Wiliam, 1998a; Broadfoot, 2007; Brown et al., 2008; Crooks, 1988). Until teacher preparation programmes pay significant attention to developing preservice teachers’ assessment literacy, Popham (2009) stated that ongoing professional development will be necessary to produce assessment-literate teachers. He stated that educators’ inadequate knowledge of classroom assessments or accountability assessments could “cripple the quality of education” (Popham, 2009, p. 4). Moreover, Popham (2010) argued that the low levels of knowledge about assessment in the education profession could be more accurately titled “assessment illiteracy” [emphasis in original] (p. 175). An increasing number of professional development programmes focusing on improving teachers’ knowledge about, and effective use of, educational assessment have been implemented (Black et al., 2003; Marshall & Drummond, 2006; Popham, 2009; Smith, 2011).

In New Zealand, Timperley, Wilson, Barrar and Fung (2007) conducted a synthesis of national and international evidence on how teachers’ professional development impacted outcomes for diverse students. Approximately 50% of the studies demonstrating positive outcomes for students specifically referred to teachers developing their understandings and use of assessment. There was particular mention of developing teachers’ skills in interpreting and using assessment data to respond to learning needs and identify next steps for teaching and learning. Despite the number of assessment professional development opportunities for New Zealand teachers, Brown’s (2008) study appeared inconclusive in regards to improving teachers’ assessment literacy. He argued that the debate about assessment literacy focused “too much on the declarative knowledge and not enough on teachers’ conceptions or belief systems” (Brown, 2008, p. 296). Nevertheless, an evaluation of such programmes in New Zealand by Poskitt and Taylor (2008) found gains were made in student achievement and teachers’ knowledge. In addition, they reported teachers’ confidence in assessment practices resulted from their participation in assessment professional development.
If building teachers’ assessment literacy is seen as a priority, then an important component of teacher education programmes would be developing the knowledge and skills for effective assessment practice or assessment literacy (Absolum et al., 2009). It has been argued that preservice teachers often graduate and enter classrooms without being adequately prepared to meet the challenges of classroom assessment (Alkharusi, Kazem, and Al-Musawai, 2011; Hill, Smith, Cowie, Gilmore, & Gunn, 2013; Popham, 2009; Shepard, 2000; Shepard et al., 2005; Stiggins, 1999). In the literature on assessment education there is an emphasis on measuring assessment literacy of preservice teachers rather than understanding how they learned about assessment.

The most common method of measuring assessment literacy reported is the use of survey instruments. Three studies by Plake, Impara, and Fager (1993), Mertler (2003) and Chen (2005) in the USA incorporated The Standards for Competence in Educational Assessment of Students prepared and published by the American Federation of Teachers, National Council on Measurement in Education and National Education Association. The seven Standards set out the knowledge and skills considered essential for teacher competence in educational assessment and were intended for guiding preservice preparation and inservice professional development (AFT, NCME, NEA, 1990). Plake et al. (1993) developed a 35-item instrument for measuring teachers’ competence in the assessment areas contained in the seven Standards. This instrument was administered to 555 teachers and 286 administrators nationwide. Based on the results, communicating and interpreting test results were identified as initial areas needed for inservice professional development.

Mertler (2003) attempted to measure and compare the assessment literacy of 67 preservice teachers and 197 inservice teachers. He used the Classroom Assessment Literacy Inventory (CALI), which was adapted from Plake et al.’s (1993) 35-item instrument. In five of the seven Standards, inservice teachers scored more highly than preservice teachers. Nonetheless, inservice teachers believed their teacher education had not provided them with sufficient training to feel comfortable with their skills in making assessment decisions once in the classroom. Chen’s (2005) study used two instruments aligned with the same Standards (AFT, NCE, & MEA, 1990; Plake et al., 1993) to determine the assessment literacy of 61 preservice teachers in a New York City urban public college education programme. They were surveyed before and after the completion of an assessment course. The assessment course “seemed to have a tremendous impact” on the preservice teachers’
assessment literacy, particularly by identifying prior knowledge to enable teacher educators to “modify instruction” (Chen, 2005, p. 65). There was no description or explanation of the assessment course content or instructional approaches that may have helped to illuminate how it had such an impact on the preservice teachers’ learning about assessment. As a result of changing educational policies and assessment requirements, Chen (2005) recommended further examination of the Standards developed in 1990. Brookhart (2011) suggested the Standards had become ‘a bit dated’, particularly in respect of “current conceptions of formative assessment (or assessment for learning)” and “issues involved in standards-based assessment” [emphasis in original] (p. 3). She proposed a new set of assessment knowledge and skills related to current teacher assessment needs in an effort to stimulate discussion, particularly for those involved in preservice and inservice assessment education.

A study by Volante and Fazio (2007) in Canada also used a survey to examine the development of assessment literacy during a four year primary/junior teacher programme. Sixty nine preservice teachers from different years of the programme completed a nine question survey. The preservice teachers all rated themselves relatively low in their levels of self-efficacy related to utilising sound assessment practices. Although a broad range of assessment approaches were stated as assessment learning goals in the assessment course outline, the preservice teachers seemed predisposed to using the traditional approaches to assessment they had experienced as students themselves. They noted a lack of mentorship from associate teachers who did not model appropriate classroom assessment skills and practices. Volante and Fazio’s (2007) study confirmed the persistent problem of preservice teachers’ assessment literacy development relying heavily on the mentorship of associate teachers, who may or may not be assessment literate (DeLuca & Klinger, 2010; Graham, 2005).

Surveys often provide a one-off snapshot of self-reported data which has the potential for the findings to be limited by the type of data. Using a different method to determine assessment literacy, a study in Scotland by Maclellan (2004) investigated what 30 preservice teachers knew about assessment when nearing completion of a postgraduate certificate in primary education, just prior to applying for licensure. Instead of a survey instrument, a written essay question elicited evidence of the participants’ knowledge of principles and methods of assessment that would assist them in their teaching, which was then content analysed. Course credit was given on completing the written task. Interviews
were discounted on the basis of ‘participant acquiescence’ and the belief that engagement in a written process would result in more considered and sophisticated responses. No information about the type of assessment theory and practice the preservice teachers had experienced in their programme was provided. Evidence was reported of the preservice teachers’ variability in knowledge of assessment principles and limited explicit knowledge of assessment methods. Although some learning about assessment had occurred, Maclellan (2004) concluded that it was not at the level required “to make autonomous professional judgements about pupil’s learning” (p. 531). Furthermore, it was suggested that teacher educators needed to pay more attention to engaging preservice teachers in the cognitive complexity of thinking and learning about assessment.

Despite different methods, the findings from the above studies suggest the need for teacher educators to monitor the effectiveness of their assessment education. The development of preservice teachers’ assessment literacy is subject to a multitude of influences. Teacher education programmes in different countries come in many different formats and structures. Likewise, there are a variety of approaches to assessment education as part of those teacher education programmes.

**Programmes for teaching and learning assessment**

There is limited empirical research that examines how preservice teachers learn about assessment in the different settings in which they learn to teach. In a review of the assessment education literature, Hill et al. (2010) found:

> Overall, there appears to be meagre systematic evidence internationally about how student teachers are successfully prepared in assessment, their readiness to use effective assessment strategies after graduation, and how they learn to use the assessment practices known to improve student outcomes. (p. 55)

Hill et al. (2010) argued that it was important to investigate how preservice teachers’ assessment beliefs and understandings interacted with the various components of teacher education so that the practices that were most likely or least likely to develop sound assessment knowledge and skills could be identified. Teacher education programmes may have specific assessment courses that are voluntary or compulsory. Alternatively, there may be no formal assessment instruction but instead learning about assessment is embedded within curriculum courses and school practicum experiences. Moss (2013) reported that at
graduation preservice teachers were very confident yet less than competent in using assessment to improve student learning. Moreover, she argued that researchers needed to focus less on the types of assessment courses and focus more on “examining what actually happens in those courses to develop assessment literacy and follow graduates into the field to see if those courses impact actual assessment practices” (Moss, 2013, p. 252).

Internationally there is wide variation with respect to how assessment education takes place (DeLuca & Klinger, 2010). In some jurisdictions there is also limited expertise in assessment among teacher educators. For example, in Norway, Smith (2011) reported that preservice teachers get minimal education in assessment:

Assessment is, at the best, dealt with in a lecture followed by a seminar of a couple of hours, and it is frequently integrated in the educational studies and in the didactic courses without special focus. When examining the issue more in depth, we found that it is common for all the institutions to have only one person who can be said to have formal competence and research experience in assessment, and most of these do not teach assessment in pre-service teacher education courses. (p. 59)

Accordingly, Smith (2011) questioned the competence of the teacher educators when she found a lack of agreement on how assessment theory and practice was taught, resulting in preservice teachers getting “mixed, and not always well-informed, messages” (p. 59).

The challenge for many teacher educators is to develop an assessment curriculum within constraints such as course timing, resources and length of programme. DeLuca, Klinger, Searle, and Shulha (2010) reported continuous assessment curriculum development over three years of one teacher education programme in Ontario, which educated approximately 700 preservice teachers every year. The Assessment and Evaluation Module (AEM) was introduced as part of four modules in the fifth year of a Bachelor of Education. Rather than aiming for competence in assessment theory and practice in a very short timeframe, the goal of the AEM was to introduce preservice teachers to the key concepts of classroom assessment in depth and to reframe assessment as pedagogy which “implies a fully integrated understanding of assessment with other aspects of the teaching and learning process” (DeLuca et al., 2010). One of the most significant findings over the different iterations of the module based on yearly evaluations, was the difficulty preservice teachers had with engaging in goal setting and self-directed learning. Consequently, SRL strategies were explicitly taught in order to help the preservice teachers develop a professional
learning orientation. DeLuca et al. (2010) called for further research to explore the “link between assessment strategies and developing a professional learning orientation”, as well to increase understanding of different models and practices for preparing preservice teachers “for the assessment realities they will face in the classroom” (pp. 38-39).

If, as in some teacher education programmes, assessment courses are only voluntary then inconsistencies in assessment education will result, even within the same preservice teacher cohort or year group. A study of 228 preservice teachers in Canada used a survey instrument to determine preservice teachers’ confidence levels in educational assessment knowledge (DeLuca & Klinger, 2010). The participants were enrolled in an eight-month bachelor of education programme following completion of a four year undergraduate degree. There were two elective assessment courses offered, one for elementary level and the other for secondary level. Only 49 of the 288 participants took an assessment course yet the results suggested there were benefits of direct instruction in assessment. The authors cautioned that such instruction might not develop assessment knowledge, skills and confidence in a uniform manner. Similarly, there appeared to be inconsistencies in the assessment knowledge and practices of associate teachers who mentored these preservice teachers on their practicum experiences. It was argued that preservice teachers’ “training in assessment will be inconsistent due to the irregular assessment knowledge and skills of associate teachers and university professors” (DeLuca & Klinger, 2010, p. 436). In contrast to the findings of Volante and Fazio (2007), the preservice teachers’ confidence levels were high, although more so in using assessment for summative rather than formative purposes. One reason suggested was ‘unrealistic optimism’ possibly due to the near completion of their programme and the preservice teachers’ own perceived readiness to be classroom teachers. DeLuca and Klinger (2010) proposed further research regarding preservice teachers’ critical examination of assessment practices through direct instruction in assessment knowledge and skills. Additionally, they suggested gaining multiple perspectives of those involved in assessment education to enhance understanding of the content and pedagogy likely to improve assessment literacy.

As preservice teachers learn more about the complexities of assessment and their conceptions change, their confidence in practising assessment may also increase. In the USA, DeLuca, Chavez, and Cao (2012) investigated how conceptions of assessment changed during an assessment course and whether there were any links between preservice
teachers’ changing conceptions and their confidence in assessment practices. Data were collected from 48 participants through two questionnaires administered at the beginning and end of the course. The results indicated that the preservice teachers had changed their conceptions of assessment from a largely singular view of tests to seeing assessments as having multiple purposes and taking varying forms. There was evidence that the preservice teachers were beginning to see assessment as a complex process that was integrated with teaching and learning. DeLuca et al. (2012) attributed this development to receiving explicit assessment education but noted the absence of “an articulation of students’ use of assessments to support their own learning and metacognitive development (i.e. assessment as learning)” (p. 9). Their findings suggested a positive change in the preservice teachers’ confidence in explaining and using assessment theory as a result of improved theoretical and conceptual understandings. This contrasted with DeLuca and Klinger’s (2010) suggestion of unrealistic optimism. DeLuca et al. (2012) recommended that longitudinal studies be carried out to confirm or refute any assertions made about the ongoing influence of preservice assessment education on classroom teachers’ assessment literacy.

Another line of inquiry into assessment education is found in science education teacher preparation integrating assessment with how learning occurs and important scientific concepts (Lyon, 2011). Cowie (2013) argued that teachers should be using classroom assessment that can access and respond to the sense their students are making from the teaching and learning occurring in science activities. That view is supported by research on how formative and summative science assessment supports students’ learning and places students at the centre of assessment practices through developing their autonomy and agency (Cowie, 2005; Cowie, Moreland, Jones, & Otrel-Cass, 2008; Ruiz-Primo & Furtak, 2006). Conversely, cultural influences on assessment teaching and learning may create conflict for preservice teachers in science education. For example, Wang, Kao, and Lin (2010) investigated 215 Taiwanese elementary preservice teachers’ conceptions of assessment in relation to reform-based teaching and learning science. In traditional Chinese culture, success in the national examination is highly valued and important for entry into tertiary education and a career. In Taiwan, teachers are expected to focus on helping their students to achieve academic success in terms of test and exam outcomes. Wang et al. (2010) reported a tension for the preservice teachers between this traditional or behaviourist view of assessment and the constructivist perspective of assessment and learning.
recommended by science education reforms (Bell and Cowie, 2001a, 2001b; Lyon, 2011; Ruiz-Primo & Furtak, 2006).

Two American studies investigated how preservice teachers incorporated formative assessment into their science planning and teaching but had contrasting findings. The first, an action research study of 30 preservice teachers (Buck, Trauth-Nare, and Kaftan, 2010), examined a reconceptualised elementary science methods course in which formative assessment guided all aspects of the course. One main finding was the value of using explicit instruction in formative assessment combined with authentic field-based case study and ongoing reflection. Also, using case-based pedagogy to explore, discuss and reflect on the complexity of formative assessment provided a scaffold for teaching and learning science (Lyon, 2011). Second, Siegel and Wissehr (2011) investigated the assessment literacy of 11 preservice teachers in a science methods course in which assessment for learning and use of assessment tools was a major theme. Using content analysis, they found there were distinct differences in the way the participants thought and wrote about assessment theoretically in their philosophy essays and journals compared with the more traditional forms of assessment they appeared to revert back to when planning their science units. Although the preservice teachers demonstrated knowledge in a variety of assessment tools, there seemed to be some disconnect between their assessment beliefs and understandings and the limited forms of assessment they would use in practice. The preservice teachers were not interviewed to unpick their thinking about the assessment choices they made in the science units.

Outside of assessment learning in science teacher education, a study by DeLuca et al. (2013) examined instructional strategies that supported preservice teachers during the mandatory semester-long measurement course that also formed the context for DeLuca et al.’s (2012) study. The course content and pedagogical approaches had recently been revised. Data were collected through open-ended questionnaires administered three times throughout the semester with participant rates being 55, 45 and 41 respectively, out of the enrolled 97 preservice teachers. The emphasis was on ascertaining the instructional approaches participants found most effective and why. During analysis, four themes emerged which the authors identified as pedagogical constructs:

(a) perspective-building conversations
(b) praxis: connecting theory to practice
By engaging in conversations with peers and in class discussions about assessment theory and practice, the participants were introduced to multiple perspectives which helped to broaden their understandings. Furthermore, there was evidence that these conversations promoted preservice teachers’ metacognitive development as they became “more aware of how to think about their own thinking on assessment” (DeLuca et al., 2013, p. 134). Although the study focused on the preservice teachers’ assessment coursework experiences and not field-based experiences, the participants noted how valuable they found authentic learning activities and course assignments that necessitated making links between assessment theory and application in teaching practice. Effective modelling of formative and summative assessment practices through in-class activities, feedback and course grading practices also helped the preservice teachers to link theory and practice. Assessment course activities included structured critical reflections throughout the course on the participants’ own learning about assessment and areas for future professional development. The authors argued that this study provided a basis for future research, particularly into how teacher educators operationalise pedagogical constructs that may support the complex nature of assessment education:

These pedagogical constructs were able to engage with the complexity of educational assessment, rather than simply presenting teacher candidates with a “how to” for assessment. We assert that engaging assessment as a complex, multifaceted educational competency is at the core of developing assessment literate teachers — teachers who can meaningfully integrate assessment with other aspects of their teaching and learning while considering the technical, ethical, and pragmatic elements of assessing student learning. As such, we assert that there is a continued need to demonstrate ways of engaging teacher candidates in deep learning about the evolving complexities of assessment in relation to teaching and learning. (DeLuca et al., 2013, p. 140)

The importance of engaging in conversations about assessment, both in coursework and field work, was also a significant finding in an American study by Graham (2005). She investigated how 38 secondary English preservice teachers’ assessment theories and practices changed over their year-long programme. Data was collected through written in-depth responses to questions about assessment. Initially the preservice teachers displayed misunderstanding of, and lack of familiarity with, the concept of assessment and most equated it with a test, based on their prior experiences. Graham (2005) found they were
‘clueless’ about establishing learning goals and how to assess whether students were achieving those goals. The preservice teachers were then placed with selected mentor teachers who had recently collaborated on assessment professional development with the teacher educators. They were provided with concrete examples of how assessment theory and practices discussed in coursework were carried out in the classroom. As in DeLuca et al., (2013), exploring links between assessment theory and practice encouraged the preservice teachers to “become engaged in highly contextualised professional dialogues about classroom-based assessment” (Graham, 2005, p. 619). These conversations about assessment, along with the experienced teachers’ modelling of inquiry into their own practice, were considered beneficial in promoting ongoing professional learning.

In another American study that tracked preservice teachers over time, Nolen et al. (2011) used an ecological approach to investigate how and why the preservice teachers utilised or rejected assessment tools and practices in the multiple learning settings of university and school. Hence, the focus of the study was on assessment tools and artifacts, which functioned as boundary objects between the different social worlds. The study followed seven preservice teachers in a graduate programme through university instruction and internship in Year 1 then through their first two years of professional teaching in Years 2 and 3. Data were collected through observations, interviews following the observations and interviews with other members of each setting such as peers, university instructors, teaching colleagues and supervisors. The findings emphasised novice teachers’ difficulties regarding unexpected negotiations around specific assessment tools such as the use of rubrics and tests. As the novice teachers crossed boundaries of the different worlds of university and school they entered new communities of practice, in which they positioned and repositioned themselves according to the norms and social structures of those communities (Lave & Wenger, 1991; Wenger, 1998). Nolen et al. (2011) stated that assessment tools and practices are taught as a set of decontextualised techniques in most teacher education programmes. They argued that preservice teachers should have opportunities to learn about the negotiated nature of assessment in schools. This included the awareness that the assessment practices promoted by teacher educators may be resisted or rejected by classroom teachers and others in the school context, and vice versa.

Studies such as Graham (2005) and Nolen et al (2011) demonstrate the importance of opportunities to integrate assessment theory with authentic classroom practice in ways that
enhance preservice teachers’ current learning and prepare them for further learning as teachers (Otero, 2006). As discussed, there are multiple approaches to assessment teaching and learning within the different types of teacher education programmes internationally. The next section turns to evidence about how New Zealand preservice teachers learn about assessment.

**New Zealand preservice teachers’ learning about assessment**

In New Zealand all initial teacher education programmes are subject to regulatory approval, review and monitoring of stated requirements (NZTC, 2010). They are required to assess their graduating teachers against the Graduating Teacher Standards: Aotearoa New Zealand (GTS), consisting of seven standards: professional knowledge (three); professional practice (two); and, professional values and relationships (two). One of the professional practice standards specifically relates to assessment and asserts that graduating teachers should be able to use evidence to:

a. systematically and critically engage with evidence to reflect on and refine their practice
b. gather, analyse and use assessment information to improve learning and inform planning
c. know how to communicate assessment information appropriately to learners, their parents/caregivers and staff. (NZTC, 2007)

The emphasis on using assessment to promote learning and inform teaching is in line with acknowledged purposes of assessment. However, as pointed out by Hill et al. (2010), what is missing is any reference to learners participating in their own assessment in order to develop aspects of SRL such as motivation, monitoring and metacognition. Thus, as the authors of the DANZ paper stated, preservice teachers frequently graduated “without being required to meet any agreed standard for assessment capability” (Absolum et al., 2009, p. 30).

As mentioned previously in Chapter One, Aitken et al. (2013) proposed an inquiry-oriented model of standards for graduating teachers in New Zealand, the *Teaching for Better Learning Model*. In the model assessment is considered “a crucial component of the graduating teacher’s knowledge base”, including “the technical aspects of assessment” (Aitken et al., 2013, p. 25). To carry out effective assessment, the authors proposed a skills base “that teachers draw on when collecting evidence to evaluate classroom initiatives, constructing or compiling tests, devising tasks, and more generally, when working out how
best to elicit revealing and pertinent responses from students” (Aitken et al., 2013, p. 26). As with the current GTS, there is no reference to students’ participation in their own assessment (Hill et al., 2010). Graduate teachers are required “to be metacognitive and self-regulated learners” in relation to professional learning inquiry (Aitken et al., 2013, p. 24). However, this is not linked to building assessment capability and SRL in their students (Absolum et al., 2009; MOE, 2010).

Very few studies have investigated how preservice teachers learn to use assessment in New Zealand (Hill et al., 2010). However, a recent study entitled Learning to be assessment capable teachers (LTBACT) researched assessment education at four universities in New Zealand (Hill et al., 2013; Smith et al., 2014). Some universities provide a compulsory assessment course in addition to embedding assessment across the teacher preparation programme whereas others embed assessment education across many courses without a specific assessment course (Smith et al., 2014). The first aim of the LTBACT study was to ascertain what preservice teachers believed and understood about assessment at entry, part way through and at exit from their teacher education programmes. The second aim was to find out how initial teacher education scaffolded the preservice teachers’ assessment capabilities. As part of the same study, professional conversations were conducted with teacher educators responsible for leading courses that included teaching about assessment at the four universities. Cowie and Hill (2011) reported that “across the four universities the teacher educators appeared very much influenced by child-centred and formative assessment discourses, almost to the exclusion of summative ones” (p. 14). The teacher educators also identified tensions in their own assessment beliefs and practices such as believing in using assessment for learning practices but being “constrained by the assessment regulations of their tertiary settings” (Cowie & Hill, 2011, p. 15). These findings were similar to Hawe’s (2000) investigation into how students and teacher educators experienced assessment within a teacher education programme. She also found a disconnection between the assessment discourses of the education institution and the assessment practices of the teacher educators.

As part of the LTBACT study, in each of the three years, questionnaires were administered to over 700 primary and early childhood education (ECE) preservice teachers. Additionally, a small number participated in focus groups or one to one interviews, thus providing both quantitative and qualitative data. The results indicated that there were significant changes in
the assessment beliefs of preservice teachers by the time they completed their three year programme. Many began the programme viewing assessment as formal in nature and mainly summative. At exit, there was evidence of assessment beliefs that were more student-centred, with an emphasis on assessment for learning (Smith et al., 2014). However, it appeared that most primary preservice teachers lacked experience in using a range of assessment tools and in using assessment as learning practices known to increase SRL. Accordingly, they advised:

It would be valuable to assist ITE students to engage in their own assessment and become more accountable for their own learning, and at the same time assist ITE students to learn more about how to help the children they teach to become assessment capable in these ways. (Hill et al., 2013, p. 9)

Summary

Assessment to improve teaching and learning has a significant effect on student achievement and is therefore an integral part of the learning and teaching process. Accordingly, teachers must develop the capability to gather, interpret and use evidence of learning to enhance student achievement, using a range of assessment approaches, tools and practices. In New Zealand, building assessment capable teachers and students is at the heart of the current vision for educational assessment. Building on assessment literacy, the development of assessment capability involves teachers acquiring and using the metacognitive skills required to scaffold and support self-regulated learners.

Preservice teachers have pre-existing beliefs about teaching and assessment primarily based on their own experiences as a student. The changing purposes and understandings of assessment require teachers to examine their own beliefs about assessment in order to understand the ways in which assessment can support or inhibit learning. An important goal of teacher education programmes is to develop preservice teachers’ knowledge of and skills in effective assessment practice. Previous studies have criticised preservice teachers’ assessment education as being ineffective. This is attributed to a variety of reasons, including: low proficiency and self-efficacy in utilising assessment for instructional decision-making, limited reflection on preservice teachers’ own assessment beliefs and experiences, a lack of curriculum content knowledge and reliance for development of assessment literacy on associate teachers, whose own assessment skills and understandings may not be consistent with contemporary assessment theory and practice.
The research findings appear limited regarding how individual preservice teachers learn about assessment, what they learn and why they learn and adopt certain elements of assessment education while rejecting others. The limited research evidence available suggests that participation in a specific assessment methods course fostered preservice teachers’ understanding and provided a foundation for ongoing learning about assessment. Further research is needed to determine if and how preservice teachers learn about assessment through explicit instruction in assessment combined with authentic opportunities to practise assessment. On one hand, there is a perceived tension between what preservice teachers are taught about assessment theory and how they experience assessment at university and through their experiences of assessment practice in schools. On the other hand, a few of the most recent studies have concluded that preservice teachers are developing their assessment beliefs, theories and practices through the integration of their university and school practicum experiences. Accordingly, it is timely to investigate how and why this is occurring in order to inform the teaching and learning of assessment. Exploring ways to effectively integrate teacher education practices, coursework and school placement experiences to better prepare graduating teachers for classroom assessment and ongoing professional learning is advised.

To date, most research in the field of preservice teachers’ assessment education has involved survey instruments to reveal beliefs, conceptions, confidence and assessment literacy. This paints a broad picture rather than the more finely drawn representations of participants’ experiences that can be achieved through the rich data acquired through in-depth case studies. Little attention has been given to the voices of the preservice teachers who are at the centre of assessment education. The focus has been on the perspectives of the teacher educators and their efforts to redesign assessment education programmes. The multiple perspectives of others with roles in preservice teachers’ assessment education, such as school leaders and associate teachers, are also missing from the literature. Therefore, the research undertaken for this thesis examined how preservice teachers learn about assessment using in-depth case study and involved preservice teachers and those who support their assessment education. The research question driving the study was: How do preservice teachers learn about assessment in university and school practicum settings during their primary teacher education programme? Chapter Three describes the approach used in detail.
 CHAPTER THREE:

The research process

Introduction

To investigate how preservice teachers learn about assessment a qualitative case study was undertaken within an interpretive paradigm. The first section introduces the overarching research question and sub-questions that drove the study. This is followed by justification of the selection of the interpretive research paradigm, qualitative methodology and case study approach. The next section specifies the research methods used and provides details of the four groups of participants and two settings. The ethical considerations and how they were attended to are then described. In the third section, an explanation of how data was collected from the different groups of participants is provided. The fourth section describes how the interactive model of qualitative data analysis was used. The final section addresses the trustworthiness of the study.

Research methodology

Educational research was defined by Bassey (1999) as “critical enquiry aimed at informing educational judgements and decisions in order to improve educational action” (p. 39). Similarly, Creswell (2008) argued that three main purposes of educational research are to add to the existing knowledge base, improve practice to become more effective professionals and inform policy debates about important issues in education. This occurs through a process of steps based on a research framework generally comprised of asking a question, collecting and analysing data then using that information to answer the question (Creswell, 2008). Methodology is the framework that generally sits within a particular research paradigm and is used to guide or inform the research study, based on the ‘best fit’ for answering the research questions (Punch, 2009).

The research questions

As indicated at the conclusion of Chapter Two, this study aimed to investigate how the university coursework and school practicum experiences of preservice teachers impacted on their assessment beliefs and theoretical understandings during their primary teacher education programme. In addition, this study explored how preservice teachers’ own
assessment practices were mediated by the different settings in which they learned to teach. An overarching research question guided the study:

*How do preservice teachers learn about assessment in university and school practicum settings during their primary teacher education programme?*

Five sub-questions provided a framework for the study:

a) How do preservice teachers’ assessment beliefs and understandings change during their teacher education programme?

b) How does university coursework influence preservice teachers’ learning about assessment theory and practice?

c) How do school practicum experiences influence preservice teachers’ learning about assessment theory and practice?

d) How do preservice teachers make connections between their theoretical understandings of assessment and their experiences of classroom assessment?

e) How do preservice teachers perceive their assessment capabilities as they move into the first year of teaching?

**An interpretive research paradigm**

This study was conceptualised and took place within an interpretive paradigm. Interpretive research in education can develop insight into preservice teachers’ thinking and experiences to answer questions about (1) making sense of learning to teach, (2) managing the complexities of teaching and learning, (3) the importance of beliefs and knowledge and (4) features of high-quality preservice education programmes (Borko, Whitcomb, & Byrnes, 2008). Two distinguishing features of interpretive research noted by Borko et al. (2008) are gaining “insiders’ perspectives” and “a focus on understanding sociocultural processes in natural settings where individuals learn to teach” (p. 1026). They also considered other central features of interpretive research in teacher education to be: asking a range of individuals involved in teacher preparation to share how they make sense of their practice, identification of elements of the educational settings that impact on teacher learning and the
recognition of context by attending to features of the setting. Two limitations of interpretive research stated by Borko et al. (2008) were a lack of explicit conceptual frameworks and inadequate discussions on the soundness of interpretive study designs.

**Qualitative methodology**

Qualitative methodology is strongly associated with the interpretive research paradigm (Punch, 2009). There are multiple approaches to qualitative research but some of the key characteristics include gaining an holistic overview of the context under study, gathering multiple sources of data to inform interpretation and a focus on making sense of, or interpreting, the meaning that participants hold about the problem or issue (Creswell, 2007; Denzin & Lincoln, 2005; Flick, 2007; Punch, 2009). Qualitative methodology is particularly appropriate when a complex and detailed understanding of a problem or issue can only be established by gaining the perspectives of the study participants. In this study, using qualitative methodology provided an opportunity to draw attention to the voices of different groups of participants that have a stake in preservice teachers’ assessment education (Borko et al., 2008; Cohen, Manion, & Morrison, 2011). Research methods associated with qualitative methodology such as semi-structured interviews and the analysis of artifacts and documents can supply rich descriptions of complex interactions that improve understanding of how and why learning about assessment occurs.

**A case study approach**

A case study was used to investigate how preservice teachers learn about assessment. Yin (2014) considered case study to be a preferred method when ‘how’ or ‘why’ questions are being asked about a contemporary rather than historical phenomenon. Numerous definitions of case study exist and three are described and exemplified here. First, Stake (1995) stated “case study is the study of particularity and complexity of a single case, coming to understand its activity within important circumstances” (p. xi). He distinguished three types of case study, used for different purposes and employing different methods: intrinsic, instrumental and collective. In contrast, Yin (2014) defined a case study as “an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident” (p. 16). Yin (2014) argued that it was not always easy to distinguish phenomenon and context in real-world situations therefore the scope and features or methodological characteristics of a case study are relevant including “design, data collection
techniques and specific approaches to data analysis” (p. 17). Thus, the emphasis in his definition is on a comprehensive research strategy. Yin (2014) also stated case study research could serve multiple purposes, which he described as exploration, description, explanation and evaluation. A third definition by Simons (2009) is more specifically related to case study research in education:

Case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, programme or system in a ‘real life’ context. It is research-based, inclusive of different methods and is evidence-led. The primary purpose is to generate in-depth understanding of a specific topic (as in a thesis), programme, policy institution or system to generate knowledge and/or inform policy development, professional practice and civil or community action. (p. 21)

In spite of these different definitions of case study, there are common features. Case study requires description of a bounded system (or case) and seeks to understand events from the point of view of the participants by collecting data from multiple sources, including interviews, field notes, artifact collection and document analysis (Bassey, 1999; Cohen et al., 2011; Creswell, 2008; Marshall & Rossman, 2011; Merriam, 1998; Mutch, 2005; Yin, 2014). In interpretive case study, the researcher “gathers as much information about the problem as possible with the intent of analyzing, interpreting, or theorizing about the phenomenon” (Merriam, 1998, p. 38). It allows the researcher to identify various interactive processes at work in a specific instance or situation (Bell, 1999; Burns, 2000; Mutch, 2005). As noted by Bassey (1999) “an essential feature of case study is that sufficient data are collected for researchers to be able to explore significant features of the case and to put forward interpretations for what is observed” (p. 47). An aim of this study was to present a rich description of preservice teachers learning about assessment as a single case to inform teacher education practice and add to knowledge in the field of assessment education (Simons, 2009). The case was bounded by eight preservice teachers within one teacher education programme having the same assessment teacher educator but different school practicum experiences.

A criticism of case study is the lack of generalisability from one case to another because of the differing contexts (Creswell, 2007; Punch, 2009). However, Yin (2014) argued that the goal of case study is to expand and generalise theories rather than extrapolate probabilities. Cohen et al. (2011) suggested that case studies can offer significant insights into situations that are not always apparent through numerical analysis. Additionally, the concept of ‘fuzzy
generalisations’ holds that “it is possible, or likely, or unlikely that what was found in the singularity will be found in similar situations elsewhere” [emphasis in original] (Bassey, 1999, p. 12). Another concern suggested by Simons (2009) is that the personal involvement and subjectivity of the researcher can influence investigation of the case.

**Research methods**

This single case study used qualitative methods within an interpretive research paradigm. It focused on providing rich description of how a group of preservice teachers from one teacher education programme learned about assessment. The research methods used, often associated with case study, were semi-structured interviews and collection and analysis of relevant artifacts and documents (Bassey, 1999; Simons, 2009; Stake, 1995). Both methods are briefly described next and their use in the study is then specifically detailed in the section on data collection procedures.

**Semi-structured interviews**

The interview was considered by Yin (2014) to be “one of the most important sources of case study evidence” (p. 110). Qualitative interviews have played an important role in educational research (Tierney & Dilley, 2002). Interviews enable participants to present interpretations of their lived experiences, thoughts and feelings as well as providing a context for their behaviour, thereby providing a way for researchers to understand that behaviour (Burns, 2000; Cohen et al., 2011; Seidman, 2006). Kvale and Brinkman (2009) considered the research interview to be a professional conversation in which there is “an inter-view, where knowledge is constructed in the inter-action between the interviewer and the interviewee” (p. 2). Likening the interview to a conversation so that it seems friendlier and informal perhaps suggests a more equal relationship, but may not be an accurate representation (Simons, 2009). For example, Kvale and Brinkman (2009) argued that the research interview entails an asymmetrical power relationship, which is not an open and free conversation between equal partners. Interviewing is more difficult than it may seem (Fontana & Frey, 2005). Interviewers require skills and personal judgement to ensure the quality of interviewing which can be “judged by the strength and value of the knowledge produced” (Kvale & Brinkman, 2009, p. 17).

Semi-structured interviews should allow the participant’s perspective to unfold rather than be led by the views of the researcher (Burns, 2000; Kvale & Brinkman, 2009; Marshall &
Rossman, 2011). The interviewer uses a set of guide questions to give the interview direction and focus but still allow flexibility for the interviewee to shape the flow of information (Brenner, 2006; Wilkinson & Birmingham, 2003). When conducting an in-depth interview it is helpful for interviewers to establish a rapport so that interviewees feel comfortable, then proceed to actively listen to what is being said while still ensuring the relevant questions are asked (Simons, 2009). Using different types of probe questions can extend and clarify the participants’ responses (Brenner, 2006). Some examples of probe questions include ‘that’s interesting, tell me more’ or ‘just to clarify, did you say …?’ Probing also allows participants time to think their responses through.

**Collection of artifacts and document analysis**

In addition to interviews, documents can be used in case study “to portray and enrich the context and contribute to the analysis of issues” (Simons, 2009, p. 62). This additional information can help interviewers put interviewees’ comments into context (Creswell, 2008; Flick, 2006). When gathering data in the form of documents, Stake (1995) suggested their potential usefulness be weighed up, while still remaining open to ‘unexpected clues’. However, Flick (2006) cautioned that while documents can be instructive for understanding social realities in institutional contexts they “represent a specific version of realities constructed for specific purposes” and “should be seen as a way of contextualizing information” rather than as a form of bias-free data (p. 249).

**Participants**

There are numerous participant selection or sampling strategies available to researchers. In quantitative research the ‘gold standard’ appears to be random sampling but in qualitative research selection is more likely to be strategic and purposive (Miles et al., 2014). Purposive sampling is used for a specific purpose such as focusing on a unique context, setting or group for a case study (Cohen et al., 2011). The sample is not representative of the population and consequently not generalisable. However, in qualitative research the focus is on understanding rather than generalising therefore people and settings are purposefully selected to best understand the phenomenon being investigated (Creswell, 2008). As this research study’s main aim was to investigate how preservice teachers learned about assessment, the researcher purposefully selected one group of a three year primary teacher education programme, all of whom had completed a compulsory course on assessment.
The group was also chosen because it was within one of the four universities in which the LTBACT study was taking place. The larger study used repeated surveys and some focus groups but due to time and resources was not able to investigate individual assessment learning trajectories as this study could. Therefore the selection of this group of participants was both purposeful and strategic. Inviting participation from a group participating at the same time and in the same programme under study in the larger project not only allowed detailed qualitative investigation, but enabled detailed explication and understanding of the mainly survey results the larger project was gathering. The researcher had been granted access to the university campus and knew that the practicum schools for this group would be in a reasonably accessible geographic area. Six weeks prior to the end of the second semester of their second year, the researcher presented her proposed research study to the preservice teachers and invited their participation. There was an opportunity for questions to be asked and answered. Participant information sheets and consents forms were given to those who indicated an interest (see Appendix A and Appendix B).

The preservice teachers were the primary participants. However, the prior research evidence considered in Chapter Two suggested that assessment teacher educators and practicum school principals, school leaders with responsibility for assessment and associate teachers were likely to have an impact on the preservice teachers’ assessment understandings and practices. Thus, these auxiliary participants were also invited to participate. While it would have been ideal to have complete data sets from all participants and schools, none of the preservice teachers were removed from the study if their practicum schools did not agree to participate. The teacher educator who taught the group the second year compulsory assessment course consented to participate in the study. Once the preservice teachers had returned their consent forms, a letter was sent to principals of the preservice teacher participants’ final practicum schools, inviting their participation. This resulted in four groups of participants:

- preservice teachers
- assessment course teacher educator
- principals or school leaders with responsibility for assessment in practicum schools
- associate teachers who mentored the preservice teachers.
Preservice teachers

Nine female preservice teachers volunteered and gave informed consent to participate in the research study however one withdrew her participation due to health issues. The eight remaining participants ranged in age from 22-45 years of age. All were in the third and final year of their teacher education programme, undertaking their first undergraduate degree. Details of the preservice teacher participants are summarised in Table 1:

Table 1: Preservice teacher participants

<table>
<thead>
<tr>
<th>Preservice Teacher</th>
<th>Age</th>
<th>Ethnicity</th>
<th>Secondary Schooling Years</th>
<th>Highest Secondary School Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>45</td>
<td>NZ Samoan</td>
<td>Four</td>
<td>6th Form Certificate</td>
</tr>
<tr>
<td>Angela</td>
<td>42</td>
<td>NZ European</td>
<td>Two and a half</td>
<td>Nil</td>
</tr>
<tr>
<td>Carmen</td>
<td>39</td>
<td>South African European</td>
<td>Five</td>
<td>Matriculation (South Africa)</td>
</tr>
<tr>
<td>Katelyn</td>
<td>27</td>
<td>NZ European</td>
<td>Four</td>
<td>6th Form Certificate</td>
</tr>
<tr>
<td>Maryanne</td>
<td>39</td>
<td>Māori</td>
<td>Four</td>
<td>School Certificate</td>
</tr>
<tr>
<td>Penny</td>
<td>39</td>
<td>NZ European</td>
<td>Six</td>
<td>Nil</td>
</tr>
<tr>
<td>Rasela</td>
<td>38</td>
<td>Samoan/Tokelauan/Fijian/Irish</td>
<td>Five</td>
<td>6th Form Certificate</td>
</tr>
<tr>
<td>Scarlett</td>
<td>22</td>
<td>NZ European</td>
<td>Five</td>
<td>NCEA Level 3</td>
</tr>
</tbody>
</table>

Assessment teacher educator

In the first semester of the second year of their teacher education programme the preservice teachers undertook a compulsory course on assessment for teaching and learning. The teacher educator who taught that course consented to participate in the research study. Bev had been teaching tertiary students as part of the university’s Bachelor of Education (Primary) programme for 10 years. Prior to that, she had 20 years’ experience teaching in primary schools. Bev had an interest in assessment and student achievement and was an active researcher in those areas. She also had extensive experience in building relationships...
with preservice teachers and practicum schools through being a visiting lecturer. That role included supporting preservice teachers on practicum, fostering triadic relationships with the associate teachers and preservice teachers and assessing achievement of practicum learning outcomes.

*Principals/School leaders*

The researcher confirmed the eight preservice teacher participants’ third year practicum schools and, once the term had commenced for the year, wrote to each of the eight school principals. She explained the research study and that one of the participants would be undertaking her final practicum at the principal’s school (see Appendix C). The principals were the initial contact as their permission, along with that from their boards of trustees, was required for part of the study to be conducted in the schools. Participant information sheets and consent forms were enclosed for the principal and board of trustees, and for the school leader with responsibility for assessment and the appropriate associate teacher.

Five of the principals and boards of trustees consented to part of the research study taking place within their schools. Consent forms were received from two principals and three other school leaders with responsibility for assessment and their participant information is summarised in Table 2:

**Table 2: Principal/School leader participants**

<table>
<thead>
<tr>
<th>Principal/School Leader</th>
<th>School</th>
<th>Position</th>
<th>Years Teaching</th>
<th>Preservice Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruth</td>
<td>Magnolia</td>
<td>Principal</td>
<td>33 years</td>
<td>Abigail</td>
</tr>
<tr>
<td>Julia</td>
<td>Hibiscus</td>
<td>Associate Principal</td>
<td>10 years</td>
<td>Angela</td>
</tr>
<tr>
<td>Barry</td>
<td>Camellia</td>
<td>Principal</td>
<td>39 years</td>
<td>Katelyn</td>
</tr>
<tr>
<td>Karen</td>
<td>Frangipani</td>
<td>Deputy Principal</td>
<td>23 years</td>
<td>Penny</td>
</tr>
<tr>
<td>Marie</td>
<td>Azalea</td>
<td>Assistant Principal</td>
<td>25 years</td>
<td>Scarlett</td>
</tr>
</tbody>
</table>
**Associate teachers**

The associate teachers at the five practicum schools that consented to participate had a range of teaching experience from eight to 30 years. As well as being classroom teachers, three of the five had additional responsibility as syndicate leaders\(^1\). They had all participated in professional development in assessment, particularly professional development focused on assessment for learning, several times during their careers. Participant information about the associate teachers is summarised in Table 3:

**Table 3: Associate teacher participants**

<table>
<thead>
<tr>
<th>Associate Teacher</th>
<th>School</th>
<th>Year Level</th>
<th>Position</th>
<th>Years Teaching</th>
<th>Preservice Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael</td>
<td>Magnolia</td>
<td>Year 4</td>
<td>Syndicate Leader</td>
<td>10 years</td>
<td>Abigail</td>
</tr>
<tr>
<td>Rebecca</td>
<td>Hibiscus</td>
<td>Year 5/6</td>
<td>Syndicate Leader</td>
<td>8 years</td>
<td>Angela</td>
</tr>
<tr>
<td>Chris</td>
<td>Camellia</td>
<td>Year 7 Boys</td>
<td>Syndicate Leader</td>
<td>14 years</td>
<td>Katelyn</td>
</tr>
<tr>
<td>Vicky</td>
<td>Frangipani</td>
<td>Year 3/4</td>
<td>Classroom Teacher</td>
<td>23 years</td>
<td>Penny</td>
</tr>
<tr>
<td>Patricia</td>
<td>Azalea</td>
<td>Year 8 Girls</td>
<td>Classroom Teacher</td>
<td>30 years</td>
<td>Scarlett</td>
</tr>
</tbody>
</table>

**Settings**

The aim of the research was to investigate how preservice teachers learn about assessment through university coursework and school practicum experiences. Accordingly it was necessary to collect data from the preservice teachers about what and how they learned in both of those settings. The different settings were also relevant to the data collected from the other participants.

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\(^1\) Syndicate leaders are classroom teachers who have responsibility for leading a group of classes at a particular year level.
University

The university setting was the same for all eight preservice teachers and was a university campus in a large New Zealand city. They were undertaking a three year Bachelor of Education in Teaching with a primary specialisation. This undergraduate degree was comprised of four elective and 20 compulsory core courses including teaching and learning theories, the New Zealand Curriculum’s eight learning areas and pedagogical practices, including assessment. The eight preservice teacher participants were in teacher educator Bev’s tutorial class for the compulsory assessment course. Other Faculty of Education lecturers presented the main lectures in that course. Bev was responsible for marking the participants’ assignments and providing written feedback. The content of the course is explained more fully in the Chapter Five in the section entitled Learning assessment theory.

Practicum schools

Each year the preservice teachers went to a different primary school to complete a practicum which required full-time attendance over a number of weeks. Under the supervision of a teacher known for practicum purposes as an associate teacher, they took an increasingly active role in the classroom, moving from observations and small group teaching in Year 1 towards taking full responsibility for teaching the whole class for 15-20 days minimum during Year 3.

The third year practicum was for ten weeks. It was separated into a three week block at the beginning of the school year (Part A) and a seven week block commencing in the middle of the year (Part B). Part A was for preservice teachers to familiarise themselves with school-wide and classroom procedures including organisation, management, planning and assessment. They were also encouraged to begin developing relationships with students, families and colleagues.

When the preservice teachers returned to the same classroom for Part B the emphasis was on synthesising their learning from the coursework and previous placements through classroom practice and reflection. The preservice teachers were expected to take responsibility for planning, teaching, learning and assessing in collaboration with their associate teacher. Thus, on practicum the preservice teachers were transitioning from being a tertiary student to becoming a provisionally registered teacher (PRT). Part of becoming a
PRT requires the teachers to use assessment strategies and analysis of the classroom students’ assessment data to inform their teaching and planning.

The eight preservice teachers were all in different schools for their third year practicum. All the schools were in the metropolitan area of a large New Zealand city, each comprised more than 450 students and they had a range of decile ratings\(^2\). Relevant information about the schools is summarised in Table 4. The first five schools listed participated in the research study and the last three schools did not participate:

\(^2\) In New Zealand, decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities whereas decile 10 schools are the 10% of schools with the lowest proportion. Decile ratings are the way in which the MOE allocates funding. The lower the decile rating, the more funding a school receives.
### Table 4: Preservice teachers' third year practicum schools

<table>
<thead>
<tr>
<th>Preservice Teacher</th>
<th>School</th>
<th>School Details[^3]</th>
<th>Decile rating</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>Magnolia</td>
<td>Yr 1-6 Contributing Primary State[^4]</td>
<td>Nine</td>
<td>619</td>
</tr>
<tr>
<td>Angela</td>
<td>Hibiscus</td>
<td>Yr 1-8 Full Primary State</td>
<td>Ten</td>
<td>521</td>
</tr>
<tr>
<td>Katelyn</td>
<td>Camellia</td>
<td>Yr 1-8 Full Primary Private[^5]</td>
<td>Ten</td>
<td>480</td>
</tr>
<tr>
<td>Penny</td>
<td>Frangipani</td>
<td>Yr 1-6 Contributing State</td>
<td>Ten</td>
<td>819</td>
</tr>
<tr>
<td>Scarlett</td>
<td>Azalea</td>
<td>Yr 7-13 Intermediate/Secondary Private</td>
<td>Ten</td>
<td>1,692</td>
</tr>
<tr>
<td>Carmen</td>
<td>Bougainvilea</td>
<td>Yr 1-6 Contributing Primary State</td>
<td>Three</td>
<td>499</td>
</tr>
<tr>
<td>Maryanne</td>
<td>Wisteria</td>
<td>Yr 1-8 Full Primary State</td>
<td>Three</td>
<td>614</td>
</tr>
<tr>
<td>Rasela</td>
<td>Clematis</td>
<td>Yr 1-8 Full Primary State</td>
<td>Two</td>
<td>464</td>
</tr>
</tbody>
</table>

**Ethical considerations**

Ethical issues in all educational research approaches can be complex but sometimes qualitative research requires a greater sensitivity to ensuring involvement is not harmful to participants in any way (Cohen et al., 2011; Creswell, 2008; Punch, 2009). For example, Kvale and Brinkman (2009) stated that in interviews the human interaction could affect the interviewees, resulting in stress or changes in self-understanding. In addition, Lindsay

[^3]: A contributing primary school educates students from Year 1 up to Year 6. A full primary school educates students from Year 1 to Year 8. Intermediate schools educate Year 7 and 8 students and are primary schools catering to the intermediate years between primary and secondary education.

[^4]: State schools are fully state funded and are co-educational at primary level. They are governed by a board of trustees elected by parents and caregivers.

[^5]: Private schools may receive some state funding but charge tuition fees and may be co-educational or single sex at primary level. They are owned by private proprietors and governed by an independent board but must be state registered.
(2010) argued that “it is the responsibility of the researcher to take appropriate care to minimize the degree or intrusiveness to that which is necessary for the study and to minimize the risk of negative consequences” (p. 117).

The following ethical principles guided the study:

- informed consent
- avoidance of deception
- voluntary participation and the right to discontinue
- privacy, confidentiality and anonymity
- consideration of power issues
- costs and benefits
- harm and risk
- ownership of data
- use and misuse of results (Bell, 1999; Burns, 2000; Cohen et al., 2011; Flick, 2006, 2007; Lindsay, 2010; Mutch, 2005; Punch, 2009).

**Informed consent**

Ethics approval was sought and received from the University of Auckland Human Participants Ethics Committee to conduct every aspect of this study. Participant information sheets were supplied to the eight preservice teachers, one assessment teacher educator, five associate teachers and five principals and school leaders who were participants in this study. Consent forms were signed and received from all these participants. Participation information sheets were also given to the principal and board of trustees of each of the five practicum schools involved who signed and returned the consent forms. Furthermore, a participant information sheet and consent form was also prepared for the Dean of the Faculty of Education. The Dean agreed that participation of the preservice teachers and teacher educator would not affect their relationship with the university, and gave permission to the researcher to visit the university and practicum schools to gather data. No research was conducted with children or participants under 16 years of age.

**Privacy, confidentiality and anonymity**

The privacy and confidentiality of all participants was respected. All documentation was kept confidential. The participants personally selected pseudonyms. These were used so that they would not be identifiable in any publication or dissemination of information. However,
as there was a possibility that some of the participants could identify each other from the data provided, they were asked, and consented, to protect the anonymity of other participants in the study (Miles et al., 2014).

Every interview was conducted in a private office or classroom in which the only two people present were the researcher and the interviewee. Permission was granted by all the participants for the researcher to electronically record the interviews. All transcription of electronic recordings was done by the researcher which helped preserve confidentiality. All participants were offered the opportunity to correct, amend and make additions to the interview transcripts if they wished. Two principals/school leaders and two associate teachers requested that their transcripts be sent to them for checking. After reading their transcripts none of those four participants asked for any changes. The transcripts were identified by a code and kept separate from the electronic recordings and any other identifying material. Storage of all data gathered was accessible only by the researcher and her supervisors.

Minimisation of risk

The researcher was aware that gaining information from participants through interaction and response could put her in a position of power or a perception of such by others (Miles et al., 2014). This awareness led to the researcher’s decision not to be in the practicum schools during the final practicum. This was a period of high-stakes assessment for the preservice teachers during which time they were being evaluated by a number of people in regards to passing or failing their final practicum. Thus, the interviews with the participating practicum associate teachers and principals or school leaders were conducted before the preservice teachers went on their final practicum. This was to ensure that the preservice teachers did not perceive those interviews as evaluative of them in any way or affecting their assessment in respect of final practicum learning outcomes.

The researcher endeavoured to treat all participants with courtesy, fairness, respect for truth and respect for persons (Bassey, 1999; Flick, 2007). She strove to be sensitive to the cultures of each participant. As she gathered data and interacted with all participants, the researcher constantly reflected on her words and actions (Flick, 2006). If the researcher had any concerns or questions she put it in writing and emailed her supervisors or discussed it
with them and took their advice on the matter. Nothing emerged that required a change to the original ethics application or a need to seek further ethical approval.

**Data collection procedures**

Data were collected from the four groups of participants through 43 semi-structured interviews and collection of artifacts and documents relevant to the teaching and learning of assessment. This occurred in both the university and school settings (see Appendix D for a summary of the data collection methods and the time frame in which they occurred). In every interview the researcher was aware of the time constraints on all the participants. Accordingly the interviews were planned to take approximately 30-40 minutes and no interview exceeded 60 minutes which was the maximum time allowed. Conducting the interviews in a quiet office meant there was minimal background noise which helped ensure the quality of the audio recordings. The digital recorder was placed close to participants and they were asked to speak up if necessary (Poland, 2002; Silverman, 2010). Interview sheets were prepared in advance, including all the questions from the interview schedules, so that notes could be made to complement the audio transcripts (Bassey, 1999).

**Preservice teachers**

Semi-structured interviews were conducted with the eight preservice teachers at four different times during their third and final year of teacher education to gather data on their assessment beliefs, understandings and practices and any changes that had occurred. The interviews occurred at a time outside of lectures and tutorial times in a private room at the university campus. The times these interviews took place were:

- near the beginning of the university academic year
- before going out on the final school practicum
- immediately after returning from the final school practicum
- at the end of the university academic year.

At each interview the preservice teacher participants were asked to bring assessment materials for discussion. They were asked why they chose those particular examples of assessment artifacts, tools or documents and how they influenced or affected their assessment beliefs, understandings and practices. In the final interview, the preservice teachers were asked to reflect on the impact of their university coursework and school
practicum experiences related to assessment practices. They were also asked to evaluate how prepared they felt in using assessment in their own classroom as beginning teachers (see Appendix E for the interview schedules for the preservice teacher interviews). The assessment materials selected by the preservice teachers related to both their roles as students learning about assessment and as teachers using assessment to improve teaching and learning. Artifacts or documents collected from the preservice teachers included: course readings, their own marked assignments with grades and feedback, lesson plans and unit plans, assessment rubrics, written feedback from associate teachers on the preservice teachers’ assessment practices, school assessment documentation, examples of student work that demonstrated assessment practices and preservice teachers’ portfolios providing evidence of attainment of GTS.

**Assessment teacher educator**

A semi-structured interview was carried out with teacher educator who taught the assessment methods course to the preservice teachers participating in this study. The interview was to ascertain the teacher educator’s assessment beliefs, understandings and practices of assessment. Questions also included how assessment was modelled and taught within the programme, including coursework and assignments (see Appendix F for the interview schedule for the teacher educator). The interview was conducted during the preservice teachers’ final practicum while they were away from campus. It was at a convenient time for the teacher educator in her office on campus.

Some teacher education programme artifacts and documents related to the teaching and learning of assessment were collected. These included information about the three year Bachelor of Education programme, the assessment course outline and the final practicum booklet that set out learning outcomes and professional expectations, including assessment criteria.

**Principals/School leaders**

As mentioned previously, the interviews at the schools were held before the preservice teachers commenced their final practicum (Part B) in the middle of the school year. A semi-structured interview was conducted with the five participating principals or school leaders with responsibility for assessment. The main aims of the interview were to ascertain the school-wide assessment policies and procedures, expectations of teachers’ assessment
beliefs, understandings and practices and the school leaders’ perceptions regarding the role of the practicum school in assessment education (see Appendix G for the interview schedule for the principals/school leaders). All the interviews were conducted in a private office, at a time during the school day that was suggested by the participants.

Only a few artifacts and documents were collected during these interviews. They included a school-wide yearly overview of assessment, detailed assessment timelines for each of the four terms within the school year and information provided by one school to parents on assessment for learning, curriculum levels, National Standards and overall teacher judgements.

**Associate teachers**

A semi-structured interview was carried out with the five participating associate teachers. The questions focused on their own assessment beliefs, understandings and practices, as well as their perceived role in teaching preservice teachers how to use assessment (see Appendix H for the interview schedule for the associate teachers).

The interviews were conducted in the classrooms of the associate teachers or in a private office, either during the lunch hour or after school whichever suited them best. Some examples of student work that had been assessed, including assessment rubrics and written feedback, were shown to the researcher while associate teachers were describing their assessment practices.

**Data analysis**

In order to find meaning in the data collected, analysis is conducted to arrange and present the information in a systematic way to make sense of it and to answer the research questions (Creswell, 2008). In qualitative research, the study of human behaviour and social interactions provides a richness and complexity which results in multiple perspectives and practices in the analysis of qualitative data (Gibson, 2010; Miles et al., 2014; Punch, 2009). In respect of case study research, Bassey (1999) described data analysis as “an intellectual struggle with an enormous amount of raw data in order to produce a meaningful and trustworthy conclusion which is supported by a concise account of how it was reached” (p. 84).
As soon as data collection commenced in this study the researcher started the process of analysis and interpretation (Ezzy, 2002; Silverman, 2010). Thus, the analysis of data during the different collection times was an iterative process involving constant reflection on each field experience. Each interview was fully transcribed by the researcher herself as soon as possible to enhance the trustworthiness of the data (Poland, 2002). This avoided potential challenges to transcription quality from other transcribers such as misinterpreting words and phrases, unfamiliarity with the content, ‘tidying up’, interpretive decisions that alter the meaning and confusion in transcription conventions (Cohen et al., 2011; Poland, 2002). The researcher was able to refer to her field notes made during each interview if there was any aspect of the audio recording that needed clarification. It was important to transcribe the participants’ words as accurately as possible because the researcher wanted to give them a voice and relay the richness of data and detail in their exact words (Cohen et al., 2011). Nonetheless, it is acknowledged that the researcher’s decisions in selecting and editing parts of the interview transcripts that appear in this thesis impact on the presented ‘voice’ of the participants (Braun & Clarke, 2006).

During and after transcription, the researcher began to explore the data by making notes in analytic memos on interesting responses or questions prompted by the text (Creswell, 2008; Richards, 2005). The transcriptions were read through several times, as was other data in the form of field notes, artifacts and documents. This helped with development of overall impressions and the researcher noted any similarities and contrasts, questions arising, emerging themes and connections to the literature (Kvale & Brinkman, 2009; Yin, 2011).

**NVivo computer-assisted data analysis**

The transcriptions, observation data and scanned copies of any artifacts were then imported into a qualitative data analysis software package called NVivo (Bazeley, 2007). This computer programme provided a means for storing the data in an organised file system and applying a coding system to the data, built around a number of themes (Creswell, 2007; Flick, 2006). There was a large amount of data and using NVivo allowed for more complex coding and helped with comparisons among code labels, building levels of analysis and providing a visual picture of codes and themes (Creswell, 2007; Gibson, 2010; Richards, 2005; Silverman, 2010). NVivo uses nodes which are containers for evidence and ideas about one particular category or theme (Bazeley, 2007). These nodes can be organised in
hierarchies with the parent node at the top being the general concept and the child nodes below being more specific aspects of that concept.

An additional research journal was kept in NVivo to record issues with coding and questions arising. Brief summaries of each interview were also recorded in the NVivo research journal. Nevertheless, the researcher was aware of Ezzy’s (2002) caution that while computer-assisted data analysis can increase efficiency in organising and coding data, it does not “replace the interpretive, integrative, artistic and aesthetic components of the analytic process” (p. 135). Similarly, Yin (2011) reminded researchers that they still have “to do all the analytic thinking” (p. 180). Consequently, the first cycle of coding was done manually and this is explained in the following section.

An approach to qualitative data analysis

Qualitative research may be conducted in multiple ways, thus there are many approaches to qualitative data analysis. With such diversity in approaches there is no one right way of analysing and presenting qualitative data however the importance of scholarly rigour and discipline is still a central feature (Cohen et al., 2011; Punch, 2009). The type of analysis is dependent on the purpose for which it is used and how the data is to be presented. For example, grounded theory is a methodological approach used to build theory through the analysis of data (Corbin & Strauss, 2008). Open, axial and selective coding strategies are used to conceptualise, categorise and link the raw data. The naming of the codes is based on the concept indicated by the data or participants’ conceptions. Accordingly, theory is developed inductively from the data in order to explain the data (Punch, 2009). Another approach is discourse analysis whereby transcripts of conversations or written texts can be examined to see how different levels of meaning are constructed (Cohen et al., 2011). Neither approach was considered the most appropriate for this research study as the purpose was not to build theory or examine how discourse shaped knowledge or power. Rather, the purpose of the data analysis was to explore and interpret how learning occurred. The richness of qualitative data means that different stories and conclusions can be derived by different analysts or even the same analyst. The story that is derived from the data is dependent on the analyst’s perspective (Corbin & Strauss, 2008). In this study, instead of building theory from the data (as in grounded theory) or examining how societal discourses might have shaped assessment learning (for example), the three principles of how people
learn (Bransford et al., 2000) were used as a theoretical lens through which to interpret the participants’ thoughts, feelings and ideas.

The qualitative data analysis was conducted using an interactive model comprising of three interwoven streams of analysis activity as a continuous, iterative process: data condensation, data display and drawing and verifying conclusions (Miles et al., 2014). The analytic process included a thematic analysis using both deductive coding developed from the theoretical lens and inductive coding arising from the data. Thematic analysis can be used as “a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex, account of data” (Braun & Clarke, 2006, p. 78). It is a way of identifying and reporting patterns or themes within the data. In contrast, Bazeley (2009) cautioned that thematic analysis is meaningless if it only presents themes in sequence with no links “to form a coordinated picture or an explanatory model” (p. 9).

Two criticisms of thematic analysis are, first, that themes ‘emerge’ or are ‘unanticipated’ when this is often not always the case and, second, it implies a passive analysis process rather than the active role of the researcher in identification and selection of patterns or themes (Bazeley, 2009; Braun & Clarke, 2006). While description is an initial aspect of data analysis, it must go beyond description into interpretation of the data. Thus, the researcher's analytic process in this study is described using the Miles et al. (2014) interactive model of qualitative data analysis. It was not a linear process as the researcher went backwards and forwards between condensing the data through coding and displaying the data in numerous forms then going back to the data to confirm or disconfirm any conclusions being drawn.

**Data condensation**

Data condensation is a process that occurs continuously throughout a qualitative research project and involves “selecting, focusing, simplifying, abstracting, and/or transforming the data that appear in the full corpus (body) of written-up field notes, interview transcripts, documents, and other empirical materials” (Miles et al., 2014, p. 12). The purpose is not to reduce the data but rather to sort and organise the data so that conclusions can be drawn and reported. Deciding which parts of the data to code, which to discard, how to label chunks of data and which parts to cluster together to answer the research questions are all analytic choices a researcher must make. Miles et al. (2014) proposed a two-stage process of first and second cycle coding that moved from assigning labels to chunks of data to identifying
pattern codes or themes. The following two sub-sections describe how the coding process was carried out in this study.

**First cycle coding**

Despite intending to use the NVivo software programme to help with data analysis, the researcher was more comfortable manually coding the transcripts in the first iteration of coding. This was probably because she was unfamiliar with NVivo and had to learn how to use it at the same time as coding a significant amount of data. Initially doing the coding manually meant the focus could be on the thinking, reflecting and decision making required. Cohen et al. (2011) stated it was humans not computers who “still needed to decide and generate the codes and categories, to verify and interpret the data” (p. 544). Prior to coding there was an informal set of codes created based on: (a) the research question and sub-questions; (b) assessment literature, including the New Zealand context; (c) the theoretical framework of how people learn, including prior knowledge and beliefs, factual knowledge about assessment and metacognition; and (d) the researcher’s own knowledge, understandings and experience of classroom assessment. The researcher was open to codes that emerged during data collection and analysis, as well as the participants’ own words. Accordingly, combinations of provisional, descriptive and in vivo codes were used so the codes were created through both processes of deductive and inductive coding (Miles et al., 2014).

After going through the first transcript from the first set of preservice teachers’ interviews, a set of codes began to evolve. Questions were noted about coding such as difficulties with differentiating between two codes, for example, preservice teachers use of standardised testing and their use of assessment tools. The next preservice teacher’s transcript was read, more codes were added and queries or decisions about coding noted. Each time the extended set of codes was typed up the codes became more grouped together based on similarities or links. This was helpful because so many codes emerged that it became difficult to remember them all which increased the risk of inconsistency. However, the manual coding was just a first step before the researcher put all the transcripts and artifacts into NVivo which was expected to make it more manageable. The researcher also went back and checked the first few transcripts with the final set of manual codes. In addition, more codes were added after going through the transcripts of the other three sets of auxiliary participants, for example,
resourcing, target setting and teacher professional development. At the conclusion of the manual coding there were 167 codes.

**Second cycle coding**

The purpose of the second cycle of coding was to cluster the codes into a smaller number of categories or patterns that might provide a type of map for understanding incidents, actions and interactions that suggested emerging themes. This was also a form of data display. Accordingly the codes were grouped under the following headings and sub-headings:

- Assessment
  - Formative
  - Summative
- Principles of assessment
- Purposes of assessment
  - Inform teaching
  - Improve/support student learning
  - Measure student outcomes
- Practices of assessment
- New Zealand educational assessment context
- Teacher education programme
  - University coursework
  - School practicum
- Preservice teachers and assessment
  - Beliefs/understandings
  - Prior knowledge/experiences
  - Linking theory and practice
  - Metacognitive strategies
  - Preservice teacher assessment actions.

However, this set of groupings was problematic in that there was an emphasis on assessment theory or what assessment is, rather than how the preservice teachers learned about assessment. After conducting the interviews with the preservice teachers it was apparent that they had learned about assessment during their teacher education programme. Consequently, how learning occurred became the main consideration when moving on to using NVivo for building levels of analysis. When creating the parent nodes and child nodes
for coding in NVivo the researcher was therefore more focused on how this change, development and growth had occurred, which was consistent with the three principles of how people learn (Bransford et al., 2000). By having this focus and keeping in mind the research questions when coding in NVivo, the researcher realised the impact that coding had on determining what could be asked of the data. Thus, keeping in mind a list of potential questions to ask of the data helped with decision-making related to coding. Coding was attached to chunks of text rather than single utterances due to the rich type of data and the added context.

After re-coding in NVivo there were 79 codes (child and grandchild nodes) clustered under nine thematic categories or patterns (parent nodes). Each node was given a description to define what was meant by that concept (see Appendix I for these thematic nodes and their descriptions). It became apparent that the frequency of references or responses coded to particular parent and child nodes varied considerably. As this was possibly useful further in the analysis process, a node coding frequency spreadsheet was created listing the frequency of parent, child and grandchild nodes in descending order (see Appendix J for this coding frequency spreadsheet).

Data display

Creating visual formats to understand the condensed data in a systematic and coherent manner enables users to conduct further analysis or draw conclusions. Miles et al. (2014) argued that “you know what you display” (p. 108). Qualitative data can be displayed in numerous formats. In this study, the researcher found displaying data in different ways to be a significant aid to thinking, reflection and understanding. Sometimes it was informal drawings or diagrams that were either kept, built upon or discarded, while others were more detailed. The following brief examples provide insight into the different types of data display created by the researcher using a mixture of Word, Excel and NVivo. They also demonstrate an immersion in the data at different times of the analysis process:

- **Summaries of interview responses:** After transcribing each set of interviews, a summary of responses was typed up using bullet points under headings related to the interview questions. This promoted a beginning awareness of the data.
• **Colour coding of research questions:** The five research sub-questions were colour coded and linked to every question in the interview schedules, some of which linked to more than one of the sub-questions. Five rubrics were created for each of the sub-questions and the relevant responses to the linked interview questions were included in the left-hand column. The right-hand column provided space for some initial coding, thoughts, questions and ideas connecting the data to the research questions.

• **Development of timelines:** During the initial manual coding process, notes made began to reveal some critical incidents, experiences and reflections that had particular impact on the individual preservice teachers. At the same time, there were commonalities that were also emerging. A rubric was created to track these instances through the three years of the preservice teacher programme. These rubrics were added to during the NVivo coding process. They developed into individual timelines and became a useful tool for noting change and discovering similarities and differences in how each preservice teacher learned about assessment. A summary of the timelines provided an overview that confirmed sequences and timing, as well as confirming or disconfirming patterns. The eight timelines are presented in Chapter Four.

• **NVivo coding under nodes:** One of the benefits of using a software programme like NVivo is the ability to organise and access the data in flexible ways (Bazeley, 2007; Richards, 2005; Silverman, 2010). All the data sources such as interview transcripts and assessment artifacts were imported into the programme and were easily accessible. There were two sets of nodes. The participant nodes contained all the data relating to each participant in one place. The thematic nodes contained all the chunks of data codes to each particular node. Having the data displayed in different ways depending on the questions being asked of it was very helpful in analysis and reporting evidence.

**Drawing and verifying conclusions**

From the beginning of data collection, a qualitative researcher starts to interpret meaning and form tentative conclusions (Ezzy, 2002). This usually occurs concurrently with data condensation and data display, although any final conclusions are likely to be drawn following this iterative and cyclical process. All proposed conclusions need to be verified.
The issue of the quality of the conclusions reached in this study is discussed in the following section on trustworthiness. By applying Miles et al.’s (2014) tactics for generating meaning which were relevant to this study, conclusions were drawn by:

- **Noting patterns, themes:** Patterns were noticed in evidence from the preservice teachers’ interviews and artifacts. Aspects of their university coursework and school practicum experiences particularly influenced their learning about assessment. Supporting evidence came from the data sets of other participants. These patterns were developed into eight themes that form the basis of the findings in Chapter Five.

- **Counting:** Displaying the node coding frequency led to tentative conclusions regarding the importance of elements such as: school practicum, assessment course, prior assessment beliefs, associate teacher support, practising assessment and preservice teachers’ metacognition. Further analysis resulted in final conclusions including some of these elements.

- **Making contrasts/comparisons:** The individual timelines enable comparisons to be made between individual preservice teachers and also particular aspects of the teacher education programme.

- **Making conceptual/theoretical coherence:** Through the data analysis approach used in this study, links to the theoretical framework of how people learn were apparent, namely: prior knowledge and beliefs, developing a foundation of factual knowledge within a conceptual framework of applying that knowledge and the development of metacognition.

**Trustworthiness of the study**

The concept of trustworthiness is an important way to assess qualitative research, particularly in case study where concepts such as validity and reliability may be difficult to examine (Bassey, 1999). Trustworthiness includes being able to judge the quality of decisions leading to conclusions and the authenticity of findings. In a critique of 91 empirical studies that were included in a literature review on learning to teach, Wideen et al. (1998) stated “research is trustworthy if the conclusions are faithful to the data” (p. 162). It is a critical element of effective research to be able to show that the research methods,
analysis and conclusions are justifiable. The researcher must be able to clearly document research decisions, research design, data-gathering and data-analysis techniques and an ethical approach (Marshall & Rossman, 2011; Mutch, 2005).

In response to the traditional criteria of validity, reliability and objectivity mostly associated with quantitative research, Lincoln and Guba (1985) proposed four constructs of credibility, transferability, dependability and confirmability for assessing qualitative research. Currently, there is still ongoing disagreement amongst qualitative researchers about whether it is possible to set standards or criteria for what constitutes good qualitative research (Miles et al., 2014). Nonetheless, Lincoln and Guba’s (1985) criteria are examined in respect of this study to establish its trustworthiness.

**Credibility**

Credibility occurs when ‘truth value’ is demonstrated through the findings and the interpretations being credible to the participants and readers of the research study (Lincoln & Guba, 1985; Miles et al., 2014). Accurately conveying the different parts of the research process to ensure credible findings are produced is a central aspect of reporting qualitative research (Toma, 2011). Yin (2011) argued that “the research procedures should be transparent” [emphasis in original] (p. 19). In this study a variety of activities and strategies were used to demonstrate credibility.

Two activities used in this study to increase the credibility of the findings were prolonged engagement with the data sources and persistent observation of emerging issues. Lincoln and Guba (1985) stated “if prolonged engagement provides scope, persistent observation provides depth” (p. 304). The data collection period in this study was carried out over one tertiary academic year and the main participants, the preservice teachers, were interviewed four times during that year. This enabled sufficient time for the researcher to be immersed in the study and build trust with the participants. Persistent observation of the case of preservice teachers learning about assessment over the entire research process enabled identification of elements that were relevant and those that were not.

Triangulation is the process of verifying evidence from two or more data sources to increase the credibility of a study (Creswell, 2008). In this study sources of evidence were from four different sets of participants, different types of data in the form of interviews, field notes and
artifacts, and the two methods of data collection from interviews and artifacts. Drawing on multiple sources of evidence can be particularly useful in case study research such as this in which it emerged that learning about assessment was a complex process (Cohen et al., 2011). For example, the researcher’s confidence in the findings was enhanced by converging evidence, on the whole, from the different sets of participants. On the other hand, any disconfirming evidence was examined for meaning and also reported in the findings. The interview transcripts were offered to the participants for ‘member checks’ to ensure their ideas, thoughts and perceptions had been accurately captured (Flick, 2006). Only four of the 19 participants asked for their transcripts and none requested any changes. The researcher sought clarification of the participants’ thoughts and experiences if necessary during interviews (Ezzy, 2002). It was not practical, nor possible in most cases, to ask the participants to check if the findings were a fair representation later on in the study (Richards, 2005).

This study also had the benefit of being nested within the larger national LTBACT study of preservice teacher assessment learning, as described earlier, and was subject to in-project triangulation (Cohen et al., 2011). Thus, triangulation was also possible between the findings of the large national study and the detailed case study of a smaller group of the same cohort. This is an example of triangulation where findings from a larger study used different methods and the findings from that study were used to confirm those in the study reported here. It also led to further questions being raised when unexpected findings or dissonance occurred.

Peer debriefing with someone who is very knowledgeable about the field of inquiry and the methodological issues is another technique for establishing credibility recommended by Lincoln and Guba (1985). This debriefing mainly occurred with the researcher’s academic supervisors regularly throughout the research process and was critical to her development as an emerging researcher. They questioned different aspects of the research process, often playing ‘devil’s advocate’ to push the researcher to defend her findings and decisions or consider alternatives (Bassey, 1999; Thomas, 2006; Toma, 2011). Records were kept of these meetings and form part of the audit trail. Lincoln and Guba (1985) suggested supervisors should not be debriefers due to potential issues such as the authority relationship or damaging criticism. However, at the start of this study a Supervision Expectations
document was co-constructed setting very clear guidelines that prevented such issues arising.

Coder consistency was achieved by supplying extracts of transcripts to one of the researcher's supervisors, along with codes and coding descriptions (see Appendix I, Thematic nodes and descriptions). When she coded these samples against the codes and descriptions, in most instances the coding was identical. Both the researcher and supervisor discussed and negotiated any differences and came to agreement (Richards, 2005). In addition, being a research assistant on the LTBACT study provided the researcher with opportunities to present and discuss her findings with experts in the field of assessment education, both nationally and internationally. She was able to monitor her methodological and analytic decision making against those of experienced academics and researchers involved in the LTBACT study.

Reflexivity during data collection and analysis is an active process that enhances credibility (Corbin & Strauss, 2008). It involves researchers thinking about how their beliefs, values, biases, actions and decisions impacted on the processes and outcomes of their studies (Simons, 2009). The researcher regularly reflected on her actions and responses to participants. For example, in this study the researcher got to know the preservice teachers over quite a long time period. Positive relationships were quickly established in the first interview. There was a sense of trust from the participants that was evident in their willingness to share their stories, thoughts and ideas. This was possibly helped by the researcher having had a similar teacher education pathway as many of the preservice teachers, that of being a mature student with a family and no previous university education. Corbin and Strauss (2008) argued that accumulated knowledge and experiences can create a sensitivity that allows the researcher to “see the issues and problems from the perspective of participants” (p. 32). However, remaining friendly without becoming a friend was difficult at times (Simons, 2009). It was important to ensure the researcher’s sensitivity in this study did not influence the evidence selected and the representation of the participants’ experiences and interpretations. In addition, the possibility of researcher effects on what the participants chose to share was counteracted by having a number of interviews over time (Miles et al., 2014). Furthermore, the researcher was an individual doctoral student, as opposed to being a teacher educator, and therefore had no perceived influence over the participants’ teacher education (Wideen et al., 1998).
Transferability

In qualitative case study research, the emphasis is on the individual case rather than being able to generalise the findings. Nevertheless, transferability can be established when there is sufficient description of the context to enable judgments about whether the findings and conclusions could be transferred to another context (Lincoln & Guba, 1985; Toma, 2011). Case study often provides the thick description needed for transferability “in order to make clear the complexities of the context” (Lincoln & Guba, 1985, p. 214). Previously in this chapter, descriptions of each context or setting, participants and data collection procedures were provided. In Chapter Five, the findings provide rich descriptions of the participants’ voices as well as their perceptions. This should enable readers to evaluate the potential for transferability to other settings (Miles et al., 2014).

Dependability

Dependability has been likened to the concept of replication as a way of establishing reliability (Lincoln & Guba, 1985). In qualitative research it is not intended that the results are replicable but that the data collection and analysis are consistent and stable so that other researchers can follow the research process (Toma, 2011). In this study, dependability was demonstrated through provision of a chain of evidence of the research process. The research question and sub-questions were clear, the study design was consistent with the questions and the theoretical framework was appropriate (Miles et al., 2014). There is a sound explanation of the research methods and triangulation occurred through multiple sources of evidence.

Confirmability

Confirmability establishes that the data, findings, conclusions and recommendations can be confirmed by someone other than the researcher (Lincoln & Guba, 1985). An audit trail was created by the researcher that would allow another person or 'external auditor’ to examine the processes and outcomes of the study including all associated products of data collection and analysis. The researcher endeavoured to be reflexive and explicit about any personal beliefs, values and biases that may have influenced the study or affected the participants (Miles et al., 2014; Simons, 2009). To assist with reflexivity, the researcher kept research journals throughout the research process. These also formed part of her audit trail (Lincoln & Guba, 1985). They detailed questions, ideas, first impressions, emerging themes or
patterns and reflections (Creswell, 2008; Punch, 2009). There were notes about journal articles or academic texts that were relevant or stimulated thinking. Summaries of supervision meetings were included that documented progress, challenges, ideas to explore, new questions and next steps. The journals also recorded tangents taken or pathways gone down that turned out to be the wrong ones.

All this reflexive information was particularly useful for wrestling with research questions, methodologies, theoretical frameworks and approaches to analysis. The journals included handwritten and typed notes, diagrams, sticky notes, literature references, highlighted pieces of text, asterisks and so on. They could be considered a type of analytic memo as they aided the researcher’s decision making although they do not necessarily record a linear or ‘tidy’ progression of thinking (Miles et al., 2014; Mutch, 2005; Richards, 2005). Instead the research journals became a ‘messy’ record of the researcher’s thought processes and academic development. Hence, they also became a type of metaphor for the research process. Nevertheless, the research journals proved to be a significant aid for the researcher’s thinking and therefore an important part of analysis. They would also provide an external auditor with insight into the research study.

Summary

To answer the research questions, a qualitative case study approach was undertaken within an interpretive paradigm. The interpretive research process focused on the meanings the participants brought to their experiences of assessment education. A qualitative methodology was an appropriate way to enhance understanding of the complexities of teaching and learning assessment through attending to the perspectives of the participants and using multiple sources of data. Employing a case study approach further enhanced an in-depth exploration of the case from multiple perspectives.

Detailed description of the qualitative research methods, participants and settings were provided. Qualitative data analysis was conducted using an interactive model and described comprehensively. The trustworthiness of the study was demonstrated through applying the criteria of credibility, transferability, dependability and confirmability to the research process. Chapter Four and Chapter Five present the qualitative findings of the study.
CHAPTER FOUR:
Individual assessment learning – similar but different pathways

Introduction

During data analysis, one way of looking at the information was to make timelines of the preservice teachers’ learning and experiences based on their responses during the four interviews. The timelines included their beliefs and experiences about assessment prior to beginning their three year teacher education programme and at completion. Particular incidents relating to university coursework and their school practicum in each of the three years were briefly recorded.

The purpose of constructing the assessment timelines was to identify and understand any patterns and particular elements of the teacher education programme that had impacted the preservice teachers’ learning about assessment. This included similarities and differences in respect of each individual. Following the timelines below, the patterns are synthesised. The abbreviations used in the timelines are explained in Table 5.

Table 5: Abbreviations used in preservice teachers' assessment timelines

<table>
<thead>
<tr>
<th>Abbrev.</th>
<th>Explanation</th>
<th>Abbrev.</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>Associate teacher</td>
<td>BOT</td>
<td>Board of trustees</td>
</tr>
<tr>
<td>ESOL</td>
<td>English for speakers of other languages</td>
<td>FA</td>
<td>Formative assessment</td>
</tr>
<tr>
<td>fb</td>
<td>Feedback</td>
<td>ff</td>
<td>Feed forward</td>
</tr>
<tr>
<td>NRR</td>
<td>Notice, recognise, respond</td>
<td>SA</td>
<td>Summative assessment</td>
</tr>
<tr>
<td>TEP</td>
<td>Teacher education programme</td>
<td>VL</td>
<td>Visiting lecturer</td>
</tr>
</tbody>
</table>
# Assessment timelines of eight preservice teachers

## Table 6: Abigail timeline

<table>
<thead>
<tr>
<th>Learning about assessment timeline - Abigail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prior to Teacher Education Programme (TEP)</strong></td>
</tr>
<tr>
<td><strong>Year 1:</strong></td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>1 week Prac – April</td>
</tr>
<tr>
<td>5 week Prac – Oct/Nov (Year Level 3/4)</td>
</tr>
<tr>
<td><strong>Year 2:</strong></td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>5 week Prac – May/June (Year Level 7)</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td><strong>Year 3:</strong></td>
</tr>
<tr>
<td>3 week Prac – Jan/Feb</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>7 week Prac – July/Aug (Year Level 4)</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td><strong>End of TEP:</strong></td>
</tr>
<tr>
<td><strong>Post TEP:</strong></td>
</tr>
<tr>
<td>Table 7: Angela timeline</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
</tbody>
</table>

### Learning about assessment timeline - Angela

<table>
<thead>
<tr>
<th>Prior to Teacher Education Programme (TEP)</th>
<th>No preconceived ideas of importance and purposes of assessment – 25 years since at school. Remembers teachers did not walk around asking questions, students were silent.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1:</strong></td>
<td></td>
</tr>
<tr>
<td>Coursework</td>
<td>No knowledge gained of FA and SA or assessment for learning, assessment of learning.</td>
</tr>
<tr>
<td>1 week Prac – April</td>
<td></td>
</tr>
<tr>
<td>Coursework</td>
<td>Observed whole class testing. Year 8 students expected to take more responsibility for learning.</td>
</tr>
<tr>
<td>5 week Prac – Oct/Nov (Year Level 8)</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2:</strong></td>
<td></td>
</tr>
<tr>
<td>Coursework</td>
<td>Assessment course really important but hard. Learned language of assessment. Assessment more prevalent in coursework than in Year 1.</td>
</tr>
<tr>
<td>5 week Prac – May/June (Year Level 2)</td>
<td>Excellent modelling of FA by AT especially observations and using it for grouping. Effective FA occurred in lots of small group work. Angela believed feedback was praise and encouragement.</td>
</tr>
<tr>
<td>Coursework</td>
<td>Feedback on assignments perceived as not always constructive or kind. Consistent message about assessment through coursework courses.</td>
</tr>
<tr>
<td><strong>Year 3:</strong></td>
<td></td>
</tr>
<tr>
<td>3 week Prac – Jan/Feb</td>
<td>AT ripped up student’s work Angela had given a gold star to, upsetting her. On reflection and looking back at coursework fb she realised her fb to students should have been different, directed at work and not ‘fuzzy’. Very important learning incident.</td>
</tr>
<tr>
<td>Coursework</td>
<td>Literacy course assignment useful – plan based on data. Group peer assessment in an elective course very negative experience.</td>
</tr>
<tr>
<td>7 week Prac – July/Aug (Year Level 5/6)</td>
<td>Practised a lot of FA – observations, conversations, questioning, learning intentions, success criteria, self and peer assessment. SA done by AT, did not discuss with Angela. Weekly syndicate meetings very good professional development on using assessment data for planning. VL not focused on assessment.</td>
</tr>
<tr>
<td>Coursework</td>
<td>Hard to focus on coursework after final practicum</td>
</tr>
<tr>
<td><strong>End of TEP:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Post TEP:</strong></td>
<td>Very confident in using FA but concerned about lack of experience with SA and analysing data. Confused about different names and types of tests. Will need guidance but will ask for help and expects to learn once in classroom. Comfortable using language of assessment. Would have liked more access to assessment tools and more practical experiences during TEP.</td>
</tr>
</tbody>
</table>

*Obtained teaching position at Y2 practicum school, Decile 1, Year 2 class.*
Table 8: Carmen timeline

<table>
<thead>
<tr>
<th>Learning about assessment timeline – Carmen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prior to Teacher Education Programme (TEP)</strong></td>
</tr>
<tr>
<td><strong>Year 1:</strong> Coursework</td>
</tr>
<tr>
<td>1 week Prac – April</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>5 week Prac – Oct/Nov (Year Level 8)</td>
</tr>
<tr>
<td><strong>Year 2:</strong> Coursework</td>
</tr>
<tr>
<td>5 week Prac – May/June (Year Level 0/1 – New entrants)</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td><strong>Year 3:</strong> Coursework</td>
</tr>
<tr>
<td>3 week Prac – Jan/Feb</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>7 week Prac – July/Aug (Year Level 4)</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td><strong>End of TEP:</strong></td>
</tr>
<tr>
<td><strong>Post TEP:</strong></td>
</tr>
</tbody>
</table>
Table 9: Katelyn timeline

<table>
<thead>
<tr>
<th>Learning about assessment timeline - Katelyn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prior to Teacher Education Programme (TEP)</strong></td>
</tr>
<tr>
<td><strong>Year 1:</strong></td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>1 week Prac – April</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>5 week Prac – Oct/Nov (Year Level 1/2)</td>
</tr>
<tr>
<td><strong>Year 2:</strong></td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>5 week Prac – May/June (Year Level 5)</td>
</tr>
<tr>
<td><strong>Year 3:</strong></td>
</tr>
<tr>
<td>3 week Prac – Jan/Feb</td>
</tr>
<tr>
<td>Coursework</td>
</tr>
<tr>
<td>7 week Prac – July/Aug (Year Level 7)</td>
</tr>
<tr>
<td><strong>End of TEP:</strong></td>
</tr>
<tr>
<td><strong>Post TEP:</strong></td>
</tr>
</tbody>
</table>
Table 10: Maryanne timeline

<table>
<thead>
<tr>
<th>Learning about assessment timeline - Maryanne</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prior to Teacher Education Programme (TEP)</strong></td>
</tr>
<tr>
<td><strong>Year 1:</strong> Coursework 1 week Prac – April Coursework 5 week Prac – Oct/Nov (Year Level 7)</td>
</tr>
<tr>
<td><strong>Year 2:</strong> Coursework 5 week Prac – May/June (Year Level 5) Coursework</td>
</tr>
<tr>
<td><strong>Year 3:</strong> 3 week Prac – Jan/Feb Coursework 7 week Prac – July/Aug (Year Level 2) Coursework</td>
</tr>
<tr>
<td><strong>End of TEP:</strong></td>
</tr>
<tr>
<td><strong>Post TEP:</strong></td>
</tr>
</tbody>
</table>
Table 11: Penny timeline

<table>
<thead>
<tr>
<th>Prior to Teacher Education Programme (TEP)</th>
<th>Assessment meant doing a test then moving on, even if you did not get it. Does not recall questioning by teacher or teacher-student conversations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1: Coursework 1 week Prac – April Coursework 5 week Prac – Oct/Nov (Year Level 8)</td>
<td>If aspects of assessment were referred to in Year 1 courses it did not click until Year 2 assessment course. Does not recall needing to know about FA and SA for Year 1 courses. Told by lecturer in practicum briefing to observe assessment but did not understand what and why. Told to NRR but did not know what it meant.</td>
</tr>
<tr>
<td>Year 2: Coursework 5 week Prac – May/June (Year Level 2) Coursework</td>
<td>Assessment course taught purposes and importance of assessment, especially FA, questioning and fb. Did social studies course at same time but assessment criteria and marking was not consistent with assessment course teaching. Referred to several readings from assessment course used for reflection and reference on practicum. Not enough discussion about assessment after practicum. Some conflict in learning about assessment and how coursework marked. Science course reinforced FA and next steps but assignment not marked by lecturer so had to request feedback from course lecturer to learn from assignment.</td>
</tr>
<tr>
<td>Year 3: Coursework 3 week Prac – Jan/Feb Coursework 7 week Prac – July/Aug (Year Level 3/4) Coursework</td>
<td>AT modelling effective questioning. Taught to do some standardised tests (PATs and GLoSS). Went back to practicum class weekly to practise running records. Journal article about assessment policy in NZ very thought-provoking, from course on educational politics and philosophy. Questioning a personal goal for improvement on practicum. AT modelled effective observation and questioning. Saw student self-assessment but not peer assessment. Used coursework assignments, lesson plans and resources on practicum. After monitoring and recording data would change planning. Did daily reflections. AT supportive in FA practices. Identified issues with validity and reliability. VL requested specific form of assessment rubric be used which Penny found confusing. Believed lecturers should model the types of assessment they taught.</td>
</tr>
<tr>
<td>End of TEP:</td>
<td>Became more pragmatic than idealistic about assessment during Year 3. FA not automatic but just needs practice. SA will take time, especially data analysis. Penny will continue to focus on improving questioning skills. Now sees assessment part of being an effective teacher, not a separate thing.</td>
</tr>
<tr>
<td>Post TEP:</td>
<td>Obtained teaching position at Y3 practicum school, Decile 10, Year 2 class.</td>
</tr>
<tr>
<td>Prior to Teacher Education Programme (TEP)</td>
<td>Assessment is summative for accountability to government. Negative connotations based on own assessment experience. Not aware of FA.</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Year 1:</strong></td>
<td>Unaware of FA practices, including fb and ff, being modelled or discussed during coursework in lectures or tutorials.</td>
</tr>
<tr>
<td>Coursework</td>
<td>No focus on assessment during Year 1 practicum experiences.</td>
</tr>
<tr>
<td>1 week Prac – April</td>
<td></td>
</tr>
<tr>
<td>Coursework</td>
<td></td>
</tr>
<tr>
<td>5 week Prac – Oct/Nov (Year Level 6)</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2:</strong></td>
<td>Assessment course important in understanding the purposes of assessment and being able to use it effectively. It introduced language of assessment. The fb and ff on assessment course assignments were influential in developing academic writing. Awareness of FA practices being modelled by some lecturers.</td>
</tr>
<tr>
<td>Coursework</td>
<td>AT hindered opportunities to practise assessment. Practicum experience in conflict with coursework learning about FA practices. Difficult to fulfill practicum requirements around assessment due to lack of opportunities.</td>
</tr>
<tr>
<td>5 week Prac – May/June (Year Level 1)</td>
<td></td>
</tr>
<tr>
<td>Coursework</td>
<td></td>
</tr>
<tr>
<td><strong>Year 3:</strong></td>
<td>A lot of standardised testing undertaken by Rasela and used for grouping, in discussion with AT.</td>
</tr>
<tr>
<td>Coursework</td>
<td>Literacy course involved data analysis, grouping, planning and assessment – linking theory/practice.</td>
</tr>
<tr>
<td>7 week Prac – July/Aug (Year Level 7/8)</td>
<td>Understood importance of SA for grouping then ongoing FA. Participation in professional discussions with colleagues – had language of assessment and understanding so felt competent. Constantly using FA, NRR and reflection.</td>
</tr>
<tr>
<td>Coursework</td>
<td>Practicum, including using assessment tools, enhanced understanding of theory more than Y3 coursework.</td>
</tr>
<tr>
<td><strong>End of TEP:</strong></td>
<td>Confident in using assessment as a beginning teacher. Now believes assessment important and understands significance of gathering and using assessment data to inform practice. Believed coursework should have provided more time in classrooms and more exposure to using assessment tools and informing practice based on that – more authenticity.</td>
</tr>
<tr>
<td><strong>Post TEP:</strong></td>
<td>Won Postgraduate Scholarship for Bachelor of Education with Honours. Hopes to do Masters with a focus on Māori/Pasifika education but will get teaching experience first to have credibility. Informally offered teaching position in Y3 Prac school after Honours programme completed.</td>
</tr>
</tbody>
</table>
Table 13: Scarlett timeline

<table>
<thead>
<tr>
<th>Learning about assessment Timeline - Scarlett</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prior to Teacher Education Programme (TEP)</strong></td>
</tr>
</tbody>
</table>
| **Year 1:** Coursework  
1 week Prac – April  
Coursework  
5 week Prac – Oct/Nov (Year Level 1) | Very little on assessment or not aware of it.  
On practicum, subconsciously assessing students’ understanding but did not know she was doing FA. Not focused on assessment but saw observations, oral fb and modelling. Saw self as a student rather than a teacher. |
| **Year 2:** Coursework  
5 week Prac – May/June (Year Level 6) | Assessment course helpful and interesting. Hardest course but most useful. Brief introduction to some assessment tools. Gained understanding of language of assessment, principles and purposes of assessment. A lot to learn all in one course.  
Practicum not focused on assessment. Developing more of a teacher identity. AT did a lot of observing, questioning, FA. Did not see much standardised testing. |
| **Year 3:** Coursework  
3 week Prac – Jan/Feb  
7 week Prac – July/Aug (Year Level 8) | A lot of information gathered by AT for grouping. Observed FA through questioning and teacher fb.  
Not much focus on assessment in Semester 1 courses except literacy course – wrote integrated unit plan including learning intention, success criteria and formative assessment practices.  
Dissonance between private school’s focus on SA and exams and her coursework emphasis on FA (and Practicum 1 and 2 schools).  
Self-focus on assessment this practicum – recording, analysing, reflecting and planning. AT support in practising assessment and creating rubrics. Scarlett asked students for feedback on her teaching. They wanted more feedback. Some VL interest in recording data but not in assessment practice. Without knowing theory, would not have known what she was doing. Practicum helped Scarlett to see how assessment can be used, as well as link theory to practice.  
Year 3 coursework consolidated rather than increased understandings. |
| **End of TEP:** | Shift in understanding from SA $\rightarrow$ FA. Confident in using FA practices, gathering information and using it in own classroom. Still a lot to learn but positive attitude towards taking assessment learning from TEP and adapting it to classroom context. |
| **Post TEP:** | Teaching position obtained in Decile 2 School, Year 7/8 class. Assumes there will be good collegial support for “staying on top of assessment”, monitoring, recording and reporting. Hopes to go overseas later then continue with postgraduate study on return. |
Synthesis of assessment timelines

Prior to the beginning of the teacher education programme, assessment had negative connotations for all the preservice teachers even though they had different education backgrounds and qualifications. They tended to think of it as summative, with little understanding of the importance of assessment or why it was used. The classroom discussions they had experienced as school students themselves, including questioning, were mostly remembered as teacher-controlled. The preservice teachers were also unaware of the concepts of feedback, feed forward and formative assessment. In the first year of the teacher education programme, the preservice teachers believed there was little attention given to the purposes and practices of assessment in coursework or on practicum. Thus, they reported little change in their understandings about assessment during that first year.

At the beginning of the second year, the compulsory assessment course had an important impact on the preservice teachers’ assessment learning. They all commented the course was extremely useful but difficult, due to receiving such a lot of new information in a short time. This included the language of assessment and the different purposes of formative and summative assessment. Some found the content harder to grasp than others, however it was helpful the course was directly followed by their second practicum. On that practicum, six of the preservice teachers were able to link their learning from the assessment course through observing effective assessment practices and four of them had some opportunities to practise assessment themselves. Katelyn said the second practicum reinforced her learning about assessment the most of all her practicum experiences due to her associate teacher’s effective assessment practices and support. Two of the preservice teachers had little or no opportunities to practise assessment on this practicum. At times, they considered their associate teachers’ practices were in conflict with the theory and practice learned in the assessment course. There were also inconsistencies in the content, assessments and teacher educator modelling in some of the other university coursework.

In the third year, there were differences in the impact that coursework and practicum had on individual assessment learning. Seven of the eight preservice teachers found the compulsory literacy course helpful for linking theory to practice particularly because of the integrated unit plan assignment that incorporated assessment. Elective courses provided some preservice teachers with more opportunities to increase assessment knowledge and understanding. For example, these courses included ideas about making assessment an
equitable and inclusive process and exposure to a range of assessment tools. All the preservice teachers had opportunities to practise different types of assessment and use assessment tools on the final practicum, although in varying amounts. Maryanne particularly benefitted from having an associate teacher who was keen to support her assessment learning, as she was lacking confidence and understanding partly due to past practicum experiences. Many of the preservice teachers participated confidently in assessment conversations with their associate teachers and colleagues. Two were in schools that had a strong focus on summative assessment but they used this as a learning opportunity. Their two associate teachers also provided opportunities for them to practise formative assessment. Many of the preservice teachers chose to have a focus on formative assessment practices such as feedback, questioning, NRR, self and peer assessment. Some experienced different ways of including learners in their own assessment, which increased their understanding of SRL, but this was not universal. There were varying levels of support in preservice teachers’ assessment practices from visiting university lecturers in the third and final practicum.

At the end of their teacher education programme, all the preservice teachers believed in the importance of assessment and understood the purposes of assessment. They felt confident in using formative assessment to support learning. The preservice teachers believed they would need guidance in using summative assessment for analysis and reporting of achievement. Nevertheless, as beginning teachers they were willing to ask for help and expected support from colleagues. Despite certain aspects of university coursework and school practicum experiences having different impacts on individual preservice teachers, it seemed the whole group had come to some common understandings about assessment. They also intended to continue growing and developing their assessment learning once in their own classrooms.

This chapter provides evidence that the preservice teachers in this study learned about assessment as a result of a wide range of experiences in university coursework and on school practicum. The assessment timelines provide an overview of the preservice teachers’ learning over the three year teacher education programme. The next chapter provides rich detail of how they learned about assessment through the influence of eight themes that arose from the data.
CHAPTER FIVE:
Influences on assessment learning

Introduction

Following the construction and analysis of the timelines of assessment learning, recursive inductive analysis, as described in Chapter Three, highlighted eight main themes regarding how the preservice teachers learned about assessment during the course of their teacher education programme. In this chapter, each theme is introduced through an illustrative cameo consisting of an excerpt from a transcript of an interview conducted with a preservice teacher. Bransford et al.’s (2000) three principles of how people learn (HPL) are then incorporated into a commentary about each preservice teacher’s learning and signalled in brackets through each commentary using the following indicators:

(HPL1) – Learners bring prior knowledge and preconceptions to new learning:
Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for the purposes of a test but revert to their preconceptions outside the classroom.

(HPL2) – Learners must develop a deep foundation of factual knowledge within a conceptual framework so they can retrieve and apply that knowledge:
To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework and (c) organise knowledge in ways that facilitate retrieval and application.

(HPL3) – Development of metacognition promotes independence in learning and self-regulation:
A ‘metacognitive’ approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them (adapted from Bransford et al., 2000, pp. 14-18).

The cameo is followed by supporting or contrasting evidence from the corpus of the data relating to the theme. Many of the illustrative cameos and associated findings for each theme contain aspects of other themes within them. This highlights the interdependence of the preservice teachers’ learning pathways. However, each cameo was selected as an instance where a preservice teacher had particularly demonstrated learning about assessment related to the theme.
Changing assessment beliefs and understandings

Cameo One: Angela – new understanding of feedback

In the first interview, Angela described herself as a very positive person who was possibly “over-praisey”. She believed in being really careful with the way she spoke to children and that all children should be given praise. Angela was not sure if this was a bad thing but said she did not care because that is the way she was. In the three week practicum at the beginning of the year (Part A), her associate teacher had encouraged Angela to be herself. At the end of the interview Angela was asked if there was anything else she would like to share about her assessment learning. She described an incident from the Part A practicum:

These two children, I actually got them to stay behind at lunchtime to finish their work because it was of a really poor standard. The thing is that I wrote feedback and feed forward then I gave them a gold star because I gave everyone a gold star. The associate teacher said you don’t have to but I said that I wanted to. She ripped the page out of one boy’s book and ripped my feedback and feed forward off the page and said that was unacceptable and he needed to re-do it . . . . It is like you kind of have to be a bit harder than I am. It is really hard but then my AT said to me “You have to be careful because they might want to stay in with you every lunch time” because they both have issues socially as well . . . . I thought it was a bit weird having the page ripped out and the feedback ripped out and then I felt really bad. She said to him “You’ll do this again” but I said “If his parents saw this, what would they think?” He does like red pen which makes me think that he is angry and it is all about guns and stuff and it is kind of a bit tense. (Angela, Int. 1)

At the beginning of the second interview two months later, Angela re-introduced the topic of feedback when she was asked what she had learned about assessment that semester since the first interview:

I’ve just learned that getting feedback along the way is probably more important for me. If you don’t get anything you have no direction. I really enjoy that feedback either verbally or in a written form. It does inspire you to try better or try a different direction in your work. I’ve come into the university in the holidays specifically for an assignment to get that feedback so that I can go forward with my next assignment. That’s how important it is for me, this feedback I am getting as a student.

I looked through some feedback that I’ve given students. I really do need to be careful about that fuzzy feedback. That is something I really need to work on. You are a person and that’s just the way you are but as a teacher I really need to be aware of that. I need to change or adapt who I am to make it more feedback directed to getting them from one place to the next . . . because I only get feedback that is directed to my work. No-one ever gives me fuzzy feedback at university. It is “This is where you are at but this is where you could do better.” You really need that so I think when I go back to practicum I am going to really, really work on giving that directed feedback to the work.

I have had to get over a hurdle where you are not hurting someone . . . so I guess I have changed. There is a need for that honest feedback as long as it is done in a caring, constructive way. Yes definitely a big change in me from Year One to Year Three, just
Angela’s beliefs and understandings about giving and receiving feedback changed during the semester. She realised her belief that all feedback given to children should be positive and encouraging was not always appropriate (HPL1). The catalyst appeared to be the incident she described in interview one where she talked about giving a gold star and positive comment to a boy who had not made an effort with his writing and produced very poor work. Her associate teacher ripped out the page, gold star and all, and made the boy do it again. Angela thought this was terrible at the time. However, on reflection she believed that she was in the wrong by giving fuzzy feedback and undeserved praise. Angela also felt that she gave away her authority as a teacher when the associate teacher stepped in.

After the first interview, Angela went back to some previous written feedback from her associate teachers and university assignments (HPL3). She considered what was useful in helping her learn and what was not. She decided to apply this learning about herself as a student to give effective feedback as a teacher. Consequently, one of Angela’s personal goals on her final practicum was to work on giving specific feedback directed to the work and not the child (HPL3).

Angela’s previously strong beliefs about giving positive feedback, no matter what the context, changed in the space of a couple of months. She credited this to the courses she was currently doing that semester and going in every week to her practicum school thereby getting more experience and knowledge of the students (HPL2). Angela also commented that being a participant in this study had prompted her to reflect on her assessment beliefs and understandings much more than she would have done on her own.
This cameo is an example of a change in one preservice teacher’s beliefs and understandings about feedback, which is considered to be an important aspect of effective assessment. Changes in assessment beliefs and understandings of all eight preservice teachers were apparent in the data and these changes over time are addressed in the next section.

**Prior knowledge and experiences of assessment**

Preservice teachers’ prior knowledge of assessment is generally based on their own experiences of being assessed at school, sometimes not a constructive or positive experience. As the evidence in Chapter Two demonstrated, these experiences result in beliefs or preconceptions about assessment which can be difficult to change. During the first interview, the preservice teachers talked about their school assessment experiences. There was a common thread of relating the word ‘assessment’ to tests, exams and standardised forms of summative assessment as evidenced in Table 14:

**Table 14: Preservice teachers’ prior assessment beliefs and understandings**

<table>
<thead>
<tr>
<th>Preservice Teacher</th>
<th>Assessment beliefs and understanding prior to teacher education programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abigail</td>
<td>Assessment was testing, exams, assignments and very little feedback. Formative assessment was an unknown practice. Did not know why assessment was important.</td>
</tr>
<tr>
<td>Angela</td>
<td>No preconceived ideas of importance and purposes of assessment – 25 years since at school. Teachers did not walk around asking questions, students were silent.</td>
</tr>
<tr>
<td>Carmen</td>
<td>Standardised testing was the be-all and end-all of assessment when growing up. Very teacher controlled discussions in lessons. Did not recall teachers focusing on learning gaps before moving on to next level.</td>
</tr>
<tr>
<td>Katelyn</td>
<td>Mostly had tests and got good marks. Stopped trying but did not meet parents’ expectations so decided to put more effort in. Thought there is more assessment now than there used to be.</td>
</tr>
<tr>
<td>Maryanne</td>
<td>At school, told to do a test but not why. Did not understand importance of assessment data to learning. Did not understand why own children’s assessment results seemed contradictory to their ability.</td>
</tr>
<tr>
<td>Penny</td>
<td>An assessment meant a doing a test then moving on, even if student did not have understanding. Did not recall questioning by teacher or teacher-student conversations.</td>
</tr>
<tr>
<td>Rasela</td>
<td>Assessment was summative for accountability to government. Had negative connotations based on own experience. No awareness of formative assessment.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Scarlett</td>
<td>Thought of assessment as summative and mostly pen and paper testing. No understanding of importance of assessment or purposes. Not aware teacher questioning was trying to elicit understanding and assessing it.</td>
</tr>
</tbody>
</table>

There was little, if any, awareness of practices now associated with formative assessment such as feedback, questioning and discussion:

*There was very little feedback, positive or otherwise when I was at school . . . . I don’t think that formative assessment was even a known practice back then.* (Abigail, Int. 1)

*I don’t believe that teachers would have looked at exams, results, tests or anything that we’d done and think “This person’s got a gap here. I need to come back and focus on this so that they can move on to the next level.” I don’t recall that as an experience.* (Carmen, Int. 1)

*Before I started my degree, when I thought of assessment I thought of pen and paper testing. When I was at school I knew that when the teacher asked me a question, she was trying to get an idea of my understanding but I didn’t realise that the teacher was assessing my understanding all the time, pretty much all day, every day.* (Scarlett, Int. 1)

When the preservice teachers thought about assessment it brought emotions or feelings to mind, such as the comments from Maryanne and Rasela:

*At school we were only told to do tests so it was only known as tests, not assessments. I think assessments are so much better for children now because children are not so scared that they are having an assessment. It is a much better word than test.* (Maryanne, Int. 1)

*I see the value in both formative and summative now whereas before I only saw assessment as summative and I had negative connotations of assessment based on my own experience.* (Rasela, Int. 1)

Seven of the eight preservice teachers are parents. As well as their own experiences of assessment at school, they have experienced assessment as a parent. The negative feelings some of the preservice teachers expressed in relation to assessment also occurred in their
experience as parents. As an example, Carmen related the experience of her son’s ‘sore tummy’ because of a test:

_Generally I don’t think kids like it [assessment]. That’s just my overall impression. I’m thinking about my son specifically at the moment because he is seven, nearly eight and he stayed at home on Friday because he had a sore tummy and a sore throat and during the course of the morning we were talking and he said to me “I don’t know how sick I really am Mum but I did need to maybe do a test at school today.” I think we place a lot of pressure on children to perform. Some kids thrive on it and other children will struggle with it and it can manifest itself in health issues or all that sort of stuff._ (Carmen, Int. 1)

Maryanne experienced a discrepancy between what she knew of her child’s ability and how her child was doing at school:

_I knew that assessment was to let me know where my child was before I came [to university] but I didn’t understand at home when a child performs well, in a parent’s eyes, why she wasn’t performing well at school._ (Maryanne, Int. 1)

As the teacher educator of the compulsory assessment course, Bev was aware of the negative assessment encounters and feelings many of the preservice teachers had experienced as learners and parents. Additionally, some preservice teachers were unprepared for the level of academic achievement required in a tertiary setting. In order to teach preservice teachers about assessment, the teacher educators focused on giving them successful experiences from the beginning of the programme:

_It is just so much more challenging than they think it is going to be and so in those first courses, particularly in the first semester, and during their first year there is a lot of work around trying to break the learning into manageable micro-progressions to give them that sense of success and to understand how they can take the feedback and use the feedback. So, before we even teach them about assessment we are trying to give them more positive experiences of using assessment and seeing how important that is and where they are not successful, directing them to making that understanding much more explicit._ (Bev, Teacher Educator)

The teacher educator believed that for many preservice teachers assessment was something that had been ‘done’ to them as students. They had no understanding of why they were being assessed and what the information was for:

_Probably for a lot of them in their own school experience, that was what happened. They sat PAT tests and never found out how they got on with them or got any
feedback from them. They never saw evidence or that information being used to set the learning goals. They never actually had the opportunity of monitoring their own progress towards learning goals and achievement and taking ownership of their own assessment process. (Bev, Teacher Educator)

**Changed assessment beliefs and understandings**

By the beginning of the third year, there was a substantial change in the preservice teachers’ ideas about assessment. Rather than thinking of assessment mostly in terms of tests and exams, it was seen as being useful for multiple purposes. The preservice teachers now viewed assessment as an essential action for determining the next steps in learning, both for them and their students. This indicated a change in their beliefs about the importance of assessment. By the end of their teacher education programme the preservice teachers had changed their perspective of assessment from that of a student being assessed to that of a teacher as assessor. They appeared to be assuming a responsibility to students for using effective assessment practice.

The preservice teachers indicated how they now considered assessment to be an important aspect of teaching and learning. This included using data to inform planning and teaching or providing feedback to help students take the next steps to achieving the learning goal:

*There is assessment for learning and assessment for teaching. That’s obviously very important in the classroom. It is an assessment of what students know so it is finding out the information about what students know. That information can be used to inform teaching. It can be used to provide feedback or feed forward to the student. It can be used for summative assessment if information is needed to provide to outside sources on student achievement. (Scarlett, Int. 1)*

*Assessment is the gathering of data or information in order to interpret and identify where the students’ learning is at and where they go to next. It also tells them [teachers and students] the ‘where to next steps’ for children’s learning. (Maryanne, Int. 1)*

In contrast with their own experience as students, the preservice teachers developed an understanding about involving students in assessing their own learning:

*I think assessment is also important for children. I think they need to see that they’ve made progress. By developing reflective practices in children where they can assess their own work I think that is a really important part of being able to actually equip children to deal with all elements of life, not only just future study. (Carmen, Int. 1)*
During the third year all eight preservice teachers said their beliefs about assessment had changed over the course of their teacher education programme. This was apparent in the way they now attached such importance to assessment. When discussing their experiences of assessment prior to the programme, none of the preservice teachers had clearly stated that it was an important part of learning. In contrast, by their third year in the programme assessment was seen as a very significant part of learning and teaching:

*Actually, when I started I had not recognised the significance of assessment and how to use assessment data effectively to inform my planning and teaching. I now realise that that data is actually useless if I don’t do anything with it. I have also learned that it needs to be ongoing. For me personally, diagnostic, formative and summative are important whereas I hadn’t realised the significance of all three before doing the degree or doing this year in particular. (Rasela, Int. 4)*

*If anything, during this whole time and in particular the last one or two years, it has just confirmed my belief of how important and significant assessment is in schools. Through the last practicum I’ve seen how important it is to be continuing, ongoing and part of our teaching practice. You are always very conscious of it, always quite aware that it is not just observing a child through that task. You are also formatively assessing where they should be at or what steps they might need to take in order to get to the achievement objective of the lesson. Those next steps, you are always thinking ahead about what those next steps are needed to go through with that child to get there. (Abigail, Int. 4)*

By the end of the teacher education programme, the indications were that the preservice teachers had changed their identity from that of a student to that of a teacher. They viewed assessment from a teacher’s perspective as something that was part of effective practice rather than sitting alongside it:

*I think my beliefs towards assessment are more as a teacher I can see the necessity of assessment and why it is required and how that data is important both to the child and the teacher too whereas before I took it for granted. I could have seen myself easily not do it or not do it wholeheartedly. Assessment is so important in the sense that the data you collect does affect the child’s learning and their progress. (Maryanne, Int. 4)*

*Assessment, I’ve actually just linked it to being an effective teacher so it doesn’t sit out on its’ own now. One of our lecturers said “assessment for learning could actually be called teaching” and I think that is what has happened. That’s what this has become for me, it has become about being an effective teacher. (Penny, Int. 4)*
Although assessment is a time consuming process I really see that it is crucial and imperative that as teachers we use assessment data to inform our practice otherwise it is really a disservice to the students. How can you know if you are closing a gap or moving them forward if you are not using that data to actually plan your experiences? (Rasela, Int. 4)

The teacher educator also observed the preservice teachers change from their initial understandings about assessment:

"I think they change quite a lot. I don’t think when they come in they have a very clear understanding of the different purposes of assessment and they think of assessment being different points in time rather than purposes of assessment. So, they think you do a pre-test and then you do a post-test. They don’t understand that one assessment can be used for a whole number of purposes. There is quite a big learning gap around that and particularly around the uses of formative assessment for feedback and feed forward and for informing their own practice." (Bev, Teacher Educator)

Bev considered part of her role was to improve the preservice teachers’ belief they can succeed and achieve the goal of becoming a teacher. As she stated earlier, this included believing assessment is important and experiencing assessment success:

"I think what we have to do for them is help to develop their sense of self-efficacy, that you can change outcomes for people. I think they do come in with that belief as well because they don’t want their children to be experiencing the roadblocks that they experienced so part of why they are coming is that they want to make a difference, they want to be good role models for their children and they want to learn how to teach their children and encourage their children to be successful. So, there are real drivers for success." (Bev, Teacher Educator)

The eight preservice teachers did change their assessment beliefs and understandings during their teacher education programme, hence significant learning about assessment occurred. The initial effect of their experiences and understandings about assessment prior to the programme seemed to diminish as they learned about assessment in theory and practice in both the university and school practicum contexts.
Learning assessment theory

_Cameo Two: Penny – being assessed while learning to assess_

During the first interview, Penny had been asked if she could think of any examples of effective assessment practices she had observed or experienced at university. Instead, she gave an example of an assessment experience in a social studies course that she found confusing. Penny was concurrently enrolled in the compulsory assessment course in which she was learning new concepts such as formative assessment, success criteria, validity, reliability and fairness of assessment. Penny believed she began to question university assessments, assignments, marking and feedback as a direct result of the theory she was learning about assessment principles, purposes and practices.

We were doing a social studies course at the same time [as the assessment course] and it drove me bananas because we were being taught about success criteria and it being clear and transparent and our social studies course wasn’t. You needed an ‘excellent knowledge and understanding of social studies’ and I went to Briar [pseudonym] who is an excellent lecturer. I love her but I was banging my head against a brick wall. In the end I said to her “I can’t see it, I don’t understand what having ‘excellent knowledge’ is.” She said “It is subjective for me as a lecturer so what I read is subjective.” So it wasn’t objective and I said that it just drove me nuts that it wasn’t like that.

In the top of the marking criteria, for the ‘A’ criteria it said ‘show an excellent understanding of social studies knowledge’ and the next one down would have said ‘show a good understanding’ and the next one down would have said ‘adequate’ and I don’t understand what the difference is. She explained it to me that some of it was quite subjective for her. I thought that probably gave me better marks because I did participate in class. I explained that it was because of the assessment course I was doing. What did that mean? What does an excellent understanding of social studies look like? I think she said “because it looked different”, it didn’t always look the same to her. She said it can’t be prescriptive because three excellent ones can all look different but surely they’d all contain similar things wouldn’t they? But then if they told us that, does it mean they were telling us the answers? I could give you really good punctuation and I could give you ten lesson plans instead of seven, when it said seven to ten but the content of an excellent one? I don’t know.

When we did the assessment course they were definitely explicit and showed us different examples, success criteria and that kind of stuff . . . . in one other course they gave us examples to follow as well. Maybe they don’t want to because then they’re showing you how to do it and they want you to do it yourself, which is understandable because they want to know that you know it so I guess it is different at university. (Penny, Int. 1)

Penny questioned her social studies course assessment as a direct consequence of the theory and practice she was learning about in the assessment course (HPL2). She had learned that success criteria should be clear and transparent. However, when Penny applied this new understanding to the social studies course assessment criteria she did not know what ‘an excellent knowledge of social studies’ was. Penny sought clarification from the lecturer but
the lecturer’s explanation of it being a subjective assessment and that “it looked different” did not help her (HPL3). Penny made the point that three excellences might look different but they should all still contain similar characteristics.

Penny liked having explicit examples but wondered if perhaps lecturers did not want to give such examples because it would be like providing the answers and the preservice teachers should be more independent. She noted an apparent disconnect between her experience as a learner being assessed and her new theoretical knowledge of developing success criteria and marking from or with rubrics as a teacher (HPL2).

Penny’s cameo is an example of three main influences identified by the preservice teachers on their theoretical understandings about assessment. These influences were the compulsory assessment course, other compulsory and elective courses and the way the preservice teachers themselves were assessed.

**Assessment course**

The preservice teachers considered the compulsory assessment course to be a significant part of their learning about assessment, even though they found it difficult. However, once they could link the assessment knowledge they had learned with classroom practice, particularly while on practicum, their conceptual understanding became clearer:

*The assessment course was helpful. There was so much involved that it took a while to get my head around it, the whole academic stuff but when you get into the classroom it slowly starts to make sense. (Abigail, Int. 1)*

*The second year we do the assessment course and our practicum placement was after doing that course. So I went into my practicum after the assessment course having a much fuller understanding of what assessment is all about and how it fits into the scheme of things and the value of it, if done effectively . . . . I remember I came back and I said to Bev at the time “I actually get what you were saying in that course.” It has meaning and value for me and I can see how teachers can use it for their own purposes and obviously the purpose is to grow children so it is that mutually beneficial thing that then links into that. So second year I saw that. (Carmen, Int. 1)*

*We had our assessment course, which was last year in the first semester. I found that really beneficial especially because we went into practicum straight away after it and I could see effective assessment from my associate teacher. (Katelyn, Int. 1)*
In her experience as a teacher educator, Bev has found that it is often not until preservice teachers have their second and third practicum experiences, or even as beginning teachers, that they really appreciate the value of what they learned in the assessment course:

*Sometimes they find it a really hard course. The semesters are very short and very intense and it is a lot to get their heads around in a short space of time. So, sometimes they are quite critical of the demands and they find it really challenging . . . I often get people coming back and saying “That was actually the most useful course I did. Now I am in the classroom that is the thing I am using the most. That is guiding my teaching more than anything else.” Sometimes the feedback is not immediate but it is the longer term outcome that is really important. (Bev, Teacher Educator)*

The content of the assessment course was focused on understanding the purposes and characteristics of assessment, together with how assessment information is gathered and used to make decisions about assessment that enhance teaching and learning. This was described in the Learning Outcomes set out in the assessment course outline:

**Figure 1: Assessment course outline Learning Outcomes**

<table>
<thead>
<tr>
<th>Learning Outcomes:</th>
</tr>
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<tbody>
<tr>
<td>At the completion of this course, it is intended that students will be able to:</td>
</tr>
<tr>
<td>1. Identify and explore key characteristics of assessment for learning, assessment for teaching, and assessment of learning.</td>
</tr>
<tr>
<td>2. Explain how assessment information can be used to enhance learning, inform teaching, and report achievement and/or learning.</td>
</tr>
<tr>
<td>3. Analyse, practice and discuss issues related to the gathering of quality information and making defensible decisions.</td>
</tr>
</tbody>
</table>

(Assessment course outline, Evergreen University)

The assessment course was delivered in one two-hour lecture and one two-hour tutorial every week over a 12-week semester. Different lecturers delivered lectures on particular elements of assessment such as validity, reliability, assessment of learning, assessment for teaching and assessment for learning. Bev facilitated tutorials for the group these preservice teachers were in. She said her job was to make the lecture content and required reading more accessible to the preservice teachers. The course content was broken down into three major blocks or components:
We do a block on summative assessment, assessment of learning, first. We give them scenarios to critique and to identify examples of good practice and give suggestions of ways practice can be improved. It could be a scenario of a teacher working with a class and how she or he has collected the assessment information, used that information and reported that information.

The next block is looking at assessment for teaching, so how the teacher then uses an assessment task to inform their teaching, what the learning outcomes are, how they then structure the learning environment for the students.

The third part of the course is around assessment as learning or assessment for learning. So, how we put all the pieces of the puzzle together, developing those self-directed learners, teaching the students to use that assessment information so how to get that double loop learning going. (Bev, Teacher Educator)

Bev conceded that while it might seem artificial to deconstruct the course content in such a way, it was important for the preservice teachers to be clear about the different components. She said she tried to draw the components together at the end so that they could see how the assessment process came together and was an integral part of their teaching and reflective practice.

All eight preservice teachers agreed that the timing of the assessment course in the first semester of Year 2 was the best place for it. They did not think that it would be helpful to have it any earlier, particularly if they had not yet been on a practicum:

\textit{I think it was done at the right time because we’d had a practicum experience. It wouldn’t have been as beneficial before that because we wouldn’t have had any experience in class to relate it to. I think the timing of it was good. You wouldn’t want it any later and you wouldn’t want it any earlier either.} (Katelyn, Int. 4)

Even after a practicum experience at the end of Year 1, some preservice teachers found they did not have enough relevant experience or knowledge to easily link to what they were learning in the assessment course:

\textit{I think I would have fared a bit better in my conceptual understanding of that course had I had a bit more practicum experience because it is really tough to try and picture the concepts when you haven’t been in that environment where you see it in practice.} (Rasela, Int. 1)
During our observations we had to notice, recognise and respond. What did that mean? I had no idea. What was the difference between ‘notice’ and ‘recognise’? I learned that in the second year. (Penny, Int. 4)

Scarlett commented that her understanding about assessment improved as her identity changed from that of student to teacher. Positioning the assessment course between the first and second practicum was helpful for her:

It did help because you’ve been on practicum once and you’ve got a taste for what it is like to be in a school. In your first practicum you are still a student so you are still getting used to the idea of being a teacher but in your second practicum you are getting more focused on being a teacher and what a teacher does so it worked really well. (Scarlett, Int. 1)

Furthermore, during the assessment course Scarlett reflected on her first practicum prior to the course. She was able to identify her assessment actions whereas previously she had not been aware of what she was doing and why she was doing it:

When you are in the classroom I think you are subconsciously assessing the students’ understanding anyway but I didn’t know that is what I was doing formatively. So it was like “Oh okay, this is what I am doing. This is what it is called and this is why it is important. This is what it is used for.” It brought everything together and it made meaning and it made sense. I understood what I was doing so it helped me do it better. (Scarlett, Int. 1)

Compulsory and elective courses

A few comments from preservice teachers indicated that assessment, as an integral part of teaching and learning, was taught throughout all courses, particularly those linked to core curriculum:

I like the way that they talk about it through all the courses, it is not just the assessment course. In all curriculum areas it is nailed into you. Every single lecturer, whether it is science, social studies, maths whatever, we talk about assessment and how important it is in every single course. (Angela, Int. 1)

In most curriculum courses they are constantly referring to assessment, referring to everything we learnt like summative, formative etc. so they do refer back to it, which is really good. It is reinforcing what we learnt in the assessment course. (Scarlett, Int. 1)
Despite the 24 courses in the three year teacher education programme, the preservice teachers spoke about only three compulsory courses and two elective courses that reinforced, or were consistent with, the learning in the compulsory assessment course. They had some contradictory opinions about the consistency of approach towards assessment they perceived from the different courses and whether or not it improved their understanding. Although some courses did promote a consistent message around assessment, it was not always the case. For example, in a Year 1 compulsory course, the coursework assignment contained an assessment component that had not been taught to the preservice teachers:

*In my first year when we did our Māori course we had to actually develop a lesson plan that included assessment at the end of it. I found that hugely challenging . . . to actually think about “Have you achieved the learning criteria and learning goals in this?” and how to think about how you check that with children, I didn’t have a clue when I was writing that assignment!* (Carmen, Int. 1)

Some preservice teachers noted the difference between their awareness of assessment aspects of other courses before they took the assessment course compared with afterwards when they had developed assessment knowledge and understandings:

*Before the assessment course it didn’t click. I didn’t really know what I was doing. They probably had to tell us how to write it so we did [laughter] or what reading to look at because we did a science course after our assessment [course] and it was completely different. It reinforced what we learnt and it was much more relevant. So that assessment course was pretty much to me, from memory, new information.* (Penny, Int. 1)

The science course was one of two curriculum courses most frequently mentioned by the preservice teachers as coursework that reinforced their learning about assessment. The assessment course was in the first semester of the second year and the science course followed on from that course in the second semester:

*The other course that they picked up a lot of that stuff was our science course because they do a whole component around noticing, recognising and responding. They give us readings as well so there was a strong link there again into that. It does keep coming up, the assessment aspect of it.* (Carmen, Int. 4)

*Reinforcing it with the science course after, and they were quite strict on when we did our lesson plan, every part of our plan had to have a piece of formative assessment in it to know what the next step was going to be.* (Penny, Int. 1)
The other curriculum course referred to often by the preservice teachers for enhancing assessment understanding was a literacy course taught in the first semester of the third year of their teacher education programme. In a literacy assignment they were required to prepare an integrated unit plan that included learning objectives derived from Achievement Objectives in the New Zealand Curriculum and success criteria to demonstrate how the learning objectives had been met:

*For our literacy course we pretty much had to write an integrated unit plan. I’ve integrated social studies. In terms of assessment, learning intentions and success criteria is in that. We looked at guided reading, shared reading and guided writing et cetera and you would formatively assess. It is reinforcing what we already know and this is how you would incorporate it into a unit that you have planned.* (Scarlett, Int. 2)

*In our literacy course that we are doing now we are practising that. We’ve got some data that we are analysing in terms of their reading age and their background. We’ve got some data there with 24 kids and we’ve got to group them so there is some sort of analysis.* (Rasela, Int. 1)

One of the most important aspects of the literacy course assignment for Abigail was the need to differentiate her planning, teaching and assessing for children with diverse learning needs:

*In our literacy course, we are assessing children’s reading and how the teacher needs to plan appropriately for children at different levels and ESOL learners to our high achieving students. That comes down to our planning and how it is so crucial. Planning should be including all learners and we may have to differentiate our planning. Depending on how effective and well thought out it is then we should be able to hopefully see the outcome or the assessments.* (Abigail, Int. 2)

In the same semester as the third year literacy course, the preservice teachers also undertook a compulsory course that investigated the relationship between politics and education as well as philosophical perspectives on teaching. In their second interview the preservice teachers were asked what they had learned about assessment during the semester. Many discussed this course and their new knowledge of the different discourses around education and its relationship to assessment:

*So we’ve just learned that the three types of assessment have a different philosophical and political basis. So summative assessment is a neo-liberal thing because it is outcomes based and that’s what the Government is going for currently.*
Formative assessment is more what we used to have, say, like progressive education, and it is more child-centred. There was a really interesting article that Mutch (2012) wrote about assessment culture in New Zealand. It was quite good though because we used it in tutorial to go through the different parts. We had to pick out which bits were neo-liberal, which bits were progressive, which bits were liberal and that kind of stuff. That was really interesting. (Penny, Int. 2)

One of the guest speakers in the politics and philosophy course critiqued the focus on assessment in the current New Zealand education system. Rasela found this perspective quite thought-provoking:

I’ve been challenged in my thinking about assessment through my politics and philosophy course. We had a guest speaker come in and critique the New Zealand curriculum document. Her perspective was on critical theory and I just found that really interesting because her critique was that the curriculum was more pedagogy based and there was a big focus on assessment. So much so, that teachers spend more time assessing and teaching based on assessment as opposed to focusing on the business on hand which is the disciplinary knowledge like maths, history, the content knowledge. So there was a real imbalance between pedagogy and content knowledge and that came about from the impact of assessment having a huge emphasis on teaching. (Rasela, Int. 2)

While she was challenged to think about assessment in a broader context, Rasela concluded that as a teacher she had a responsibility to use assessment effectively and reflectively:

It made me think about it but at the end of the day I am a teacher and I will have an obligation to make sure that assessment is ongoing. You have to have ongoing assessment, for me I can’t find better words than to push students through the learning journey. I’m always thinking about my own learning as well and critically reflect on whether I am using assessment tools effectively. Am I on the right track? We always look at assessment as a measure of how well we are doing. That lecture didn’t change my thinking in that I am not going to work on it or anything but it did challenge me though. (Rasela, Int. 2)

The preservice teachers had a choice in selecting elective courses in addition to their compulsory courses. Five of them chose to do a course on raising student achievement. Maryanne and Rasela had contradictory learning experiences about linking assessment and student achievement from the course:

It wasn’t until I did that course that my understanding about assessment became clearer. It was the practical side of things that needed to be put in place. I had all the theory and when I had the practical side and being on placement this year everything was able to connect. It made a huge difference to me. (Maryanne, Int. 4)
For me, that course was not what I expected. It was more about teaching pedagogy rather than assessment. It was all pedagogy based and styles and engaging students and motivating them as opposed to seeing any hard evidence about how that, in terms of assessment, raises student achievement. (Rasela, Int. 2)

The other elective course several preservice teachers chose to do in their final year was a numeracy one. A significant component of the course included assessment as part of developing classroom mathematics programmes:

I am doing an elective maths course. We have talked about how we would assess children throughout the lesson and identifying those children who might be struggling with conceptual knowledge. That is where we might break down into smaller groups so we can address those issues with perhaps the lower achieving learners. (Abigail, Int. 4)

That had a huge component of assessment. We looked at PATs, JAM, IKAN, GLoSS, the ARBs and National Standards were another one. (Carmen, Int. 4)

Carmen found the course very helpful for practical classroom application of assessment. Nevertheless, she had concerns that it was not compulsory:

This is a maths course that you get to elect to do. This is the only course that I feel we have had an opportunity to engage with National Standards . . . . If I am being reflective, I think there are a couple of gaps in my course up to now. The actual looking at data and interpreting data or being in a group where we moderate has probably been a gap but this maths course has addressed it to a certain extent. My concern would be that it is an elective course and how many other people have not had that opportunity? (Carmen, Int. 4)

An elective course on special needs appears to have had a significant impact on the way Abigail thought about assessment. She said it was a shame that it was not compulsory because the course contained such valuable knowledge for teachers. The coursework included discussion about children with disabilities and how they were assessed, such as using standardised tests. The concept of making assessment a more equitable process was new and quite challenging for Abigail:

We talk about children who are impaired in some form or way so the teacher needs to take that into consideration when assessing the child. The thing is when it comes to these standardised tests that in some cases there are going to be children who cannot be assessed like another child who may not have those impairments . . . . the Ministry of Education [is] not being inclusive enough of these children. Either they have to adjust or look at a particular assessment to cater for these children because
if they have a visual impairment and they can’t see the writing or whatever then they
are very much disadvantaged so that is going to impact on their assessment
outcomes . . . I have seen it in classrooms. There is the child who might have
particular learning needs. They might be sitting at the desk and everyone is writing
away and you just feel for them because they might not be able to read it properly.
There might be some cognitive difficulties. So all those sorts of things we have been
discussing and as teachers how are we going to approach the children and make it
more inclusive? When you are talking about inclusive environments it is also talking
about assessment as well. (Abigail, Int. 2)

It will be challenging for me as a teacher as to what action I could take or how
proactive I could be in somehow making that [assessment process] a more equitable
process for learners with special needs. It will be challenging but that is part of the
package that comes with teaching. If anything, it has broadened my view of
assessment, that not every child that comes to my classroom is going an able-bodied
child so therefore I need to be very open. This is where communication and
relationship-building with our families and whanau is very important. (Abigail, Int.
2)

Abigail is a member of the board of trustees at her children’s school so she had another
perspective to that of her role as a preservice teacher. The special needs course had
prompted her to think about the school’s own policies in respect of inclusive education and
assessment:

Now I am putting on the other hat and I’m thinking “Where are our own policies?
Do we need to go back and look at our policies and are they inclusive enough for
children with special needs regarding assessment, student engagement, and
collaboration between the student, teacher and families?”(Abigail, Int. 2)

Being assessed at university

As Penny’s cameo demonstrated, the experience of being assessed at university contributed
to the preservice teachers’ developing understanding of assessment. They began to apply
their new knowledge of assessment theory to critique the assessment practices they were
experiencing themselves as students. Inconsistencies between what they were being taught
about assessment and how they were being assessed were identified. Three of the most
helpful aspects of being assessed were: (1) effective feedback that helped the preservice
teachers identify gaps in their learning and improve their achievement, (2) consistently clear
assessment criteria and high expectations and (3) assignments that preservice teachers could
link to classroom practice.
When asked for examples of effective assessment practices experienced at university, the one most commonly referred to by all the preservice teachers was the feedback they had received on assignments:

> We always have very good feedback for our assignments. It is written and critical feedback. (Maryanne, Int. 1)

> I like the written feedback that we get on our assignments. It helps me see where I went wrong and see what I did well, especially in essay writing, hints as to what we could do better. It makes me think about it when I am writing my next essay, thinking what did I do wrong last time? How can I improve it to make this essay better? . . . . Some lecturers are better at giving more feedback than others. Obviously some don’t have the time to write pages and pages of feedback but some give more than others. In class, more in the tutorials, we will discuss with our peers then share it with our lecturer then she will give us some feedback or build on what we’ve said. (Scarlett, Int. 1)

As well as quantity, the quality of the feedback did not always seem consistent. Abigail described feedback that was helpful and, in contrast, feedback that was unhelpful:

> Some of the written feedback we get on assignments was good and some was not very helpful. It helped me to understand where I went wrong and how I could improve that for next time. The other feedback that wasn’t so good didn’t really mean much to me. It didn’t help me in my learning. It might have been only one comment or word or question mark or “Why did you write this?” Just thinking back to my social studies course, an assignment I did that I thought I’d done a pretty good job then I got the result and I thought “oh!” The comments that the lecturer made I didn’t understand. There could have been a comment to go and have a chat with her at the bottom, but there wasn’t. (Abigail, Int. 1)

Maryanne said that because on-campus lecturers were the ones marking the courses, preservice teachers were able to go and get further feedback or clarification from them. Lecturers appeared to make time for such additional support and feedback:

> Usually once the assignments are given back to us, most of us will read it and our lecturer will say the day he or she hands back the assignment “If you have any questions I have finished class early and allocated ten minutes”. They always tell us that if we aren’t happy with the feedback we will finish early and that time is given for us to go and see them. (Maryanne, Int. 1)
As an example, Rasela, a high achieving student, was very disappointed with her first assessment course assignment grade, which Bev had marked. She described the importance of the written feedback:

_I actually bombed out on the first assignment which was really quite tough because I was used to being an A-grade student then I got my first C+ and then I needed to know why. Through the process of getting effective feedback and feed forward I was able to use that assignment and lift my second assignment to an A._ (Rasela, Int. 1)

Bev’s feedback on that assignment related mostly to Rasela’s structure and APA referencing, which had been part of the assessment criteria. Rasela went to see her and asked her to elaborate so she could understand what she needed to do to improve:

_She was honest in her feedback to be quite frank. I’d always written the way I’d written in her assignment and I never got pulled up for incorrect APA referencing. I’d never been pulled up for my coherency of my structure. I used to write narratively as I felt and through that assessment I was able to develop my academic writing._ (Rasela, Int. 1)

Bev echoed Rasela’s remarks:

_Sometimes, the appropriate feedback is not always given in the first year when students are starting to get up to speed and so they think that their academic writing is much more satisfactory than it actually is. Being told that it doesn’t meet the standard, that the standard is here and we will do everything we can to help you meet it but you have to meet the standard is sometimes a hard message to accept._ (Bev, Teacher Educator)

This change in the type of feedback given was also commented on by other preservice teachers:

_In our first assessment course assignment there was so many dramas because a lot of us got pulled up . . . . They were very strict on grammar and a lot of us got marked down. The course was good but we got marked down on apostrophes, commas and so it was hard for us because we had never been pulled up on it. Some us did not understand . . . . Even our top learners got pulled up pretty bad._ (Maryanne, Int. 1)

Peer assessment is one aspect of formative assessment practice that is taught and used within the teacher education programme. However, the preservice teachers thought it was an inappropriate coursework assessment if there was any summative aspect to it:
I don’t necessarily like peer assessments or group assessments at university. I think they are a complete waste of time and I don’t think anybody likes it in our whole cohort. It is feedback and feed forward, not “Okay, this is going to be part of your final mark at the end of the year.” There have been times we’ve done it in courses here and none of us like it. It is not suited. Feedback and feed forward fine, but marks no. I don’t think summative assessment should come from it at all. (Katelyn, Int. 4)

In the elective course on raising student achievement one of the assignments included a group peer assessment (a more detailed description occurs in Carmen’s Cameo Five later in the chapter). Even though there were clear assessment criteria and moderation by the lecturer, it was not a positive experience for many of the preservice teachers:

About two weeks ago we had a peer assessment of our assignment and for me it didn’t go that well and for others it didn’t. They were serious marks but were being moderated. Depending on what group you get in it can go a certain way and it affects the outcome. There were guidelines for it, assessment criteria, but then I do think it came down to the people marking against those criteria . . . very high stakes, people cried, it was awful! I cried all the way from here to picking up my children. I felt like I had been beaten up by my colleagues and so did another lady . . . . I think it was brought to our marker’s attention for what she thought may have been something straightforward. (Angela, Int. 2)

Learning how to develop success criteria through modelling and participating in the process as learners was suggested by Penny. She thought it may improve the preservice teachers’ learning through coursework assessment:

It would be nice if they could assess at least one of our assignments in the way they want us to assess. I understand that it can’t be 100% but even if it was a 10% for every course, say, “this is how we are going to assess you because this is how we want you to assess children”. Even if they said to us “we are doing this because we want you to see how it works” and they could each model a different part of it . . . or “this is your success criteria” and get us to build our own success criteria like they want us to do in class. If a 10% course assignment was done like that you would get a good view of it. (Penny, Int.1)

In the third year literacy course mentioned previously, one assignment worth 50% required the preservice teachers to create an integrated unit plan. They universally described it as a challenging and positive assessment experience because it was useful and linked to classroom practice. The first part of the assignment was creating an overview of the plan and finding resources to include then justifying their inclusion with literature. The second part was planning the integrated unit over a four week period:
It was an integrated unit plan so it covered English and social studies and the Key Competencies. From those we came up with our Learning Objectives and the assessment of the learning outcome . . . . We got given all of this information on the class and some background information, their reading level, their e-asTTle results, and we had to group them . . . . We had to figure out how we would group them into reading groups and the collaborative research groups as well from that information. So you wanted that to be broad and a mixture of abilities and match people up with people that may help them and scaffold their learning and things like that . . . . It took a very long time. I think it is the first time that we’ve really done it that in-depth, linking Achievement Objectives with Learning Objectives and assessments that go with it. (Katelyn, Int. 2)

The literacy assignment was high-stakes assessment because it was worth half the value of the course’s grade. The lecturer used formative assessment practices during the assignment to provide feedback which the preservice teachers could use to improve and complete the assignment. In contrast, the group peer assessment mentioned earlier was described as a negative experience. However, it still made an impression on the preservice teachers’ learning about assessment. Both feedback and peer assessment are elements of formative assessment practice taught within the teacher education, although their modelling and use produced different outcomes in these two examples. As the next theme demonstrates, how assessment practices are modelled by teacher educators and associate teachers influences preservice teachers.
Modelling effective assessment practice

Cameo Three: Katelyn – recognising effective assessment practice

During Katelyn’s interviews, she often referred to her second year practicum associate teacher in examples of effective assessment practice, mostly connected to feedback and feed forward in writing with the Year 5 class. She said she could recognise effective assessment from her associate teacher because she went straight onto practicum immediately after completing the assessment course. One of that course’s assignments included a scenario of a teacher using assessment ineffectively, which the preservice teachers had to critique. Katelyn compared that teacher’s actions to her associate teacher’s actions and said she was able to see where effective assessment practices were happening. Katelyn described how her associate teacher had involved the students in assessment of their writing and how that impacted her own practice:

My associate teacher had done a big beanstalk from Jack and the Beanstalk and the students put themselves where they were at. They decorated an egg, including their laminated picture, and put it where they wanted to be. They were moving up and they had the levels and they had what they needed to include in their writing to get there. That was Year 5. It was brilliant. Before they did the writing sample, they were all given the opportunity “Okay you know where you are at and you know where you want to be. Why don’t you have a look and see what you need to include in your writing before you start writing”, which was really effective. . . . The students were aware of being assessed especially with their writing. There were no negative things coming out about this person is at the top and this person is at the bottom. It was really good because they were in charge of their own learning. When they did move up, they moved themselves up the beanstalk . . . when they’d talked to the teacher. It was quite nice how she did it. She called them over and explained to them “Your writing has improved . . . . I think you are ready to move up to the next level.” There would be a big smile on their faces and they would go and do it. It was great. It was also good because parents, if they wanted to, could come in and see it as well. (Katelyn, Int. 1)

When we marked their writing we wrote feedback and feed forward. It was quite good because they had highlighters. There was ‘gold for glory’ so if there was an amazing sentence it was highlighted gold and it was called a gem and put up on the wall. They had all the gems up on the wall. They had ‘pink for think’ so they would underline something and maybe place a comment where they had repeated themselves or where they have used simple words or used two simple sentences instead of making it a compound sentence. They had ‘blue for do’ underneath. They missed a line every time and if it was ‘blue for do’ then they put in their new writing. (Katelyn, Int. 1)

My second practicum associate teacher taught me how she wrote feedback and feed forward so I used that in my third practicum with the Year 7 students. I used the ‘gold for glory’ highlighter because I was trying to get them to learn about gems in writing, you know really powerful sentences they’ve used . . . . My associate teacher was away one day [third practicum] and the principal was in the classroom looking at the writing books. He came up to me and saw that I’d done feedback and feed forward and said “Did you mark this?” He was really impressed that I’d used feedback and feed forward and said “That’s fantastic.” (Katelyn, Int. 4)
Katelyn observed her associate teacher modelling effective assessment practices in the examples of writing she described. The students were very clear about their writing goals and the success criteria, which were represented by a visual display in the classroom. They were included in assessment of their work in several ways. As the practicum started immediately after the assessment course, Katelyn found she could draw on her new knowledge to compare and contrast the assessment practice she was observing in the classroom with her theoretical understandings (HPL2).

When Katelyn was in a period of full responsibility on her third practicum, she was willing to try the feedback and feed forward strategies that she had learned the previous year. The process for assessing the writing and giving feedback and feed forward involved the teacher using highlighter pens that provided a quick visual indication of achievement or areas for improvement. Highlighters were also used by the students as a form of self-assessment. Katelyn demonstrated that she was able to adapt this assessment strategy to a different classroom context (HPL2 and HPL3).

When preservice teachers are in a classroom on practicum, associate teachers are constantly modelling their practice through their actions, whether explicitly or not. Katelyn could identify and use effective feedback, feed forward and self-assessment practices modelled and explicitly taught by her associate teacher, which included clear learning goals and success criteria. Likewise, when preservice teachers are in university lectures or tutorials the teacher educators are modelling their learning and assessment practices. They also provide contrasting examples and scenarios that cause dissonance. Evidence of the effects of modelling assessment practice on the preservice teachers’ learning about assessment, by the associate teachers and teacher educators, arose throughout the data.

**Associate teacher modelling of assessment**

There is an expectation that associate teachers model effective assessment practice to preservice teachers through the actions they take to inform their teaching and improve student learning. As explained in Chapter Two, New Zealand teachers have had opportunities for professional development in assessment over the last decade, with a particular emphasis on assessment for learning. Accordingly, it could be assumed that associate teachers would have knowledge and understanding of effective assessment practices. The practicum experience provides preservice teachers with an opportunity to
observe these practices within the realities of the classroom. The formative and summative assessment actions of the associate teacher can be a significant influence on the preservice teachers’ learning about assessment. This includes how achievement is reported.

Rasela’s previous practicum experiences had not been very positive in terms of helping put her learning about assessment into practice. She was hopeful that what she had learned at university about effective assessment was happening in the classroom and that it would be modelled by the associate teacher in her third year practicum:

*I am hoping that what they are teaching us here is actually happening at grass roots level and that we are not just going to get a rude awakening when we get out there and it is not all that it is cracked up to be. They can preach here that assessment is crucial and important but I am hoping that schools actually model that, that there is an emphasis on the importance on formative and summative and that it actually does happen. I know for a fact though, through different practicum experiences, that it doesn’t always happen that way. (Rasela, Int. 1)*

**Formative assessment**

All eight preservice teachers said they saw formative assessment happening in some or all of their three practicum classrooms during their teacher education programme. For example, Scarlett said she had seen formative assessment in both her first and second practicum:

*In my first practicum I had Year 1s, which was a heap of formative assessment because getting the kids to sit still and actually do it was a task. [I saw] heaps of formative assessment: observing, giving them feedback right there on the spot, modelling. (Scarlett, Int. 1)*

*In my second practicum there was heaps of formative assessment. While the students were working she would be observing, questioning and lots of formative assessment. I didn’t see much standardised testing. That year I was with a Year 6 class. My associate teacher kept a really cool way of recording her formative assessments that she had noticed. If she was marking a book, she would just record, according to the learning intention, was it a beginning, proficient, advanced understanding. She had more of a focus on formative assessment and she kept a really good record of those. (Scarlett, Int. 4)*

In Scarlett’s third practicum she described how her associate teacher (Patricia) got a Year 8 student to come up front and write her answer on the board and explain how she worked it out. Scarlett thought that Patricia was assessing the student’s understanding and giving
feedback that the whole class could use in their own learning. However, Scarlett noted there was no exploration of other possible strategies:

My associate teacher got the student to come up in front of the class and write her answer on the board and how she worked it out. The teacher assessed her understanding by asking questions. She wrote her working out on the board and then the teacher assessed her understanding by asking “How did you work that out? What were you thinking when you wrote this?” But the whole class was involved . . . . They are very smart so they know what they are doing. She would prompt but most of the time the kids knew what they were doing. It was good for the rest of the class to see how the student worked it out then hear the feedback that the teacher gave to the student then they could use that feedback in their own learning if it was applicable to them . . . . Pretty much as I observed, all of them used algorithms to work anything out so that was the only strategy they used. Nobody was using a number line and it was all just straight algorithms. She didn’t say “Did anybody else use a different strategy?” It was more “How did you get the answer? Was the answer right?” (Scarlett, Int. 1)

Penny and Maryanne identified effective modelling of observation and questioning by their associate teachers in the third year practicum:

Watching my associate teacher [Vicky] is amazing. Sitting with a group of children and it appears like she is just having a chat with them and yet I know at the end they’ve come out with a whole heap of new knowledge just because somebody asked a question about the tornado over the sea and she had a lot of general knowledge about it and she questioned them. Through that questioning and a little bit of prompting, you could tell first of all they were interested and secondly they would have come away with a whole heap of information. (Penny, Int. 1)

My associate teacher was in the process of re-grouping and she was telling me where literacy is concerned how to observe kids and to find out if they are really, really struggling or if they are just having those off days. She showed me how it happens through reading and then on through their written work, for example, explaining what happened in the story or a little piece about the story and it was from there how she realised that the child was struggling. (Maryanne, Int. 2)

Formative assessment practices were mentioned frequently by all the associate teachers as assessment actions they undertook on an ongoing, daily basis. This included monitoring, questioning, observations, peer assessments and self-assessments. Examples of the three practices the associate teachers most frequently self-reported included:
(a) Setting learning intentions, goals and success criteria:

[The students] have three goals, a reading goal, writing goal and a maths goal. They are individual goals . . . . when work has been marked they get it back and have a chance to look at it, ask questions and then I normally put underneath what I think they should be working on. They have a look at it then come back and say if they agree or don’t agree and tell me why. I put it in child-speak and they know what they need to work on. (Chris, Associate Teacher)

(b) Feedback and feed forward:

We use WALTS ['We are learning to'] all the time for writing and maths but for reading it depends on what we are doing. I am giving them verbal feedback all the time. They need to know that they are achieving or heading towards achieving and having some success at that learning intention . . . . If I spend 15 minutes assessing a piece of writing and they don’t go back and look at what I’ve said, that is a disaster. To just assess something and keep it tucked away as a score is a waste of time. They want to know where they have gone wrong . . . . After I’ve gone through it all I give a positive comment and then I normally choose two next steps. They go back and look at what I’ve said and then question. They have to ask and understand. That is vitally important. (Chris, Associate Teacher)

(c) Conversations and/or conferencing:

If I go back to writing, having personalised goals and conferencing, that one to one, assessing and talking and discussing then actually being able to apply what you are talking about to that next piece of writing. That deliberate, intentional “This is what you need to do . . .” We have at the back of their books a copy of the matrix from asTTle Level 2. So with my children, when we do their conferencing, we might just look at one of the deeper features or one of the surface features and they will work on that for a couple of weeks. In each piece of writing they then go back and they self-assess then when we conference we talk about, in kid-speak, where their piece of writing falls and what they need to do to get that to the next place. (Vicky, Associate Teacher)

The associate teachers could describe many examples of what they considered to be effective formative assessment, which seemed consistent with what the preservice teachers had observed, however it needed to be clarified if this was explicitly modelled. When the associate teachers were asked about their role in teaching preservice teachers about assessment, modelling and scaffolding was important:

Modelling good practice, I think that is the most important thing we can do. One of the things we tend to forget as a teacher is how hard it is to actually do. It is kind of keeping it real and saying to somebody “you know what, I did Reading Recovery for a couple of years and I am really good at taking running records but most people can’t do them at speed.” I have to be really deliberate with slowing down and
making sure that somebody sees me do things to a level that they will be able to do them. I think it is modelling that good practice more than anything. (Vicky, Associate Teacher)

I might say “I am going to carry out a GLoSS on this child because I have noticed . . . I want to find out how much they know about ratio and proportions now. I have a feeling it has changed in recent times. Sit with me. Have you seen one of these? Do you know how it goes? Sit with me, watch this one, so and so over there has a similar need I think. Can you do a GLoSS and I will work with you if you need to then we can plan some sequence of learning to follow up from the assessment.” (Michael, Associate Teacher)

**Summative assessment**

In contrast, there was very little reference to modelling of summative assessment by the associate teachers. They described a range of assessment tools and practices used in their classrooms but it was mostly used in the context of being ongoing and formative. These included running records, GLoSS, e-asTTle, IKAN and PATs, which they said they used for a range of purposes, including formative and summative.

As was explained earlier, at the beginning of the third year of their teacher education programme the preservice teachers spent three weeks on practicum (Part A). During this period, they observed their associate teachers conduct a significant amount of summative assessment to gather information about where the students were in their learning. The preservice teachers were able to see the different types of assessment tools used, which they will be required to use as beginning teachers with their own classes within the first few weeks of a new school year:

*On my little three week practicum that I’ve just been on this year, it was the beginning of the year so they did heaps of assessment. It is all standardised so PAT testing and asTTle. My AT will be gathering this information so she can make groups for maths, reading, writing, that sort of thing. I am in a Year 8 class. (Scarlett, Int. 1)*

*She has got a chart and it has asTTle, GLoSS, STAR et cetera and I thought it was really cool but I don’t understand it. I understand it was assessment tools and that is how she determines where her students are and what groups she puts them in and where she is pushing each group. So those are the assessment tools she uses. She has a chart that all the teachers at her class year level are ticking off where their students are achieving. (Rasela, Int. 2)*

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6 An explanation of all the assessment tools and resources available for different curriculum areas and at different year levels, including information to enable teachers to judge the usefulness of the tool for the assessment purpose, is available from Assessment Online [http://toolselector.tki.org.nz/Assessment-areas](http://toolselector.tki.org.nz/Assessment-areas).
Carmen and Maryanne commented on the reliability and validity of the assessments done at the beginning of the year. Carmen questioned the emphasis on assessment that the students might perceive and the timing but did understand the need for baseline data:

*All they've done is assessment at the beginning of the year so they finished last year doing a whole heap of assessment and they've come back into school and the focus is on assessment because they need to create this baseline data to see how they progress during the year. I don't know if that is effective assessment though. One side of me goes “yes it is necessary” but I don't know if this standardised testing is the right thing and to be doing it at the start of the year. I understand why they are though.* (Carmen, Int. 1)

Maryanne observed that her associate teacher noted achievement data from the previous year but did not rely on it. The teacher used her professional judgement to take into account observations of students’ reading behaviour in the early weeks of the new school year. This observation helped Maryanne to link her theoretical learning about reliability and validity to classroom practice:

*My teacher had the records from the previous year and she knew where they were so for the running records she thought “I’m going to try this child on this higher level” and some she even brought down a level. She was able to identify that there were some kids at the actual level and that’s where I got to see that reliability. I only found out about reliability and validity through last year’s assessment course but in this year’s practicum it was the first time I’ve actually seen it in practice, how the evidence was there.* (Maryanne, Int. 1)

Both the preservice teachers who were doing their third year practicum in private schools noticed the significance of exams in the schools’ assessment practices. Before going on their final seven week practicum they expected to see exam preparation:

*I think I will probably learn how important it is in the school. It is a private school and I think the parents expect a lot of accountability, to have proof of what their kids are actually learning. They will be preparing for exams and I will see the results of that.* (Katelyn, Int. 2)

*The kids have to do exams because obviously they are going to be in college next year and they are going to have to do exams. I'm not sure if all intermediate classes do exams at the end of the year. I get the impression it is all geared towards these exams at the end of the year.* (Scarlett, Int. 2)
The examination results were included in the reports for parents. The information was also used for ranking individual students in order of achievement. Despite exams being a compulsory part of the school’s assessment policy, it appeared that Katelyn and Scarlett’s associate teachers did not find them particularly useful in providing an accurate picture of student achievement:

If you want to compare students and work out who is top, middle or bottom, great, you have an exam but that is not the way all students work, the pressure involved. I know they have to go through it because they are going to do it in secondary school and have to understand exams and get ready for them. For us in senior school, they do an exam every day of exam week so five exams, mid and end of year . . . . [It is used for] Dux, first and second in class, that sort of thing but to me, the information is useless. (Chris, Associate Teacher)

Take a subject like a science. You have a long exam at the end of the year that covers your whole year’s work. What about the child who doesn’t do their work on a daily basis, from lesson to lesson they are not completing their work? They might do very well in the test but it is not a true reflection of how they have performed. It works the other way round too. The child who has worked really hard and consistently through the year but come to the end of the year they do poorly in an exam . . . . Our children write exams at the end of the year. Formal assessment is quite critical and it is indicated quite separately on the report so they know the examination result and there might be certain assessments that we choose that will be evaluated. Those are indicated as well . . . . Bearing in mind it is a private school, we are results-driven and parents have very high expectations of their children. (Patricia, Associate Teacher)

The two associate teachers expressed tensions between their preference for formative practices and the requirement to prepare students for exams. In her interview following the final practicum, Scarlett confirmed her earlier idea that exams were one of the main motivations for student learning at her practicum school. She was aware of a dissonance between the formative and summative assessment practices modelled and espoused by her associate teacher:

Their main tools were e-asTTle and lots of summative assessment. They sort of geared their teaching towards assessment so they are almost teaching to the exams at the end of the year in a way. That was their driver. I mean summative is good and you need that but my teacher was constantly saying “you might be asked this in an exam so you need to learn it.” It did obviously motivate them because they said “oh, I better know this. I’ve got to learn it!” I think less focus on the exam and just learn for the love of learning rather than learn to pass an exam. (Scarlett, Int. 3)
Reporting achievement

Reporting achievement to students, parents, the community and the Ministry of Education is a requirement of the National Administration Guidelines. State schools that have students enrolled in Years 1-8 are required to report to parents on National Standards progress and achievement in reading, writing and mathematics at least twice a year. Private schools are not required to do so. All the school leaders said their schools provided a written report to parents twice a year:

*The report goes home and then parents come down to discuss the report with the teachers. They do that twice a year. They have one at the end of Term 1 and they will have another one at the beginning of Term 3.* (Ruth, School Leader)

Writing reports are summative assessment actions teachers must do usually mid-year and end of year. They are time-consuming and must be consistent with school-wide format and practice. Changes to the format and frequency of reporting require understanding from teachers and the community. For example, Julia, a school leader, described how her school changed the reporting system due to the introduction of National Standards:

*One of the biggest changes for us in recent years was changing from portfolio system of reporting to parents to writing reports. That took a wee while. The National Standards required parents to be informed in writing twice a year so I looked at the National Standards website, looked at the examples, looked at examples of what other schools were doing. MUSAC [a school administration software programme] actually created reports for us so it was pretty easy just to choose one of their formats. I did a survey into the community into how well we were meeting their needs so I asked the community what they thought. Because we are maintaining the student personal reviews and student learning conferences we effectively report to parents eight times a year, personal review four times a year, reports twice a year and two student learning conferences.* (Julia, School Leader)

As well as written reports twice a year, teachers also had conferences with parents. In four of the five schools in which school leaders and associate teachers were interviewed, three-way conferences with the parents, student and teacher all participating were reported:

*We are required to report to parents and we do that twice a year in writing in relation to National Standards . . . We have the three-way conferences coming up next week. The report form has on it points for discussion and next learning steps so the parents are aware of it when the children are talking to it and they talk to their parents about where they need to go next in reading, writing and maths.* (Karen, School Leader)
In terms 1 and 3, we have parent interviews and in terms 2 and 4 we do written reports. The interviews are meant to be a student learning conference. The children set their goals every term and we do a personal review. They reflect on the term’s goals and say how they’ve met them then set next term’s goals. The parents will have those before the learning conference then we talk as a three, parents, child and I, about how they are going to meet that goal and what they can do at home and what we are going to do at school. So, the parents do get the personal review, which is the goals, beforehand. I think that helps understanding. I have used the e-asTTle documents too with certain children and talk about what they can do well and what they have learnt. (Rebecca, Associate Teacher)

The preservice teachers understood the need for reporting achievement, especially to parents:

Summative assessment is important for reporting to people. If you didn’t report that to parents then they would be asking for proof that you are actually teaching their kids. (Katelyn, Int. 1)

I think assessment is also important for parents. Parents and society need to know that children are achieving. My hesitation here is that I don’t necessarily know that a set of standards determines that but I do believe that we need to see that there is improvement, that there is a tangible difference in children’s lives as a result of what we are doing in the classroom. (Carmen, Int. 1)

Seven of the eight preservice teachers were parents themselves so they were able to look at the importance of reporting from two perspectives. As parents, they wanted to know if their children were achieving but as teachers, they expected to be able to demonstrate progress:

I like to have feedback from my children’s teachers because if they say to me “Look, your son is working at a certain level which is fine but there needs to be some extra work at home” then I take that on board. You’d think that because I’m training to be a teacher I’d be good at it but I have my mother hat on and it is really hard. We need those conversations with teachers. (Angela, Int. 1)

It is their investment. They are paying school fees, most of them anyway. I certainly do, pay for my own children’s fees and I need to know that the teacher is doing their job because at the end of the day, for me, the responsibility and onus is on the adult in the room not the children. They have responsibility to say to parents “this is where your child was at the beginning and this is where your child is at now” over the course of the year and as a parent you would expect to see some development or extension. You want to see results. (Rasela, Int. 1)

Writing reports and conferencing with parents requires confidence in the teacher judgements made and competence in the assessment practices used:
I think it’s important, reporting to parents on assessment and being confident in what your judgement is. I’ve often had that too “how do you know that?” I can back that up by “even though they got this in an asTTle test, this is where their writing is in some of the other assessments.” (Rebecca, Associate Teacher)

Rebecca said that preservice teachers always asked her about what to do in a parent interview as they found it a scary prospect. She thought it would be helpful for them to sit in on real interviews so they knew what to expect. Even with eight years teaching experience, Rebecca commented that she still got nervous about parent interviews. Katelyn said she had been fortunate to observe parent-teacher interviews during practicum experiences. However, Abigail was hoping to learn more about reporting when she went on her final practicum:

I have experienced parent-teacher interviews in my last two practicum experiences so they’ve been really good, seeing the reports and reporting to them, seeing what parents come back to you wanting to know . . . . They always want to know how well they are doing against other students and you’ve really got to be careful about confidentiality. You’ve got to not share others’ achievements. (Katelyn, Int. 4)

The summative assessment is obviously going to be part of our practicum too because there are going to be parent-teacher interviews. I’m looking forward to how the associate teacher prepares for that step of reporting back to parents. I expect that I am going to be involved. Hopefully he will allow me to be part of that process. (Abigail, Int. 2)

The five different schools had their own assessment schedules or timelines for when specific types of assessment, often summative, were to be carried out and not all schools used the same assessment tools. However, there was commonality in terms of increased teacher workload at certain times such as the beginning of the year and end of term. Not all assessments are administered to a whole class or group. For example, some literacy and numeracy assessments are administered individually to each child. This can present classroom management challenges unless a relieving teacher is brought in to release the classroom teacher. Rasela and Angela noticed how stressed teachers could become around ‘testing time’:

It is stressful for teachers in terms of time. It was as if they were scrambling to engage in the act. It was like where is the time in the day to get it done and then be able to teach these children effectively? As well, they have to meet all their needs, especially if you are a senior teacher meeting your syndicate’s needs as well as engaging in summative assessment. There are specific points in schools where everybody knows it is ‘testing time’. (Rasela, Int. 1)
In my last practicum I could see the teachers going “I’ve got all these tests to do. I’ve got to do them during the teaching day. I have to get a reliever in or I have to have the children so on task and focused so that I can pull children into the office and test them.” That was another eye-opener but I personally haven’t had the experience and it concerns me. (Angela, Int. 4)

During her series of interviews over the year, Angela often mentioned concerns about her lack of experience in using assessment tools and lack of confidence in summative assessment, including reporting to parents using National Standards. In her second year practicum she observed challenges the teachers had in reporting using the new format that incorporated National Standards information:

I really need to learn heaps more about summative assessment because I just haven’t seen enough of it. You have three practicum experiences but there is a whole bunch of experiences you don’t have including summative assessment, writing a report and the National Standards. Apart from my own children’s report that I’ve seen which is ‘meeting standard’ or just above it and has that little line, I just need to know more about that and how we judge. I know that a lot of the junior teachers where I was last year found it really hard to do that report. There is a lot of bouncing off each other, there’s a lot of talking. I know they all had to turn up with evidence and if they had a concern then as a team of teachers they were able to moderate or give each other that feedback on how to report. You are giving information to parents and other teachers for the following year so it is such an important thing. I know those teachers were even concerned that they were giving the right information. As a student teacher it is worrying, you don’t want to give false information. (Angela, Int. 2)

**Teacher educator modelling of assessment**

The preservice teachers indicated that during the assessment course Bev had been a good model of effective assessment. At the beginning, she spent time finding out their views about assessment. Bev included preservice teachers in monitoring their achievement in coursework assignments and provided extra support in identifying gaps in their knowledge and how to address them.

Modelling effective assessment practices through strategies such as questioning, interactive discussions, observations and feedback was something Bev strived to do:

I can sometimes see how she listens to us when we are talking in our groups, observing us, the whole time assessing what we are talking about. She will walk around the room and get little snapshots of what we are saying then she will come and talk to us individually. She will ask us some questions about our understanding so in that sense she is modelling effective assessment. (Scarlett, Int. 1)
In both the weekly assessment lectures and tutorials, small group discussions were important teaching and learning activities. Bev would get a feel for their understanding by walking around and listening to the groups working together looking at the questions, critiquing the articles they had been reading and talking about the practice-based scenarios they were critiquing. Several preservice teachers confirmed participating in these group discussions was a helpful process:

*In the assessment course it was interactive, like getting into groups and talking about “What do you think assessment is? What did you see in your school?” I found that was really quite helpful. A lot of us learn through that collaboration, that talking together. You are not just sitting down with a whole lot of writing or reading material. It is nutting out ideas, nutting out what it looks like, what it means to us.* (Abigail, Int.1)

*I would like more scenarios because it is more relevant to you. You are going to be in the classroom and you are going to be doing the things that these teachers are doing. You are going to make sure you’re not making the mistakes that these teachers are making in the little scenario. It was cool how it was linked to real life practice rather than what validity means, so the real life scenarios were good.* (Scarlett, Int. 1)

Additionally, Bev explicitly modelled assessment as learning as she sees it as an essential element of effective assessment. One way she did this was through conferencing:

*What we are also modelling is assessment as learning. We are trying to get them using it to monitor their own progress. Sometimes they don’t get it so where their assignments are coming in and they have clearly missed the mark, I always try and meet with them individually to talk to them. I will say “have you read the feedback?” and they will say “no, I just couldn’t face it.” I will say “let’s just have a look at what you’ve done and what the suggestions are.” I think if they know what to do, they’ll do it. Sometimes it is just too much information so then I will show them an exemplar and say “can you find these features?” and often they will say “oh, now I get it! It is often so much simpler than I was trying to show.” This is in one-on-one conferencing.* (Bev, Teacher Educator)

Another way Bev modelled assessment as learning was to put on an extra tutorial for preservice teachers to help them identify gaps in their learning. She used that information to help them prepare for their second assignment:

*Sometimes it is just around understanding the question, structuring the assignment and answering it in the most appropriate way, so it is around academic writing . . . They can quite often identify from the scenarios where the gaps are but they don’t
have the pedagogical content knowledge to understand what could be done, how that learning could be addressed. That is often a section that is done very poorly in the first assignment but it is done much better in the second one as we talk about where the learning gaps are . . . . The other thing that I will do is that I will make up an essay using all sorts of examples. I will get them then to be the markers and say “here is an assignment. Let’s mark this one together.” They will work on it in their groups and I will get them to give me the feedback by asking “how have you assessed that assignment? Why have you assessed it in that way? What are the things that are missing? What are the things that are there?” . . . . When it is not so personal to them, it is much easier to be objective and see the gaps. I’ve seen a huge big difference in the achievement between the next assignment and the first one. (Bev, Teacher Educator)

While lecturers in other courses may have modelled formative assessment, Rasela was the only preservice teacher who described becoming aware of it. She had not noticed formative teacher actions prior to the assessment course at the beginning of the second year:

Their questioning, that changed, like in the first year it was very different. In the second year I noticed that lecturers were asking us questions that required a bit more critical thinking on our part, a lot of open-ended questions where we would dialogue in groups as opposed to the lecturer just up there feeding us information . . . . [the lecturer] was coming around observing, listening to our discussions then she would go back and say “I actually picked up on what this group said, let’s go back to that, their understanding of that.” . . . . When we would question and clarify in the classroom a lecturer would say “oh not quite, what does somebody else think?” and open it up for discussion. So I did see formative assessment happening, the whole scaffolding of the learning in that environment. (Rasela, Int. 1)

The preservice teachers had begun to develop a foundation of assessment knowledge within a theoretical framework. They could make links between these understandings and assessment practice they observed in coursework and in school classrooms. As the next theme indicates, they also had opportunities to put this assessment learning into practice.
Opportunities to practise assessment

Cameo Four: Rasela – practising authentic assessment

Rasela had not had many authentic assessment experiences in her previous two practicum experiences. Furthermore, she said there was limited exposure to assessment tools and practising using the data during coursework. Rasela believed the associate teacher’s attitude towards letting her practise assessment was influential on her learning. In her second practicum, Rasela had tried to be clear what she needed to achieve on practicum:

My last associate teacher told me that I could teach and she would do all the testing but I replied that I needed to do some testing as well. She didn’t trust me and said “these are my students and I’ve got them to think about.” I said “well it is part of my practicum requirements.” I think associate teachers are sometimes a bit precious and afraid at the same time. I understand and can respect that but it didn’t do me any good. (Rasela, Int. 2)

I’ve had to be proactive in my own preservice teaching training where associate teachers weren’t willing to co-operate. Maybe a suggestion would be to review them, I mean I understand that it is really hard to get schools in the first place but they really need more stringent measures to screen who is actually taking preservice teachers on. (Rasela, Int. 4)

In contrast, on her final practicum, Rasela’s associate teacher gave her a lot of opportunities to practise assessment. Rasela had requested that she be given as much time as possible teaching with full responsibility, including assessment. A significant lesson for her was the reciprocal nature of planning and monitoring:

My understanding of assessment practices and tools became a lot clearer on practicum as opposed to the lecture environment at university. It was through coming into contact with the actual assessment tools and discussing with my associate teacher why they were being used, how we use those to group students and how we would use that assessment data to focus on target students. (Rasela, Int. 4)

It was using that information to plan my next maths session or my next literacy session based on evidence whether they were getting it or not because you could tell if they were not getting it . . . . Through learning conversations, observing, looking at their book work, marking their books, identifying whether they are making the same errors . . . . I had to change my planning . . . . You had to monitor, if you didn’t monitor then what were you there for? I was always looking at using formative assessment, observing, listening to their conversations . . . . I was always checking for understanding before the session and after the session then I would use that the next day, so constantly consolidating their learning and their knowledge. (Rasela, Int. 3)

Being able to link theory to practice helped Rasela develop confidence in participating in conversations about assessment:

Having the knowledge, theory and understanding of assessment and how to use assessment data in the classroom actually allowed me to engage in collegial, professional conversations with my team syndicate . . . . I felt more competent when I could spurt off
Rasela had a good understanding of assessment theory, particularly in respect of assessment for learning. However, she had not been encouraged or permitted by her second associate teacher to try her knowledge out in the realistic context of the classroom (HPL2). She took responsibility for her learning by making assessment a priority on her third and final practicum. Rasela used a metacognitive approach by self-monitoring her understanding about assessment then seeking help to close the gaps she perceived in her learning (HPL3). Her third associate teacher was willing to give her opportunities to try assessment practices and use assessment tools. She also supported Rasela’s developing understanding by explaining why the assessment was occurring and what the data was used for.

By having significant periods of full responsibility for teaching and assessing, Rasela learned about the integrated nature of planning and monitoring understanding. Rasela’s theoretical understandings of assessment increased when she was able to practise using assessment in the classroom. This gave her confidence to participate more confidently in assessment conversations with her colleagues. She was able to retrieve the theoretical assessment knowledge she had learned and apply it, both in the classroom through her own practice and when conversing with other colleagues (HPL2). Not only did Rasela learn more about assessment through those conversations but she also felt able to contribute on a professional level.

In Rasela’s cameo, she demonstrated the importance of being able to put into practice what she had learned about assessment, within an authentic teaching and learning context. Having opportunities to practise assessment was a major theme that came through the findings of this study. These opportunities took place in university coursework and out on school practicum, particularly when assessment conversations took place.
Practising assessment in university coursework

The preservice teachers reported that there were not a lot of opportunities to get hands-on experience in using different types of assessment during their coursework. They were introduced to some of the common assessment tools used in schools although there was little time available for becoming familiar with using them and interpreting the data. All the preservice teachers would have liked opportunities to practise assessment more before going on practicum so they had increased confidence. There was acknowledgement that they had been briefly introduced through coursework to some assessments such as running records, asTTle, PATs and ARBs:

*Yes, it was very brief so if we did a maths curriculum course they might briefly talk about the ARBs as an assessment tool so just little snippets or hints that you pick up along the way. There was never really any more than that, just little snippets.* (Scarlett, Int. 4)

*No, the only thing we did in-depth, and that is why I am able to do it, is the running records and that was done in Year 1. In my Year 2 assessment course, we were just shown [assessment tools] and maybe a couple of lectures explained them and that was it. We were shown them and understand what they look like. I think there could be more interaction by having a scenario where we are doing it and using other students as children, for us to carry out those types of assessment hands-on. I think it is because I am that type of learner.* (Maryanne, Int. 4)

Abigail’s following comment is representative of other preservice teachers who would have liked more hands-on experience at practising how to use the assessment tools and what to do with the information, rather than just knowing what they look like:

*More hands-on, more practise at doing running records. I would even like going into an asTTle test and being able to identify what the kids are doing in the schools so we can familiarise ourselves and when we go into the classroom it is not all brand-spanking new. I think there needs to be more of that in our training . . . . So I am not asking questions like “what does this asTTle look like? Where do you go from here? What do you do with this information?” I am sure they probably would appreciate it too that we are not coming in like that. I am surprised the university don’t take us through more hands-on experiences like go to a computer and take us through an e-asTTle test so we know what to expect at the school.* (Abigail, Int. 1)

As mentioned earlier by Bev, the use of practice-based scenarios in tutorials were another way of helping preservice teachers understand more about using data from various assessment tools to inform their practice. Although there was less hands-on assessment
practice during coursework than desired by the preservice teachers, the use of scenarios to critique and discuss practice was beneficial:

> Probably would have liked more time spent on how asTTle works, how PAT testing works and that sort of thing. The formative side was really good. I understand that thoroughly. It was modelled. It was very theory-based, the assessment course. We did get a scenario that we worked with so that was good. That was the part that I liked because we got some scenarios of teachers undertaking assessment. Some of it wasn’t so good and we had to critique what those teachers were doing wrong. (Scarlett, Int. 1)

Several preservice teachers commented that one of the main constraints on practising assessment during coursework was a lack of time:

> Just like everything else it seemed rushed and then one day you will be on to the next thing. Because assessment is so important you would think that they would allocate a longer time to get us really familiar with those [tools]. (Abigail, Int. 4)

> I think within literacy and numeracy where that is what they test on, we should be doing it. One chance to do a running record in Year 1, I think that was the only assessment I did for literacy and then we haven’t done any summative assessment for maths. I’m doing the optional maths course now but basically we’ve been told the names of the tests and what each one does but we haven’t had a go. It would be good to practise and look at more information but you need more time and they are just trying to cram everything in. (Angela, Int. 4)

> I still think that the university should have given us more adequate time to have that exposure to using assessment tools and informing our practice based on that. (Rasela, Int. 4)

The outline for the assessment course included an emphasis being placed on the appropriate use of assessment tools and tasks. Bev was asked what types of assessment activities and tools preservice teachers were taught to use as part of coursework, including the assessment course:

> We certainly introduce them to e-asTTle. We will spend a whole tutorial session on it and we give them access to be able to get on there. We will talk through what the reports look like. It is really just an introduction to it. More and more they are experiencing that in schools too. We talk about PATs, how that data is collected and used . . . . We often refer to the NEMP projects. Of course, we use the TKI site quite a bit to go in and look at the exemplars. They will be mentioned in the big lectures and then we will spend more time in the tutorials and give them access to getting on
the site themselves. We will give them the passwords so they can go back and look at it. (Bev, Teacher Educator)

Another way that assessment tools were introduced in the assessment course was by incorporating them and the data gathered into the scenarios. These scenarios were used to link assessment theory to classroom-based practice:

*The scenarios have always got a mixture of those data in them. So the teacher may have administered a PAT test, marked it and put it in the drawer. They will have downloaded an ARB so there are always elements of using all of those tools in the scenario. Sometimes a teacher will be looking at one student’s e-asTTle score indicating they are at Level 3 Proficient or whatever and comparing them to somebody else’s PAT score that is so many months old or to somebody else who has a NEMP score. We try and incorporate all those elements within a classroom story.* (Bev, Teacher Educator)

With the introduction of National Standards in reading, writing and mathematics, New Zealand primary school teachers are required to use a variety of assessments to make overall teacher judgements (OTJs) on what students know, understand and can do. Despite some preservice teachers’ statements they had received no teaching on National Standards, there was a main lecture given on it in the fourth week of the assessment course. There is not one set of mandated assessment tools that have to be used to determine if National Standards are being met. Hence, schools can choose to use a range of assessment tools and activities to monitor achievement. The university introduced some tools as described above but did not teach a specific set of assessments that all schools use:

*Well, we just can’t make that judgement because there is no compulsion for schools to be using them and obviously we have a lot of students to place across a very wide landscape but more and more schools are using these assessment tools. We are really encouraging them to engage and understand them and get involved in not only administering but marking and using the information and how that information is used and having those conversations.* (Bev, Teacher Educator)

There was an expectation by the university that the preservice teachers would be able to observe a variety of assessment tools being used authentically while they are in schools. Additionally, there was a practicum requirement for preservice teachers to participate in monitoring, analysing and evaluating children’s learning through a range of assessment procedures. Karen, a school leader, pointed out that it was helpful if preservice teachers had been introduced to a number of tools and their purposes:
Some of that discussion about the big picture stuff could certainly come from the university, the role of assessment within a school, the requirements of reporting. Again, that is standard right across all schools so that could be done at university level. I certainly think an introduction to the tools would be something the university could do so that when they come to the school they’ve got some knowledge or actually physically seen the kit or know what the GLoSS test is about, where it has come from, where they can access it on the NZ Maths website, that sort of thing. A little bit of prior knowledge of the tools, such as asTTle which is quite a complex tool, if they have understanding of it then it would help them get into the practice of it much quicker. It is like anything isn’t it, trying to fit it all in amongst the theory and everything else? (Karen, School Leader)

Practising assessment on school practicum

The teacher educator and school educators agreed that most of the practical experience of conducting assessments and using assessment tools would be gained on practicum. They believed that practicum enabled the preservice teachers to practise using assessments in an authentic context, with appropriate support. An important aspect of the final practicum is the period of full-class responsibility of the class programme. The preservice teachers were interviewed just prior to going on their final practicum and as soon as possible after practicum to find out what opportunities to practise assessment they expected and subsequently experienced.

Expectations of assessment on final practicum

In the second interview before going out on their final school practicum, the preservice teachers were asked what they expected to learn about assessment, particularly during their period of full responsibility. All eight preservice teachers saw the final practicum as their most significant opportunity to put all they had learned about assessment theory into practice:

We have done the theory, now I would really like to learn the practical, you know, what does it actually look like, this assessment of learning and assessment for learning? . . . . I think for me to be more aware of giving more meaningful, purposeful feedback . . . . I’m looking forward to doing that [practising assessment tools], PROBE, some asTTle testing which I think they will be doing the next lot in Term 3. Anything I am open to as I know that I really need to get hands-on, the more the better really. (Abigail, Int. 2)

Just having experience in doing assessment, converting it into actual proper practical experiences that are hands-on as opposed to assignments and courses and things . . . . I guess because I will be teaching for most of the time it will be about me practising what I’ve already learned as opposed to observing it. (Katelyn, Int. 2)
So far I have been observing and learning about it in theory so I am going to have to be putting it all into practice. It will be interesting. I expect I will be doing a lot of formative assessment during the lesson, while I am teaching, I will be assessing if they understand it. Do I need to explain this more? Do I need to change, make it easier or harder? (Scarlett, Int. 2)

The preservice teachers were asked what assessment practices they wanted to use or focus on in their final practicum. Formative assessment was mentioned by all of them, including feedback, feed forward, questioning, conversations, conferencing and using success criteria:

I will be observing and monitoring and looking at the written work and understanding what the gaps might be. I also think teacher conferencing will be important, just those informal chats and all that sort of stuff. I actually think they are more powerful at times than writing a whole heap of stuff in a book that kids may or may not read or understand. (Carmen, Int. 2)

Feed forward and feedback, questioning, they go hand in hand. I will have assessment in my planning. How do I plan to meet the LOs or AOs or whatever the school use? In my planning I would put success criteria or build success criteria and I guess that is what I put my feedback and feed forward on. (Penny, Int. 2)

There was an awareness of using assessment to assist reflection on their teaching practice. This included reasons such as when the teaching did not seem to be successful and needed changing or deciding on next learning steps:

We have to do our own personal reflections as well so that is really good to reflect on my own teaching practice. If I feel that I need to adjust my planning then I would do so. They tell us in our lectures that there is no such thing as a concrete plan. There are flexible plans and if it doesn’t work, that’s fine. Either move on or adjust it. It is like a living document. (Abigail, Int. 2)

I think with my previous planning when I’ve done lesson plans I haven’t thought about how will I assess this? So I will need to because now I know. I have done a lesson plan and then I have reflected on it. How well did I think I did? What would I do differently? Was it successful? (Angela, Int. 2)

Assessment was an area that Scarlett had decided to focus on in her final practicum. She had thought through a variety of strategies to monitor her students’ progress and whether instructional changes would need to be made. Because Scarlett had come to know the students in Part A of her practicum, she was confident in trying to involve them in their own learning and assessment processes:
When I am teaching kids I will be assessing through observation, listening to their conversations, asking them questions to find out if they understand this, have they grasped the idea. I will be assessing them against the success criteria that I have got. I will make sure they understand and if they do not understand then I will change it so that they do get it . . . . If they do some writing I will conference with them, mark their work. I would give written feedback as well. I think that is helpful but I think the oral feedback, right there in the moment, is probably the most effective because I don’t know how much they will take in from written comments. They might read it but they might not take it in. I will try all approaches . . . . I think there is room for self-assessment. It would help me see what they think of their work, where they think they are at and what they think they need to improve on . . . . and peer assessment as well. (Scarlett, Int. 2)

The school leaders were asked about the role of the practicum school in preservice teachers’ learning about assessment. They emphasised the importance of associate teachers’ modelling of assessment practice and giving preservice teachers plenty of opportunities to practise using different types of assessment and assessment tools:

This is where they do their learning. They can see it in practice, see it happening. (Ruth, School Leader)

I think giving them opportunities to practise, to have a group that they are responsible for their running records and GLoSS testing, taking writing samples and going away and levelling them . . . . giving them that practical experience. (Karen, School Leader)

They’ve got the theory so it is an opportunity for them to see it in practice or not. I’m sure there are schools where they go to where they don’t see it in practice. I’m sure there are classrooms even within our school where the practice is not as good as the theory. You learn from that as well, don’t you? As long as you have an opportunity to reflect, you can always say “I wouldn’t do it like that.” (Marie, School Leader)

Associate teachers were asked what they saw as their role in teaching preservice teachers how to use assessment. Their responses were similar to the school leaders as there was a focus on modelling assessment practice and giving preservice teachers the chance to practise then reflect on what they had done and would do next time:

Modelling of GLoSS, PROBE, those things I’ve just talked about and the chance to practise some of that, and analyse it and use it to inform your teaching. (Michael, Associate Teacher)

Well, I guess a very short answer to that is to share my knowledge and what I do. It is very important for the preservice teacher that she evaluates what is taught, how
has this actually gone? What did I aim to achieve in this lesson? How has it gone? Feedback from the students, and give them back feedback again . . . . What is she going to do with the assessment? How is she going to give feedback to the students? How is that going to then impact on what she has taught? She has to reflect on her practice and what is she going to do with what has already been taught? (Patricia, Associate Teacher)

In addition to practising using assessment tools to gather data, the associate teachers discussed the importance of preservice teachers practising using the data for planning or changing their teaching. Vicky thought preservice teachers needed the chance to make mistakes within a safe environment:

*It is allowing that preservice teacher as many opportunities as I can to practise in a controlled environment. They’ve got support and it doesn’t matter to me if they make a mistake because it is not going to affect the child. So, they can become more expert and it becomes more comfortable then they can analyse more comfortably. From the analysis they then can start to make decisions about what that child needs to do next.* (Vicky, Associate Teacher)

Furthermore, Rebecca considered part of her role was to help preservice teachers understand the purpose of the different assessments so they would be more prepared for the realities of classroom assessment as a beginning teacher:

*What I’ve tried to do is explain the purpose of every assessment, like why we are doing it and it is not just because the principal said you have to do it. Then, demonstrating how to use that and not just put it in a file and not do anything with it so how I consciously make an effort to change things and move my groups around. I feel like I have to demonstrate that to the preservice teachers coming. What is the purpose of assessment? It is not just to sit in a file on your shelf. It has to be constantly used, adapted and changed . . . . I think including them all the time and making sure they know why we are doing this and what the benefits are. It comes with experience though, especially as a beginning teacher you are so overwhelmed and suddenly people are saying “you have to assess this person, this person and this person.”* (Rebecca, Associate Teacher)

**Experiences of assessment on final practicum**

The third interview was conducted with the preservice teachers immediately following their final school practicum. During this practicum they were expected to take full responsibility for planning, teaching and assessment for a minimum of 15-20 days. The preservice teachers were asked how they had used assessment to monitor and evaluate their students’ learning. This was part of the assessment criteria linked to achievement of their practicum
learning outcomes. They all reported using formative assessment practices, for example feedback and conversations, to monitor learning against the stated learning intentions and success criteria:

By using formative assessment during the learning and also looking at the work and giving verbal and written feedback. With a lot of their work, with our learning pathways, I would put a post-it note with some detailed feedback and hand it back to them to read it then get them to conference with me quickly about their thoughts on my comments, one-on-one . . . . We always set success criteria that are left on the board. I would always have on the whiteboard ‘self-check, peer-check, I’m the last person you come to’, to try and create that independent learner focus. (Angela, Int. 3)

Several of the preservice teachers referred to ‘NRR’ or ‘noticing, recognising and responding’, related to interactive formative assessment, which they learned about in the assessment course:

I think a lot is that sort of formative stuff so as you are interacting with the students, listening, and noticing, recognising and responding. Bev will be delighted I remembered those three key words from our assessment course! That is invaluable, the noticing, recognising and responding to children because that is where you know they’ve either got it or they haven’t got it . . . . I am obviously thinking about my knowledge of learners or what the next stage is, what they need to be progressing to or where their areas of interest are so that I can then tailor my teaching. That is the one key thing I did learn, that flexibility is the most important part of a teacher’s learning style. Understanding that I might have the most amazing lesson planned but if my kids don’t understand a key principle of it, it is all thrown out the window . . . having that flexibility in being able to move things quickly. (Carmen, Int. 3)

Ensuring that students understood the questions they asked or the learning activity being undertaken was something that Maryanne and Penny quickly became aware of once they had responsibility for the class. By monitoring understanding, both preservice teachers were able to adjust their teaching if necessary:

One thing I really learned on that practicum was that at a junior level the children in my classroom became disengaged with their learning because they didn’t understand so I was able to then think “oh, they don’t understand this, how can I change it?” Once I built a rapport with the students, it became good. My hardest problem was that even though I was prompting questions, I could tell straight away that the children did not understand it so I had to be more explicit. That was a real eye-opener for me, how can I break this down some more? (Maryanne, Int. 3)
One of the things I monitored as I went was whether or not the children actually understood the task that they were sent off to do. I realised that if I was doing a teaching group while these guys were doing these hands-on activities, I didn’t know. I stopped the teaching group and just went around talking to them and some of them had no idea and were reading the scales upside down and things that I thought I had sorted at the very start. They were seven and eight year olds so it surprised me that they couldn’t read digital scales the right way up. So, I probably should have done reading scales first. (Penny, Int. 3)

Marking students’ work and recording it was another way that some of the preservice teachers monitored and evaluated students learning. Scarlett and Katelyn appeared to have done this consistently by using spreadsheets to record assessment data:

I kept a record. I would check their books and ask them questions so after a lesson I would check in and see how they were doing then record it. I’d used OTJ, to see roughly whether they had a beginning, proficient or advanced understanding and I would just record that in a little Excel document. (Scarlett, Int. 3)

With the pre-test for maths I put it into an Excel document and there were the questions so I could see what they got right and wrong then reworded the question into what strategy was needed. Especially with the lowest group, when I was meeting with them I made a point of going over maybe two questions from the pre-test and building in that content knowledge and then on to the lesson. (Katelyn, Int. 3)

All the preservice teachers reported that they had monitored students’ learning. Consequently, they were asked how they used that assessment information to make decisions about teaching and learning. Identifying learning needs and planning accordingly were typical of their responses:

I would have to look at their writing and look at the data, an asTTle and draft writing, identify what this student can do and what evidence of learning needs do we have? What does this student need to learn? What is their learning focus? You know, whether it was punctuation, detail for showing not telling and using senses. Then, what is your action as a teacher? (Angela, Int. 3)

I went through each of their e-asTTle results from two tests that they had done prior and a writing sample. I identified their gaps, like there were quite a few about purpose, and then grouped them from that . . . . I said “I’ve planned activities to try and bridge the gaps that you have and that is the reason why you will be doing the activities and the comprehension questions that you are doing.” So they knew what they were doing and what they needed to do. (Katelyn, Int. 3)
Maryanne provided copies of weekly plans for her reading groups, which she had modelled on one used by her associate teacher. They were very detailed and included assessment data for each student, current reading level, sounds and letters to be consolidated, concepts about print being focused on, learning intentions and success criteria, Maryanne explained that she had discovered learning gaps that were consistent across the groups and how she used that information for whole-class teaching as well:

*I knew I had to focus on sounds. I brought those across whole class, group and also independently. That was through sounds activities and stuff like that. It was from here that I was able to fill in those gaps. . . Even my high groups had the same problem as my lower groups. That is why I knew I had to do the whole class thing . . . they became more knowledgeable. It was a good success thing for me.* (Maryanne, Int. 3)

Scarlett taught in a Year 8 class and gave an example of how she monitored her maths lesson and changed her planning and teaching if required. She had workshops or mini-groups that she would quietly invite students to participate in or would work alongside them. Scarlett used this strategy as she was empathetic to students not wanting to volunteer that they did not understand:

*I had to teach them quite advanced maths, so I would teach it then gauge their understanding. If I felt they weren’t getting it or they needed more help or scaffolding then I would have to cater to them and adjust my plan and make time for some more scaffolding. I would pull some students aside and say “look, we are going to have a workshop, what questions do you have?” I identified these students by questioning and conferencing one-on-one because they were a bit shy.* (Scarlett, Int. 3)

While the preservice teachers had observed a significant number of assessment tools in Part A of their practicum at the beginning of the year, in the Part B practicum they hoped to be able to practise using assessment tools in the classroom themselves. The following Table 15 is a snapshot of the assessment tools the preservice teachers referred to using or assisting with during their third year practicum.
Table 15: Assessment tools used by preservice teachers on third year practicum

<table>
<thead>
<tr>
<th>Assessment Tool* (*from Assessment Tool Selector, Ministry of Education [<a href="http://toolselector.tki.org.nz/Assessment-areas">http://toolselector.tki.org.nz/Assessment-areas</a>])</th>
<th>Preservice Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GLoSS</strong>&lt;br&gt;Global Strategy Stage Assessment&lt;br&gt;Mathematics-Numeracy&lt;br&gt;Year 0-10</td>
<td>Carmen&lt;br&gt;Katelyn&lt;br&gt;Penny&lt;br&gt;Rasela</td>
</tr>
<tr>
<td><strong>IKAN</strong>&lt;br&gt;Knowledge Assessment for Numeracy&lt;br&gt;Mathematics-Numeracy&lt;br&gt;Year 3-10</td>
<td>Katelyn&lt;br&gt;Maryanne&lt;br&gt;Rasela</td>
</tr>
<tr>
<td><strong>e-asTTle</strong> online assessment tool&lt;br&gt;Mathematics-Multi-Strand Year 5-10&lt;br&gt;English-Reading Year 5-10&lt;br&gt;English-Writing Year 1-10</td>
<td>Carmen (Mathematics)&lt;br&gt;Abigail (Mathematics &amp; Writing)&lt;br&gt;Angela, Katelyn, Scarlett &amp; Rasela (Writing)</td>
</tr>
<tr>
<td><strong>Running Records</strong>&lt;br&gt;English-Reading&lt;br&gt;Year 1-8</td>
<td>Carmen&lt;br&gt;Maryanne&lt;br&gt;Penny&lt;br&gt;Rasela</td>
</tr>
<tr>
<td><strong>PROBE</strong>&lt;br&gt;Prose Reading Observation, Behaviour and Evaluation&lt;br&gt;English-Reading Year 3-10</td>
<td>Carmen&lt;br&gt;Rasela</td>
</tr>
<tr>
<td><strong>STAR</strong>&lt;br&gt;Supplementary Test of Achievement in Reading&lt;br&gt;English-Reading&lt;br&gt;Year 3-9</td>
<td>Carmen&lt;br&gt;Rasela</td>
</tr>
<tr>
<td><strong>Schonell Essential Spelling List</strong>&lt;br&gt;English-Spelling&lt;br&gt;Year 0-10</td>
<td>Angela&lt;br&gt;Scarlett</td>
</tr>
</tbody>
</table>

All of the preservice teachers administered a number of common literacy and numeracy assessments, using these tools either by themselves or together with their associate teacher. Some had less opportunity to practise using assessment tools or interpreting and using the data but this was possibly dependent on the year level being taught or the school’s assessment schedule/timeline.
Assessment Conversations

Conversations about assessment and students’ learning needs were an important part of learning about assessment while on practicum, according to the preservice teachers, school leaders and associate teachers. These conversations included modelling of assessment practice, discussion about next learning steps, feedback and feed forward, moderating and participation in syndicate meetings. Having a vocabulary or language of assessment was important for the preservice teachers to understand and contribute to these types of discussions.

Having conversations about assessment was valued by the preservice teachers. These discussions with associate teachers usually occurred informally in the classroom and gave them the opportunity to ask and answer questions about assessment:

We would have little discussions around where children are at. What have you noticed? What have you recognised? Generally it is the anomalies that stand out in your mind. Like you think somebody had done something or got something and then they’d do something and you would think “where did that come from?” She was very good because she actually encouraged me to do that so I wasn’t just sitting on the fence. I was able to contribute and say “this person is good at this” or whatever. (Carmen, Int. 3)

The associate teacher and I would have ongoing discussions about assessment. He gave positive feedback on questioning and observations of the children's learning. Sometimes he would say “that is really good that you noticed that.” In our professional discussions as well, he supported me in the observations. (Abigail, Int. 3)

On practicum the preservice teachers were expected to attend all syndicate and staff meetings that their associate teachers attended. Many of these meetings involved discussions around student learning and strategies to improve achievement. Being included and treated as a colleague seemed to give the preservice teachers confidence in contributing to the discussions:

We would have our own team meetings once a week and discuss achievement with a real focus being on raising achievement for writing. So, using examples of children’s work and comparing them to others who had been identified as being able to be moved up. We all had to bring examples of work to the meeting and dissect that piece of writing and what features we would focus on. (Angela, Int. 4)
From doing the assessment course I was able to engage in professional conversations about assessment and know what they were talking about, all the jargon. That was really helpful, just knowing what they were talking about. If I had been in that position two years’ previous it would have just gone straight over my head and I would have felt really overwhelmed. After doing the course I just knew what they were talking about and was able to keep up, mostly but not completely. (Scarlett, Int. 4)

In her final practicum, Katelyn’s Year 7 syndicate conducted a writing e-asTTle to assess narrative writing using the new prompts and marking rubric. The results put students at a higher level than previously assessed. Katelyn thought the new rubric was good but some of the teachers were a bit confused by it, for example in the area of language features, so the syndicate did some moderating. She found the moderation conversations around marking against the rubric very informative:

The moderating was really good with the four [teachers] in the syndicate. The assistant principal, who is assessment leader, came in on them as well. It was good to have those conversations and make sure you are all on the same page. People see things differently so you have to go in with an open mind and think “I’ve been marking too low or too hard and need to go back and re-look at them.” (Katelyn, Int. 3)

As a school leader, Julia expected her associate teachers to regularly have assessment discussions with their preservice teachers:

I think the practicum is vitally important for supporting preservice teachers to see it in action, to be actually able to have learning conversations about where children are at and what their next steps are and how they would support children to reach their next steps. So, if they’ve got the theory of curriculum content then they are actually seeing it in practice. I think an effective associate teacher will actually have those learning conversations with their preservice teacher about why and when and how they are supporting children, to scaffold children in their next steps which is where the formative assessment comes in. (Julia, School Leader)

As an associate teacher, when preservice teachers had full responsibility in her classroom Rebecca critiqued them on their questioning and feedback to make them think more critically about their assessment practice. She also made an effort to involve them in whatever assessments were required as part of her school’s assessment schedule during practicum:
I do tend to comment on questioning and feedback because I believe it is so important so when I am observing them on full responsibility I will say “that was a really good question” or “you kept getting yes or no answers so how can we change that?” Because we have to do formal assessments at the beginning and end of the term I expect them to lead that and use the results but with my guidance obviously. Anything I have to do normally I would expect of them. That is where we would sit down and I would say “you’ve got these results from the e-asTTle. Does that reflect where you think the children are at?” So I would be questioning them to make them aware. (Rebecca, Associate Teacher)

The preservice teachers realised their expectations of practising assessment on their final practicum. There were a differing number of opportunities for them to practise using a range of assessment tools then analyse and use the information. This depended on a variety of factors such as the school-wide assessment schedule, the classroom programme, associate teacher support and time available to participate in assessment conversations with colleagues. All the preservice teachers had opportunities to monitor student learning and inform their teaching through a variety of assessment for learning practices, which are intended to promote student participation in assessment. As glimpses have shown so far, these preservice teachers also learned about including students in the assessment process.
Carmen found participating in a peer assessment ‘a horrible process’. She felt competent giving feedback to her peers but not comfortable giving them a mark that would go towards their final grade (HPL2). Carmen believed the preservice teachers had not had enough training or support to make a fair contribution to a peer’s final grade, which is a high-stakes assessment. Carmen changed her marking against the criteria each time a different preservice teacher was assessed. She felt the group as a whole got more focused and harder on the criteria each time and was not sure if it was improved understanding of being an
assessor or more of an attitude of ‘power’. Carmen’s concerns about reliability made her consider whether her group should have gone back and re-assessed the first person.

Despite this experience, Carmen would still use peer assessment in her own classroom. She clearly articulated how it could be used formatively for this particular university coursework assignment in regards to using the peer feedback to improve the work \( (HPL2) \). Carmen felt more comfortable with the summative assessment being done by the lecturer who had the knowledge and experience to make a high-stakes assessment. She appeared to have a sound understanding of the purposes of formative and summative assessment \( (HPL2) \). Carmen linked her knowledge of feedback and peer assessment to her own experience, as the learner, of being assessed. Moreover, she suggested how the assessment could be adapted to improve understanding and achievement \( (HPL2 \text{ and } HPL3) \). Despite the incident being in conflict with Carmen’s knowledge about assessment, she deepened her understanding of peer assessment using a metacognitive approach, taking responsibility for her own learning \( (HPL3) \).

Carmen’s cameo described her experience of participating in the assessment of her peers as a learner. Including learners in assessment is a theme that arose in the findings. The preservice teachers were taught assessment as learning practices in the assessment course and expected to see them in action during practicum experiences. The evidence of this happening to varying degrees follows, as well as an example of how one of the participant schools includes learners in assessment.

**Student participation in assessment**

Many of the preservice teachers had strong opinions about the benefits of learners being involved in assessment of their own learning. They seemed keen to include classroom students in the assessment process through understanding learning goals and next steps towards achieving them, co-constructing success criteria, self-assessment and peer assessment:

*Self and peer assessment and teaching how to do that is really effective. It gives them ownership and power and it doesn’t always have to lie on the teachers. It is not like you are fobbing the work off or anything. It is an empowering skill for them to have. I think you have to make the effort and I am not saying that in my class it is going to go well straight away but it is something that would be a focus for me. I think you can learn a lot from your peers.* (Katelyn, Int. 4)
Assessment is important because it gives the student feedback so the students know where they are at so they can take responsibility for their learning as well. If they know what their achievement is then with the help of the teacher they know where to go next so they can start making goals for themselves. The student can take part in their own assessment, self-assessment. They can help with peer assessment which is very helpful in the classroom. (Scarlett, Int. 1)

On practicum, some pre-service teachers observed excellent modelling of practices that involved classroom students in assessment, whereas a few did not observe that consistently in practice or even at all. All the associate teachers said they involved students in assessment in a number of ways. These included discussing learning goals with students and how to achieve them, using self-assessment or self-reflection activities and using peer assessment for feedback, particularly in writing. Getting her Year 8 students to participate in their own assessment and determining what they were going to do next was something Patricia referred to several times during her interview. She said she regularly used peer assessment and self-assessment with her students and had found them to be honest in their evaluations. Patricia also used the students’ comments to inform her practice:

_I will give you an example. Today they just had an English end of unit test in a workbook. Azalea School is looking at getting away from one mark for this, one mark for that, one mark for the next thing. I said to the children “right, how did you think you did? If you were to grade yourself, what would you say? What did you think you did well? Where can you improve? What can you do with what you have learned from this?” . . . It is not something that I am going to use as an evaluation on a report. It just informs my practice, knowing my students’ perspective of their achievement and learning. How do they feel they are going? It is easy to tell if a child knows an adjective or a noun, the difference between the two. That you can pick up straight away but how are they feeling about what they have learned? What are they going to do with it? It adds purpose to their learning._ (Patricia, Associate Teacher)

As a preservice teacher in Patricia’s class, Scarlett observed the students do self-evaluations and peer assessments:

_They filled in an evaluation self-assessment sheet after they did a unit. It helped me see what they thought of their work, where they thought they were at and what they think they needed to improve on . . . I saw peer assessment as well. They’ve got some good relationships where they gave each other good feedback. I would have to just ensure that they gave the right kind of feedback to each other, not just “your work looks pretty.” (Scarlett, Int. 2)
Being at a private school, Scarlett understood the focus on summative assessment and exams, as well as the traditional, teacher-led constraints that Patricia was teaching within. She appreciated the opportunities Patricia gave her students to do peer assessments and self-assessments. However, Scarlett believed that the students could be more involved by developing their own success criteria and she shared what she would do:

*I would like to have had the kids to set the success criteria themselves. Rather than me saying “this is what I want to see, this is what you have to do to achieve”, I would rather have the kids say “well, this is what I think a good advertisement would look like. According to what we have already learnt these are the criteria that I would like to see.” I would like the kids to have a little bit more say in the assessment so that it is more student-led and also that way they would have a better understanding of what is expected.* (Scarlett, Int. 3)

Abigail also observed a significant amount of student involvement in assessment. Her associate teacher was Michael at Magnolia School. The following two examples demonstrate peer assessment and self-assessment practices that she observed then consequently used during her period of full responsibility in the Year 4 class:

*There was quite often peer assessment. What we did in my classroom was there was this teaching structure that was used. There was whole class teaching, there was peer or buddy work then there would be the individual. It was three-tiered. My AT and I thought the buddy/peer thing was quite effective. The children would assess each other’s writing. They would read a story, perhaps what they did in the weekend, to each other. They would be trying to pick up things they may have missed out. They might be reading each other’s story and might say “oh, you didn’t spell this right” or “hey this is a simile, which is really cool.”* (Abigail, Int. 3)

*We encouraged that [self-assessment] through CARDs, a self-editing thing. You had a laminated card and it stood for C – change, A – add, R – re-order, and D – delete. It reminded the children about the self-assessment procedure. We emphasized that they were to do that before they put their hand up asked the teacher to come round and check their work. Otherwise, you could spend ages with one child and quite often I found I was just repeating myself over and over so we were working on the children to be a bit more independent.* (Abigail, Int. 3)

Conversely, Maryanne had seen very little formative assessment practice that involved classroom students in their own learning. Despite this, she practised self-assessment with her Year 2 class:

*For my reading groups, especially with the lower groups, I used rubric smiley faces so they had to colour in what they thought of the learning that day. I was able to say*
“oh, you’ve got a sad face. Why do you feel that way?” They talked to their partner as well. (Maryanne, Int. 3)

Penny and Carmen also saw little assessment or self-assessment happening in their practicum classrooms. Both made the point that they would use it in their own practice but it would require teaching their students how to do it effectively so that it was worthwhile:

In my class, there wasn’t a lot although the children self-assessed their writing. They sometimes created success criteria that they knew they were working to. I didn’t see peer assessment and actually I had considered doing it as part of my own practice but the children didn’t have the language. When I started to get them to talk about their own learning they really didn’t have the language and I didn’t have the time to build it in to them. (Penny, Int. 3)

I don’t know how much my teacher used peer and self-assessment. I would probably incorporate that more into my teaching but I do understand that it would need a lot of teaching so that it was of value and it wasn’t just an add-on because it needs to look like we are doing it. It needs to add value. (Carmen, Int. 3)

Carmen had a sound understanding of formative assessment practices. She wanted her class to participate in assessment when she was in her period of full responsibility and described a number of different ways that she incorporated it into her own practice:

So for me there was a number of ways. The first way was obviously formative assessment, so using the thumbs up/thumbs down approach. I also had a self-reflection sheet at the end of the period and we had success criteria that they had to go and look at and mark off that they had met the criteria. We were doing speeches so there was stuff around the introduction, body and conclusion, and there was a self-assessment that they did right at the end. I also did peer assessment for children to reflect on not only their own learning but around recognising how other people had done work then going back and using elements of that if they wanted to within their own work . . . . I used questionnaires with the students. I used self-assessment opportunities so every week where they actually link into competencies or the school’s virtues. Peer assessment was another important aspect of my practice. (Carmen, Int. 3)

**Hibiscus School’s approach to including learners in assessment**

During the interviews with the five school leaders, there was little comment regarding students’ involvement in assessment. However, both the school leader and associate teacher from Hibiscus School reported the school’s philosophy of encouraging students to take
some responsibility for their learning and assessment. This was supported by what the preservice teacher saw happening in practice.

Julia, Associate Principal of Hibiscus School, was responsible for school-wide assessment policy and practice and had been very involved in developing school assessment procedures based around assessment for learning practices. Julia was the only school leader who reported organising professional development sessions for her teachers on student assessment capabilities. In conjunction with the Principal, Julia put a school-wide assessment policy in place that involved students in goal setting, self-reflection and writing a personal review to report progress against their goals:

*We have a system in the school where students every term have to set three learning goals. In every classroom in the school you will see a display on the wall of the goals for this term. The expectation is that the students understand where they are at in their learning, what their next steps are and set goals in a conversation with their teacher based on what they can actually do now. Older students will be analysing their asTTle graphs or analysing their GLoSS results. Even in the junior school you will see their reading colour wheel displayed up on the wall with the photo of the student where they are at in the colour wheel . . . . They will know what the next steps are and what words they have to read [at that level] . . . . and they can test themselves to see if they should be asking the teacher for a running record. So, even at six, we are helping those students to be responsible for their own assessment.* (Julia, School Leader)

Rebecca was an associate teacher at Hibiscus School and her comments resonated with those of Julia’s about the students being involved in setting their own goals and monitoring progress. She explained how her class set their own goals and would ask for an assessment if they felt they were achieving the goals:

*The children set their own goals every term based on their assessment. For example, we are just doing our end of term goals ready for term three and it is based on the e-asTTle tests, what they are doing in class and what they think their needs are. I think that is what makes it effective, because they are involved in it . . . . They will say “I think I am ready to try another e-asTTle test in reading.” We set goals so the children are able to say “I’ve met this maths goal. Can you give me another basic facts test? I think I have achieved this part now. Can I do another e-asTTle maths as well?” They are constantly trying to meet their goals which we set based on assessment . . . . Sharing it with them is a common practice in our school. We share with the children so they know where they are. We ‘B, P and A’ [Basic, Proficient, Advanced for each curriculum level] it so they should be able to tell you where they are with their goals. I feel that increases the children’s learning.* (Rebecca, Associate Teacher)
Rebecca also regularly used peer and self-assessment with her Year 5/6 class:

*Definitely self-assessment and peer assessment are really strong in my classroom. They learn so much from their own peers. With this we have developed a helping circle at the end of a writing lesson. The children sit in a circle and turn to the person next to them and say “I really like that” so they learn from their peers as well. I find that really effective.* (Rebecca, Associate Teacher)

While on practicum in Rebecca’s classroom, Angela observed the ways the students were involved in assessment of their own learning and incorporated them into her own practice. The following examples from Angela were indicative of the school’s assessment policy described by Julia and confirmed Rebecca’s practice of including learners in their own assessment:

*So with the learning, the children are able to set their own goals. Yesterday all of my class were working on their maths goals. They were able to set these themselves. The AT would have got their results and shown them and then they would have been able to set a goal . . . . The teacher does test them on their goals. I think teachers are trying to create more independent learners at that age, which is really new to me. They can log on from home and go and check where they are at with their goals. With the assessment these days it is available to parents and to learners.* (Angela, Int. 1)

*We just did that each day as self-check, peer check and they use something called ‘tickled pink’ and a ‘growing green’ [highlighters]. That is what they do to assess that they are meeting the success criteria. I’m using the highlighters doing formative assessment during the writing lesson then they have to do it with each other in a pair-share.* (Angela, Int. 3)

Hibiscus School is an example of a school with a cohesive school-wide assessment policy that includes learners in their own assessment by understanding their learning goals and monitoring progress. There was a unified approach to encouraging the students to take responsibility for their learning and assessment. This was consistent with the preservice teachers’ learning about assessment. While many of the preservice teachers were able to link the assessment theory they had learned with the classroom practice they experienced, it was not always the case. The next section explores this theme.
Connecting assessment theory and practice

Cameo Six: Maryanne – learning theory through practice

Maryanne had not been aware of effective assessment in action in her first two practicum experiences. This had made it difficult for her to connect assessment theory and practice until she went on her third practicum:

*That assessment course was an awesome course but in saying that, my level of understanding wasn’t 100% by the time that course finished. It wasn’t put into practice so I didn’t actually see what it looked like . . . . I had all the theory and when I had the practical side and being on [final] placement this year everything was able to connect. It made a huge difference to me . . . . I had a very effective associate teacher who had only come out of her studies five years ago so her knowledge was there, which made a big difference. She was very passionate about assessment.*

*My practicum was based on a lot of informal assessments. I had a class which was very diverse and some tricky behaviour but it helped me because I was not only able to build a rapport with the children but by doing so I was able to differentiate my planning to their needs. Because of the knowledge of assessing children informally, I was able to identify needs whereas I think a year ago I wouldn’t have. Because I was able to notice it, I could change my style of teaching, change their learning experiences.* (Maryanne, Int. 4)

During practicum, Maryanne was observed by her visiting lecturer Bev, the assessment course teacher educator, and it did not go as well as she hoped. Bev referred Maryanne to what she had learned in the assessment course. By Bev’s second visit, Maryanne had taken on board her feedback and the teaching session observed was successful. In her written comments, Bev noted that there had been significant growth and development in Maryanne’s curriculum knowledge, pedagogical knowledge, planning and particularly monitoring of the classroom students’ understanding, progress and achievement:

*Bev talked to me and referred me back to the assessment course “this is why, so try this.” Once she said that, I was able to click straight away . . . . So it was always related back to what I had done at uni.* (Maryanne, Int. 4)

Maryanne was asked in what other ways had she been able to make connections between her theoretical understandings of assessment and experiences of classroom assessment:

*I think it is through my own experience of practice and I never knew how important reflection was. I am very reflective now, well I try to be. I found that through reflecting a lot, I was not only able to understand what my associate teacher was trying to say but I also found myself looking back through university courses. Like our literacy course this year was a huge help on practicum so reflecting back and just looking through those courses I was able to make the connections and also apply different strategies from what was suggested in my courses . . . . I was lucky because my associate teacher was very good in giving me daily feedback and I would come home and reflect upon it. I’m so glad I kept all my notes [from university] so if I got stuck I would just go through different notes. It was through me clarifying my understanding and the feedback my associate teacher gave me.* (Maryanne, Int. 4)
When she was a school student, Maryanne had not understood the importance of assessment to learning. She found the assessment course very difficult because of her prior beliefs and understandings (*HPL1*). Additionally, Maryanne had not identified many instances of effective assessment practice in her first two practicum experiences so she had no frame of reference. Consequently, prior to her final practicum in the third year, Maryanne had struggled to understand what assessment actually looked like in practice in the classroom, however she was confident she could improve her conceptual understanding once she saw the practical application (*HPL2*).

Three things helped Maryanne make the connections she needed between assessment theory and practice. First, she had a supportive associate teacher who modelled good assessment practice and gave her many opportunities to get hands-on experience. Second, as a visiting lecturer, Bev showed Maryanne how to relate assessment practice back to what she had learned at university (*HPL2*). Third, Maryanne developed the ability to monitor her practice and reflect on what went well and what needed to change. She used the feedback given to her by both the associate teacher and visiting lecturer to identify gaps in her knowledge and practice. Maryanne also used her university coursework as a resource for reflection and as a prompt for practical strategies she could use. This type of metacognitive behaviour improved her learning about assessment through her own self-regulation (*HPL3*).

Maryanne’s cameo is an example of the importance of learning in a range of contexts to connect assessment theory and practice, which came through as a strong theme in the data. Examples of connections and conflict between theory and practice experienced in both the university and school practicum settings follow. Data is presented on how the preservice teachers were assessed on practicum, with an emphasis on the visiting lecturer’s role in aiding the preservice teachers’ assessment learning. There are also suggestions from a range of participants as to how assessment education could be better integrated between university and schools.

**Connections between theory and practice**

During the final interview all the preservice teachers were asked in what ways they had been able to make connections between their theoretical understandings of assessment and their experiences of classroom assessment practice. Their responses are summarised in Table 16:
Table 16: Preservice teachers’ connections between assessment theory and practice

<table>
<thead>
<tr>
<th>Preservice Teacher</th>
<th>Connections made between assessment theory and classroom practice</th>
<th>Quote from Preservice Teacher</th>
</tr>
</thead>
</table>
| Abigail            | • Used notice, recognise, respond (NRR) from assessment course to monitor understanding and get alongside students  
• Worked on building relationships with students that encouraged interactions and questioning. | “NRR would be in the forefront of my mind . . . . I want to be aware. I want to be informed if there is someone having problems in the classroom. I want to know so I can help them.” |
| Angela             | • Interacted with students, observing and modelling  
• Checked understanding of learning intentions  
• Used self-assessment and peer assessment to encourage independence in learning, taught at university and modelled by associate teacher. | “At the university, we have learned that you teach the children to be self-directed learners or independent learners responsible for their own learning . . . . [I said] “You self-check it, you read it, make sure it makes sense, get someone to read it for you then I am your door stop.” |
| Carmen             | • Assessment course laid the foundation for using assessment during period of full responsibility on practicum  
• Learned about NRR and practised it until it became intuitive with classroom students  
• Importance of quality feedback reinforced on practicum. | “[My ideas] have been reinforced primarily around the value of formative assessment . . . . I keep going back to our assessment course and how we did a number of readings on accurate, specific, quality feedback making the difference.” |
| Katelyn           | • Noticed lack of reliability in syndicate e-asTTle testing and contributed to moderation due to understanding concepts of reliability and validity from assessment course  
• Identified and practised effective feedback, modelled at university and by associate teacher. | “I think having them in succession [assessment course and second practicum] I realised I had experienced feedback at university then I saw it in class so could link them together and see how valuable it was.” |
| Maryanne           | • Reflected on feedback from associate teacher and visiting lecturer and applied in own practice  
• Combined practicum experiences, theoretical understandings and | “It made me more aware of the purpose of assessment for children ‘s learning . . . . knowing why these fundamental strategies are
coursework resources to improve assessment practice. required and are necessary for these children at such a young age.”

**Penny**
- Observed issues around validity and reliability in classroom assessments which clarified theoretical understanding
- Practicum confirmed that assessment is not a special tool but part of everyday teaching, as espoused in assessment theory.

“The theoretical awareness brought it to the forefront of my mind so I was interested in what assessment the teacher was doing and why she was doing it. Also, if it was done how it was meant, according to my lecturer.”

**Rasela**
- Constantly used NRR on final practicum to monitor learning and inform planning
- Knowing assessment theory allowed engagement in professional conversations about assessment
- Observed definite links between assessment theory and what was happening in third year practicum school.

“Theory says that if you expose a student to a concept at least three to four different times, they develop those conceptual frameworks. I did that by using formative assessment because you are noticing, recognising and responding.”

**Scarlett**
- Participated in professional conversations about assessment
- Practised NRR, which increased confidence and understanding in assessment practice
- Linked feedback theory to practice by doing it then listened to students asking for more specific feedback.

“It is all very well learning about the theory of assessment but you really learn how assessment works and how to do it through practice and actually doing it. So, making it a focus on practicum helped me understand what works, what doesn’t work so well and what I would do in my own classroom.”

The assessment course provided one source of theoretical foundation for the preservice teachers to increase their awareness and appreciation for how assessment could be used to improve student achievement. Assessment theory and practices that were included in university coursework were aligned with what the preservice teachers experienced in many of their practicum classrooms.

The associate teachers were asked what connections preservice teachers were able to make between their theoretical understandings of assessment and classroom assessment experiences. There was agreement that the preservice teachers brought their knowledge of
assessment practices and tools to practicum but needed authentic opportunities to practise in order to have real understanding:

*I think they know the mechanisms but they don’t have the experience. You can show a student how to do e-asTTle but it is out of context, that’s the reality of it. It is only once they get to use the assessments to inform their practice that it actually has much meaning for them . . . . Assessment is more than a single test, it is seeing the progress.* (Patricia, Associate Teacher)

*Most preservice teachers have a real ‘aha moment’ when they say “oh, this is what they meant when they were talking about this!” I think it is finally making that concrete connection between theory and practice. They already have the knowledge of why and how we assess, hopefully, but it is actually putting that into practice in the classroom with real, living test-tube babies [laughter]. Making sure that the practice matches the theory, that what they are doing matches what they have learned.* (Vicky, Associate Teacher)

Similarly, Bev’s view as a teacher educator was that making those connections helped bridge gaps in the preservice teachers’ understanding of assessment:

*I think it is really important that they see the links between the theory and the practice because that is where the big gap seems to be. It is all very well to have the theoretical underpinnings but unless you know what it looks like and how to do it and if you can make those links, it is not useful.* (Bev, Teacher Educator)

**Learning from assessment theory/practice conflicts**

The preservice teachers were also asked to recall instances during their teacher education programme where assessment theory and practice were in conflict or events may have hindered their learning about assessment. This is summarised in Table 17:
Table 17: Preservice teachers’ conflict between assessment theory and practice

<table>
<thead>
<tr>
<th>Preservice Teacher</th>
<th>Conflict between assessment theory and practice</th>
<th>Quote from Preservice Teacher</th>
</tr>
</thead>
</table>
| Abigail            | • Very little formative classroom assessment observed in first two practicum experiences  
                     • Lack of school-wide focus on assessment in second year practicum  
                     • Confused about all the different assessment tools being used, when used and what for. | “I didn’t see her walking around the classroom a lot either, noticing, recognising and responding. When it came to the summative, she didn’t talk a lot about it with me.” |
| Angela             | • Principles and purposes of assessment taught but not the realities of getting it done in the classroom  
                     • Knowing and interacting with learners understood as ‘best practice’ but not all teachers seem to do this. | “The university tells us that we are going to be doing this testing but they don’t tell us about the time restraints or how difficult it will be to get that done . . . . One of the teachers felt quite distressed about it.” |
| Carmen             | • Lack of exposure to National Standards in university coursework and uncertainty how teachers used National Standards information in class. | “I know that the school was reporting against National Standards. I don’t quite know how that all filtered into what teachers were doing in their classroom practice.” |
| Katelyn            | • Classroom and syndicate experiences around lack of validity and reliability conflicted with assessment teaching at university.  
                     • Emphasis on summative assessment in private school for accountability to parents. | “I think seeing [summative] practices like I explained wouldn’t change my practice like that. I believe what I learnt in my second practicum and at university is the right way so I’d do it that way as opposed to changing it to what I’d seen on my third practicum.” |
| Maryanne           | • Heavy school-wide focus on assessment seemed to stress some teachers and put pressure on their students to succeed in third practicum  
                     • Reality of time taken to get required assessments done. | “That is what I found confusing because we try and make our children come to school and learn with enriched learning and it is hard to give that to them when assessment is required constantly.” |
| Penny                  | Classroom assessment is not always valid and reliable  
|                       | Not all teachers seem to understand or practise assessment for learning  
|                       | Time constraints for assessment – in university and schools.  
|                       | “There is no time to do it. I even see it at university . . . . There’s no time for them to formatively assess us . . . . when you’ve been told that this is the way you want the children to do it, well show us!”  
| Rasela                | Lack of time in classrooms to practise assessment in an authentic context  
|                       | Variability in assessment practices and beliefs of associate teachers can have an impact on connecting theory and practice.  
|                       | “A tension was that there wasn’t enough time to practise it, to be using the assessment tools, having that experience and that exposure authentically.”  
| Scarlett              | Strong focus on summative assessment and exams contrary to university teaching about assessment for learning, however associate teacher used formative assessment practices within school-wide constraints.  
|                       | “As a private school, there was a big focus on summative assessment. They gear the kids up to exams at the end of the year. That, to me, was conflictting to what I had learnt at university.”  

The evidence suggests that there were three aspects of the preservice teachers’ practicum observations and experiences that came into conflict with what they had been learning about assessment: (1) the school-wide emphasis on the type of assessments conducted and how the information was used, (2) assessments that took up learning time if a lot of data was required for reporting and accountability and (3) the assessment expertise, beliefs and understandings of the associate teachers. The preservice teachers, however, used these conflicts or tensions to question and enhance their learning about assessment.

**Being assessed on practicum**

The preservice teachers’ experience of being assessed during their final practicum in Year 3 (Part B) had a variable impact on their ability to connect theory to practice. They were required to take full responsibility for the classroom programme for a minimum of 15-20 days, with the support where necessary of their associate teachers. In order to support the preservice teachers, a visiting lecturer from the university visited their classrooms a minimum of three times during practicum to observe them teaching planned lessons, view documentation, including planning and assessment, and discuss progress against the
learning outcomes. Written notes of the observations were provided and there was opportunity for open and constructive discussion. The preservice teachers were asked in what ways the visiting lecturer supported their learning about assessment and they reported differing experiences.

Abigail and Katelyn’s visiting lecturer specifically addressed assessment. Abigail’s visiting lecturer gave her written feedback about recording formative assessment observations and then talked through a suggestion for doing so. Katelyn’s visiting lecturer noted her excellent use of spreadsheets to record data and present assessment information to the students, as well as her use of formative assessment:

She commented that the planning was good but I needed to identify and make note of the children that I may have noticed that the lesson didn’t go well for or maybe didn’t quite understand what I was meaning. That made me think “yes, that’s right, I need to do that” but again you know you are so short of time . . . . She said just write it down on those post-its . . . as long as I’ve put it in there and I’ve noted it so I can go back and refer to it. Like she said, it is a living document, it is a working document. (Abigail, Int. 3)

From my practicum folder, she was pretty impressed with the amount of assessment that I had been able to have been a part of and also my ability to present it for easy analysis. I used Excel to create tables which give the kids a clear visualisation of where they are at and where their gaps are . . . . She said it was really good that I gave clear direction at the start then I spent the rest of the lesson going around questioning what they were doing and giving them formative assessment, as opposed to just letting them go for it. (Katelyn, Int. 3)

Similarly, Rasela’s visiting lecturer paid attention to her assessment documentation in her practicum folder. She also gave specific feedback on the way Rasela focused the students on the learning intentions:

She had a look at my practicum folder and said “oh, you’ve done a whole lot and you’ve done a good combination of assessments. That’s great.” After the observation, she said “it was really good to see how you kept bringing the students back to the WALT, reinforcing the WALT and making sure they were very aware of their learning aims or outcomes. That was really good to see. You were very explicit in making sure the students were always focused on their learning, why they are learning this.” (Rasela, Int. 3)

Penny and Scarlett both said that the only comment their visiting lecturer made in regard to assessment in the first visit was for them to make up an assessment sheet to record
formative assessments during the day. Both did this but when he returned the second time he did not ask to see it or give any feedback at all about their assessment practices:

*It was my visiting lecturer that required me to do an assessment sheet . . . . He didn’t look at it in the second visit so I had to show him.* (Penny, Int. 3)

*He gave me the idea of keeping a little Excel document and then after teaching something, use your overall teacher judgement, you know, beginning, proficient, advanced understanding of the WALT . . . . He didn’t comment on my questioning or anything like that.* (Scarlett, Int. 3)

There was no discussion about assessment with Angela and Carmen’s visiting lecturers. They did not comment on assessment information contained in the practicum folders nor did they provide any observation feedback related to assessment:

*No, there were no discussions around assessment. She looked in my practicum folder. I had in there some evidence of assessment which is work that is photocopied with my comments but she just said as a beginning teacher I had records of writing and maths, but not reading.* (Angela, Int. 3)

*He just said my file was superb but nothing specific about assessment . . . . It was around management and how the children are working and my control of them, my roving eye, and my flexibility in terms of responding to students. I don’t remember anything directly around assessment.* (Carmen, Int. 3)

As shown above, the input of visiting lecturers into preservice teachers’ learning about assessment seemed quite variable. Penny raised this as an issue she was concerned about and specifically compared her visiting lecturer with what she thought Bev would have expected:

*It would depend on our visiting lecturer as to whether we actually did that [discussed assessment] so I didn’t other than the tick sheet he wanted me to do whereas Bev would have expected her preservice teachers to do a heap more and prove a lot more. She would have been asking me to be able to explain how I improved learners’ achievement whereas my visiting lecturer talked about himself . . . . I don’t know that they get any training and it is really hard to complain about them. That affects the outcome of whether you actually are prepared. One visiting lecturer might think you are and Bev might not.* (Penny, Int. 4)
Bev discussed the assessment conversations she had with preservice teachers in her role as a visiting lecturer when visiting them in their practicum classrooms. She said she always gave feedback on how they were using assessment to inform their planning:

There is a focus on what assessment information they have gathered to make these decisions about a particular piece of planning. I will always be looking on their planning for some identification of who didn’t grasp the learning outcome and how that planning has been changed for next time . . . . Those would be the sorts of professional conversations we would be having with them whilst they are on practicum. So, in their reflections as well I would expect to be seeing much more around those sorts of things rather than justifying their practice and saying “the lesson went really well. I really enjoyed it.” Well, that is nice but “what did the children learn?” is going to be the question I will be asking and “how did you know if they did or they didn’t?” As a visiting lecturer, I am always going to be asking them and looking at their reflections. I am always going to be looking at their planning. (Bev, Teacher Educator)

Bev’s description of how and why she observed preservice teachers’ questioning skills is consistent with the feedback and feed forward she gave Maryanne as her visiting lecturer:

I will often do an observation where I will maybe look at the types of questions that the preservice teacher is asking, such as open or closed questions. I might do a ‘who the questions are being directed to’ type of observation, on-task and off-task sort of behaviour of how those children are then brought back into the conversation, how they are using questioning skills to clarify understanding or the use of prompt questions. Those are the sorts of things I try to comment on when I do observations of preservice teachers, always bringing it back to how they are facilitating that learning. (Bev, Teacher Educator)

At the conclusion of the period of full responsibility, a provisional assessment of each preservice teacher’s performance against the practicum learning outcomes was discussed and confirmed with the associate teacher. Following this, the preservice teacher, associate teacher and visiting lecturer participated in a professional conversation which gave the preservice teacher the opportunity to share evidence of meeting the criteria. The preservice teachers had responsibility for leading the professional conversation. They had to demonstrate achievement of the four practicum learning outcomes and two self-selected aspects of the following NZTC GTS:
Figure 2: Excerpt from third year practicum brief regarding NZTC Graduating Teacher Standards

<table>
<thead>
<tr>
<th>Professional Practice:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4b:</strong> use and sequence a range of learning experiences to influence and promote learner achievement.</td>
</tr>
<tr>
<td><strong>4c:</strong> demonstrate high expectations of all learners, focus on learning and recognise and value diversity.</td>
</tr>
<tr>
<td><strong>5a:</strong> systematically and critically engage with evidence to reflect on and refine their practice.</td>
</tr>
<tr>
<td><strong>5c:</strong> know how to communicate assessment information appropriately to learners, their parents/caregivers and staff.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Values &amp; Relationships:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6c:</strong> build effective relationships with others</td>
</tr>
<tr>
<td><strong>6e:</strong> demonstrate respect for te reo Māori me nga tikanga-a- iwi in their practice.</td>
</tr>
</tbody>
</table>

(Excerpt from Practicum Brief, Primary Year 3, Evergreen University)

The preservice teachers all provided examples of evidence or artifacts such as observations, planning, assessment, students’ work samples and the preservice teachers’ reflections on beliefs, theoretical understandings and teaching practice. For example, Katelyn selected Graduating Teacher Standard **5c** in regard to assessment practice:

I did **5c**, know how to communicate assessment information appropriately to learners, their parents/caregivers and staff. I said that I obviously haven’t communicated a lot myself to the parents and caregivers but I had attended parent-teacher interviews so I knew how to do that. My associate teacher had a good way presenting assessment information to the parents . . . . I explained the IKAN Excel document that I created, which was on the wall, and how I had provided feedback and feed forward in their writing books. Also, in the narrative unit when we were doing the WALTs there were exemplars of, say, a 3P and a 4A so if they wanted to be a 3P, that’s what their writing would need to look like. The other evidence was how I’d grouped them and I had the list of gaps from the e-asTTle that we were going to cover. (Katelyn, Int. 3)

This explanation is indicative of the way these preservice teachers could draw links between theory and practice. As this example demonstrates, by the end of their third year practicum these preservice teachers could make connections between the GTS, their university coursework experiences and their practice in schools.

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7 Māori language and culture
Integrating assessment education

As shown earlier, there were many examples of the preservice teachers being able to connect what they had learned about assessment at university with what they were experiencing in the classroom. There were also instances of conflict between what they were taught and what happened in schools. In general there appeared to be major alignment between assessment theory and practice in both learning settings. Nevertheless, all the participants had views on how further integration could be supported. The three most common ideas were: (1) more time in the classroom, (2) communicating expectations more clearly and (3) improving triadic relationships between the preservice teachers, associate teachers and visiting lecturers.

All of the preservice teachers spoke about spending more time in the classroom. They felt that the more experience they had then the more knowledge they would have of the realities of teaching and the more confidence they would gain. While this would apply to any aspect of learning to teach, they felt more time in schools would give them a better overall view of different assessments happening throughout the year and progress in student achievement. Angela said they had discussed how they could be better prepared:

_We feel that with an emphasis on literacy, numeracy and ICT we should be having more access to the assessment tools and doing it once a year is not really enough. We’ve also felt that our practical experiences have been too few, just once a year . . . You only get three year levels of learning and it is very hard. We thought that we should be having two practicum experiences a year, perhaps two five-week blocks per year right from the start._ (Angela, Int. 4)

Recently, in the third year of the teacher education programme the practicum was split into Part A for three weeks at the beginning of the year and Part B for seven weeks later in the year. This was mentioned by some associate teachers as a successful innovation:

_I think my preservice teachers have got a lot out of coming in for those first three weeks not only just for assessment, even to see how it is set up. I think in assessment it is good because I’ve spoken to preservice teachers and they’ve said “I see what you have to do at the beginning of the year now.” There is always a lot and I think it is a good thing that should continue._ (Rebecca, Associate Teacher)

Rebecca believed that more time in the classroom during the year would enhance assessment opportunities for preservice teachers such as moderating, making overall teacher judgements, reporting to parents against National Standards and observing parent
interviews. She suggested that two placements a year, every year would be beneficial, echoing Angela’s comments. Alternatively, Julia, a school leader, proposed being in the classroom every week as a more integrated approach to learning about assessment:

_They need to align [assessment] theory and practice more effectively so students can actually see the purpose of it, see it in action, see it observed even if they had the opportunities for one or two days a week when they spent some time in a classroom._ (Julia, School Leader)

The school leaders suggested better communication was needed about what the preservice teachers were taught about assessment at university and what the university expectations of the school were regarding their role in teaching them about assessment:

_Maybe if we were informed about what they do at university in terms of assessment . . . . What does the university expect schools to be covering? What are they not covering because they are thinking it will be done in schools? The university might be thinking they don’t need to teach the preservice teachers about GLoSS because schools will be showing them or they don’t need to teach them about asTTle because they will see that in their classrooms. We could be assuming the other one is covering it or we could be bombarding the poor preservice teachers with overload because they are getting it from university and us._ (Karen, School Leader)

_I think together we basically have to develop a shared understanding of what is expected . . . . I just want to make sure that whatever we do, that we are putting out the best student teachers that we possibly can. I’m really committed as a school to actually provide that any way we can . . . . So, I never say the university should do that and we shouldn’t do that. Just get on with it and do it really well in a partnership approach._ (Ruth, School Leader)

Three associate teachers also wondered about what preservice teachers were taught about assessment outside of the classroom. Some also had questions about practicum requirements, even though they have a practicum booklet to refer to:

_I am not entirely sure what theory they are being taught at the universities. I can only remember back to when I studied here at the university._ (Michael, Associate Teacher)

_I don’t know what these students actually know. I would find that very helpful if I knew what these students have actually covered. What do they know how to do? I don’t know how familiar they are with e-asTTle, for example._ (Patricia, Associate Teacher)
Where I think this might be acceptable, the visiting lecturer who is actually marking the preservice teacher might not. It would be nice if we sat down and talked about that at the beginning of the practicum and then obviously when he or she comes in to assess her teaching. They could come out even just as an introduction. Again with assessment, do we have to set up particular assessments tests just so the preservice teacher can do her six children in detail or can she use what we already do? Just questions like that would be nice to know. (Rebecca, Associate Teacher)

Ensuring consistency between the university and the schools in improving preservice teachers’ practice was mentioned by school leader Barry. He also suggested his associate teachers would benefit from getting feedback on their contribution to the preservice teachers’ learning:

\[I \text{ think at the beginning of a practicum the visiting lecturer should come out, sit down with all the associate teachers and say the students are at this level, this is what they are doing, this is what we are looking for, this is what we would hope you would do to advance their practice. There should be an evaluation by the student of how well we’ve done and how well it has linked up at the end of it. It is just too isolated . . . . My people need feedback. I know they get paid for doing it and they are doing a valuable service but the only way the value of that can be appreciated is by getting feedback. (Barry, School Leader)}\]

Improving the triadic relationship between the student, school and university, was also mentioned by the other school leaders. For example, Julia suggested a way for a visiting lecturer to develop a closer association with one or more schools in order to better support preservice teachers in such areas as developing effective assessment practice:

\[\text{Could a lecturer be assigned a group of schools to work closely with? Then, when preservice teachers were assigned to those schools they could have conversations, lectures, practical sessions about how assessment is undertaken at that school, so a lecturer could have a cohort of four or five schools and say “this is how it looks at this school.” There will be differences but lots of things will be similar as effective practice is effective practice at the end of the day . . . . The lecturer has an understanding of the processes and personnel and relationships at the school . . . . The better the relationship the associate teacher has with the university and the preservice teacher then the better the triadic. The triadic doesn’t become a theory then does it? It becomes actually a practice. (Julia, School Leader)}\]

Bev also had the view that the triadic relationship offered a pathway for a more integrated approach to assessment education:

\[I \text{ think the learning conversations between the visiting lecturers, student teachers and associate teachers provide a way, making that an inclusive discussion but really} \]
focusing it around that assessment literacy knowledge and the importance of that. (Bev, Teacher Educator)

There are constraints on the number of practicum visits, possibly by the visiting lecturer, and opportunities for conversations around assessment during such visits. One of the issues Bev raised was the lack of lecturers with current teaching registration:

There are fewer and fewer people in the university who have a current teaching registration and now the Teachers’ Council are insisting that visiting lecturers must have a current registration. So I think opportunities for seconding teachers into the university to do some lecturing and teaching and involving them in our teams is another way of strengthening their theoretical knowledge . . . . encouraging associate teachers to do some postgraduate study . . . maximising opportunities for that to happen, for them to continue their own professional development, maybe even rewarding them in some way for doing it. (Bev, Teacher Educator)

Another way to integrate assessment education in universities and schools was put forward. Assistant Principal Marie was responsible for both the preservice teachers and the beginning teachers (or provisionally registered teachers, PRTs). She proposed having stronger links between the two programmes:

I think it is really interesting because I do the student teachers and I do the PRTs, and there is not a lot of dialogue, that’s just my perception and I might be wrong, between the PRT programmes that are run for them when they are in schools and what happens as student teachers. It would be great to get more of a three-way dialogue between the schools, preservice and then inservice because I think so much could be built from that. (Marie, School Leader)

Similarly, Vicky is both an associate teacher for preservice teachers and a tutor teacher for beginning teachers (BTs). She explained how she used both her roles to support Penny’s learning during her time on practicum, which would have included assessment:

I think that one of the things they could do for third year preservice teachers which would be really powerful is try to place them, where possible, in schools that also have BTs. I introduced Penny immediately because I am also a tutor teacher for a beginning teacher. That has been really good for Penny to follow Beth on her journey as a BT and ask what she has found tricky. Penny comes to my meetings with Beth quite often so she sees the BT induction process we go through here and the support that you can expect. Also, the stuff that Beth has to think about as the year goes on so Penny is also seeing a portrait of that and what it will look like for her next year somewhere. (Vicky, Associate Teacher)
There was significant alignment between assessment theory and practice in coursework at university and the practicum classroom, although all participants suggested how it could be improved and better integrated. The preservice teachers could clearly identify instances when they could make connections and when there were apparent conflicts, both of which impacted their learning about assessment. Some of them appeared more willing or able to use these insights to reflect on their learning and more motivated to use a metacognitive process to improve their assessment understandings and practice.
The role of metacognition in assessment learning

**Cameo Seven: Scarlett – being motivated to monitor own learning**

When Scarlett was asked what she had learned in the third year of her teacher education programme about assessment, she responded:

I’ve only done one course dedicated to assessment and hadn’t really made it a focus on any other practicum. Maybe it was glossed over very briefly in the curriculum courses and I felt like this was a big gap for me that I needed to fill so assessment was my focus . . . . The school I was at, they used lots of summative assessments so it was good in a way to see how the school views assessment, how they use it. There were obvious holes, which I think was good for me to see. It all contributed to my learning and understanding. (Scarlett, Int. 4)

In addition, Scarlett was asked to evaluate her assessment understandings and practices at the end of her teacher education programme. She said:

I feel quite confident in assessment. There is definitely room for improvement but I think that is only going to come with practice now and by questioning and discussing. I think I feel quite confident because I have had some experience in it but also because I am open to change. I will take the risk of doing new things and if it doesn’t work then fine, you just go with it really . . . . I think it is going to be the record keeping and keeping the evidence that is going to be the challenge. I feel really confident assessing them formatively. If I am having a conversation with a child and working one on one, I feel confident in assessing their understanding. It is just going to be the paperwork. I still feel like I’ve got lots to learn and I think I’m going to do most of that learning through trial and error . . . . I feel pretty confident on gathering the information and then using it. So, if I am teaching a lesson and then I decide that “these kids are not grasping it, it is a little bit too advanced for them” then I would step back and take it down a notch . . . . I will be monitoring and using the information to improve my teaching. You have to be flexible don’t you? I am still learning so I am going to be changing what I am doing all the time. I am aware of that and I just hope that I am changing for the better . . . . There is a lot to learn but I don’t feel like I am going in unarmed. (Scarlett, Int. 4)

In the third year of her teacher education programme, Scarlett decided that she wanted to focus on assessment in her final practicum. When she started her programme, Scarlett thought of assessment in terms of pen and paper testing (HPL1). She now considered assessment to be important for both learning and teaching. Scarlett was confident in her theoretical assessment understandings but wanted to put a greater emphasis on linking theory to practice (HPL2). On her final practicum, although there was a lot of summative assessment, Scarlett still took a positive view of her learning experience at that school.
Scarlett was self-motivated to improve her assessment practice. She made it a personal learning goal as she believed assessment to be important (HPL3). Through strategies such as monitoring her understanding, reflecting on her own practice and being willing to try new things Scarlett demonstrated a metacognitive approach to learning, self-monitoring against her own learning goals (HPL3). It appears she has done this consistently throughout her teacher education programme, as suggested in her earlier comments. For example, in coursework Scarlett found written feedback and feed forward very helpful for future assignments, identified effective modelling of assessment practices and asked questions or sought help when seeking clarification of theory or practice. She took responsibility for her learning and demonstrated aspects of self-regulatory behaviour. Scarlett was aware she still had a lot to learn about assessment and was open to changing and developing her practice (HPL3).

The theme of metacognition came through the data as all the preservice teachers’ displayed it to some degree in their learning about assessment. However, there appeared to be a variation in the frequency and effectiveness of the metacognition reported by the different preservice teachers. Aspects of metacognitive awareness and the preservice teachers’ metacognitive behaviours or strategies evident in the data are reported next.

**Metacognitive awareness**

One way that the preservice teachers monitored their learning about assessment was through regular reflection on their teaching practice while on practicum. Comments from Abigail and Scarlett were typical of the preservice teachers’ beliefs in the importance of reflection:

*I do think it is very important otherwise how will the teacher know what direction to take the children? How am I doing? It comes back to reflecting on my teaching practice. When I am planning a lesson how do I know that the children have got it and what I want them to learn? Does that come across clearly and do I need to adjust my planning or my teaching instruction?* (Abigail, Int. 1)

*I will reflect after every lesson. Was it successful? Did the kids get it? Did they meet the success criteria? I will probably be reflecting while I am doing it. Is this going well? Maybe I need to slow down. Do I need to scaffold them a bit more? Do I need to work one-on-one with any student that is struggling? Then I can use that.* (Scarlett, Int. 2)
Carmen extended the concept by reflecting on her own experience of being assessed then applying it to her students. She appeared to monitor her own learning effectively but the goal was not only about her learning but also focused her students’ learning:

*I would hope for me as a teacher a driving force would be to reflect on my own practice so that I am maximising my children’s learning . . . . I reflect on my own learning at the moment and think about when I have an assessment done and how it impacts on my self-efficacy and my self-confidence in terms of how I view myself.* (Carmen, Int. 1)

As a high achieving tertiary student, when Carmen received a lower mark than she had expected on her first assessment course assignment she was disappointed but articulated how she learned from it. Carmen said she worked hard on her assignments, attended carefully to the assessment criteria and monitored her academic work accordingly. However, before getting her assignment back she reflected on the criteria again and became aware of a gap in her writing. This self-evaluation was subsequently confirmed by the feedback she received:

*When I got my mark back I was upset about that then I looked at the feedback that Bev had given me on my essay and her feedback was exactly what I had gone back and reflected on and seen that there was a gap. It was all about how you do something in practice . . . . I had managed to do a really critical theoretical analysis of what had happened in the classroom but what I hadn’t been able to do was then talk about what best practice should be. So yes, this was all wrong but what should they have done to make that practice better? So there was my gap. I’d seen that for myself in the reflection.* (Carmen, Int. 1)

Before going out on her final practicum Katelyn demonstrated awareness of what she needed for improving her learning. Like Scarlett, Katelyn was prepared to take responsibility for learning about assessment:

*Because I will be teaching for most of the time it will be about me practising what I’ve already learned as opposed to observing it . . . . I guess getting feedback and feed forward on myself about my assessment practices. Being assessed on my assessment . . . . I am confident enough to ask for it. I don’t just want good feedback.* (Katelyn, Int. 2)

Katelyn said that she reflected consistently, not because of any particular requirement but because that is how she thinks and learns. She believed in seeking out opportunities if she was not getting what she needed:
Because I know I am a beginning teacher and I know I’ve got so much to learn, my associate teacher recognised that I took a lot of risks and I wasn’t afraid to . . . . I think people should put their hands up even if they don’t get given opportunities . . . . [for example] going to the parent interviews. You need to take the lead and say “I would like to have the opportunity.” I do know of some people who said they didn’t get any opportunities. (Katelyn, Int. 4)

Rasela explained how she had initially written reflections because of the requirements but had changed to using reflections to make judgements on what was significant:

This is how I work. I look at what the requirements are, what the learning outcomes are and if it says you must do three reflections, I’ll do three reflections. The truth is though, as a student teacher, I am constantly writing screeds and screeds and screeds, in the beginning especially. As time progressed and I evolved, I now just write down what is important. (Rasela, Int. 2)

**Metacognitive behaviours**

Using feedback and feed forward in coursework and in the classroom was been raised many times by the preservice teachers as a strategy for improving their learning about assessment as described previously in the findings. For example, Maryanne and Penny used feedback to adjust their learning and if they needed more information they would seek it out:

I like my feedback. I think it is because I can accept my faults. I am not a perfect learner. I do my best but if someone has pulled me up for it, I won’t question it. I just get it, look at it and think okay so that’s what I need to do. If I know that they’re ‘wrong’ well then I would go and see my lecturer and ask “what did you mean by this?” (Maryanne, Int. 1)

I handed my science assignment in and got 7/10 for it so I knew there was something wrong but there was no feedback on it. I sent it back to our original lecturer rather than the marker and I said to her “I want to use this in my practicum and know there’s stuff wrong in it. Can you fix it and send it back?” I didn’t know what I’d got wrong because it didn’t say. So she sent it back and I could see where I went wrong and that was great because actually I knew, I just hadn’t explained it very well at all. So that was useful. (Penny, Int. 1)

In her second interview, Rasela brought an assignment she had completed early in her teacher education programme to show the feedback she received then compared it to some later examples of assignment feedback that demonstrated a significant improvement in her writing and grades. She considered it to be an illustration of her learning because she had acted on the feedback provided to improve her achievement:
Coursework feedback on my learning . . . . It is a form of assessment that I have been able to use and go “okay, I really stuffed up on that.” This [assignment example] is a funny one because I think it was only my first or second semester in Year 1. I thought “on my life, I really can’t write academically.” It was really cool because I was able to take it and run with it and improve. (Rasela, Int. 2)

There were many instances of the preservice teachers acknowledging assessment practices they found hard or needed to develop. Maryanne and Penny both found running records in reading difficult. They adopted different but effective strategies to improve their practice using the literacy assessment tool:

Even though running records were given to us in Year 1 and I just saw it this year [on practicum], once I went through it with my notes, like bringing out my Year 1 courses again, I was able to go “oh yes, that’s right” or as soon as she said “meaning, visual, structure” I knew straight away what it was . . . . Once I pulled out my notes and using my literacy bible Effective Literacy Practice I was going “I’ve got it!” (Maryanne, Int. 1)

I found running records hard so I’m practising that. I’m doing one every week. My associate teacher was a Reading Recovery teacher for years and she said “Look, by the end of the year you will be sorted but you need to do one a week for me.” (Penny, Int. 1)

An aspect of Penny’s formative assessment practice she felt needed a lot of work was questioning to elicit students’ thinking. She was aware that she tended to interrupt or not give enough time for her students to answer and mentioned it several times during the interviews. Penny decided to make improving questioning skills a goal for her final practicum:

I’ve learnt that feedback and questioning is a skill that requires practice. I find it quite overwhelming because my default is to answer questions for children . . . . [rather than] using wait time or automatically knowing a prompting question so I am trying to work on that. (Penny, Int. 1)

A metacognitive strategy Carmen often used was to find a more knowledgeable or experienced person who could help her when she was unsure of her learning progress or achievement. This included a current or past lecturer, associate teacher or teaching colleague:

I contacted one of my previous lecturers and asked her to see if she could spend some time with me and see if I was on track. She’s had a look at what I’ve done and
she’s provided me with really good feedback saying “I like this part of it Carmen. You need to maybe tweak it over here and think about this.” Now, I need to take that and actually use it to get it to the level that I think is warranted and deserved of this essay . . . . I must admit when I sent her the email I was a bit hesitant because I didn’t know how she would respond. I hugely value her so those are the things, knowing that somebody has that expertise and a skill set and that you trust and you value so that can help you to better yourself. (Carmen, Int. 2)

Carmen spoke about the reality of having so much curriculum and pedagogical knowledge to learn in the three year teacher education programme and stated she needed to take some ownership of that. Her assessment goal was how to use it effectively to plan lessons. Carmen believed she had been provided with enough assessment knowledge at university to build on that in the classroom:

I think that where I am at now needs to be on the job learning and by that I mean ‘doing’. It needs to be observing others who are confident and know how the systems work, then collaborating with those people, then linking into mentors or experts around how to use that then to plan my learning, so very much an apprenticeship model now for me. I think university has given me enough of a foundation and a basis to have a competent knowledge of it. For me, it is now working with some experts ‘doing’ to actually feel that I am a competent practitioner in assessment. (Carmen, Int. 2)

The preservice teachers used a variety of strategies to monitor their learning about assessment and bridge any gaps in their understandings and practice. Some in particular expressed a willingness to take ownership of their learning and seek help when they needed it. They displayed aspects of metacognition that contribute to the development of self-regulated learners. These characteristics together with using assessment for furthering learning are elements of assessment capability. An orientation towards ongoing assessment learning is the final theme addressed next.
Continuing professional learning in assessment

Cameo Eight: Abigail – improving assessment practice

In the fourth interview, Abigail was asked how she evaluated her assessment capabilities as she completed her preservice teacher education and was contemplating moving into the role of beginning classroom teacher:

At this point, it is basic. I can definitely do the formative. I am quite confident in that form of assessment. It would be the summative that I know I would need guidance through, the procedural steps and that. As I’ve been reading and from what I have learnt here I would record that assessment throughout so that when it does come to that time when I am doing the bigger summative assessment I’ve got that evidence there that I can refer to.

As student teachers we go out knowing the basic framework of how assessment works but the reality of that is going to be very different once we are in our teaching jobs. I will then fully understand and start to appreciate what assessment is truly about, how that benefits our children and how I can improve parents’ understanding of our assessment practices as teachers. For me personally, it embeds that importance of knowing why we assess our children and making sure that I do a good job as a teacher so that my own teaching practice is of a high standard.

I want to remain teachable so that I am continually improving myself as a teacher, in order to be the best teacher I can be. That does come back to making sure that I am assessing my children well and assessing my own practice in connection with that. If the learners are not learning and getting my lessons then there is something that I am doing wrong, something that I am not doing. It has got to come back on me, that connection of my own teaching practice and differentiating my teaching. (Abigail, Int. 4)

Abigail considered assessment to be an important and ongoing part of her teaching practice. She had gained assessment knowledge and understood how it worked within the conceptual framework of purposes of assessment (HPL2). Abigail was very confident in using formative assessment practices as she had seen them modelled effectively in her third practicum and had opportunities to practise using them. On the other hand, she was less confident with summative assessment and said she would seek support to increase her knowledge and understanding when teaching (HPL3).

While Abigail understood the main theoretical concepts of assessment she realised she would not really appreciate the realities of practising assessment to improve student achievement until she had her own classroom. Abigail expected to take responsibility if her students were not achieving. She believed she would continue to improve her assessment
practice if she monitored students’ learning and constantly reflected on her own practice (HPL3).

Abigail’s perceptions of her assessment capabilities were mostly positive within the boundaries of her assessment learning and experience so far. She believed she would consolidate and expand her expertise once she was teaching. The theme of building assessment capabilities and confidence through continuing professional learning in assessment arose mainly during the preservice teachers’ final interviews as they began to focus on their future beyond the teacher education programme. Just as Abigail did, the other preservice teachers evaluated their assessment capabilities. The school leaders described the assessment beliefs, understandings and practices they would expect of a beginning teacher.

**Preservice teachers’ perceptions of assessment capabilities**

The fourth interview with the preservice teachers was conducted at the end of their teacher education programme. They were in the last few weeks of lectures and tutorials, and they were completing their final assignments. At the same time, they were turning their attention to the future and applying for beginning teaching positions or entry into postgraduate study such as a Bachelor of Education with Honours programme. They were asked to imagine they had been successful in obtaining a teaching position and to evaluate their assessment capabilities to move into their first year of teaching.

Seven of the eight preservice teachers evaluated their assessment capabilities as adequate or above. There was a significant difference in the confidence they felt in using formative assessment compared to summative assessment:

*I would say that with formative assessment I am super confident. I believe that I have the ability and the time management strategies to run an effective teaching environment, interact with my learners and give feedback on a daily basis. With summative assessment, I feel like I am going to be needing lots of guidance in what tests each school does then analysis of that information and either putting it into a report for parents or looking at it as a teacher for where my learner is at. (Angela, Int. 4)*

*I think I’ve got enough knowledge to go in and use assessment effectively, bearing in mind that I am a beginning teacher and I am not expected to know everything all at once. I think through the two years of provisional registration I am pretty sure that I would get up to speed very quickly. (Rasela, Int. 4)*
Assessment is still my biggest fear. It is only because I wasn’t exposed to it that I am very scared going in as a beginning teacher. Formative I could do but it is summative and things like asTTle . . . . I know the tools and why it is done but do not have the knowledge of how to do it. (Maryann, Int. 4)

Despite their perceived lack of experience in some aspects of assessment, most of the preservice teachers expected to receive support as beginning teachers through ongoing professional development and from their colleagues. They intended to ask for help and feedback when they needed it.

I recognise that it is a work in progress so I would need to be scaffolded and clearly supported through that process . . . . The other reason I feel reasonably confident is that I would be okay going and asking for help as well. A lot of people might not be but I am actually quite happy to acknowledge that I need lots of help. (Carmen, Int. 4)

I like engaging in professional conversations with my peers and I am really open to constructive feedback so I’m not one to hide it away because I’m worried that people aren’t going to like it. I would prefer to have that feedback. I would also be asking other teachers to have a look at their work, especially with reporting and stuff like that. Why go blindly and try and guess? I think it is about working as a team. (Katelyn, Int. 4)

As a beginning teacher, part of engaging with colleagues, parents and others about assessment involves an understanding of assessment terminology, tools and practices that could be considered part of ‘the language of assessment’. Some of the preservice teachers talked about how confident they felt using the language of assessment:

I am reasonably confident. I think when I am fully in that environment I know the language is just something that will become more natural. (Abigail, Int. 4)

Absolutely, I feel comfortable using the language of assessment. I know why we do it . . . . I know that parents like to see where their children are at and we need to identify if there is a big problem, if there is a huge gap. Of course we do, they can’t just rely on my saying “oh no, they are doing fine. Yes, they’ve had a good day.” (Angela, Int. 4)

Carmen linked her confidence in using the language of assessment to theoretical understandings gained from university coursework. She seemed conscious of her status as a novice teacher but that would not prevent her from asking questions or making contributions:
I think that assessment course definitely gives you a strong foundation in it [language of assessment] . . . . I would feel confident but I am a little hesitant because I am a learner and a novice in this whole thing. If I thought I had something valuable to contribute or a question that I knew I needed help with in understanding why they saw things in a particular way or could they justify it, I would have no issues asking those questions. (Carmen, Int. 4)

Assessment expectations for beginning teachers

For most primary preservice teachers, the aim of completing their three year teacher education programme is to obtain a position as a beginning teacher in a school in which they will be supported to develop their teaching practice and professional skills, knowledge and responsibilities. They are also required to meet the NZTC GTS, including those standards which relate to using assessment information to inform teaching and improve learning. New Zealand’s assessment education policy has a vision for learners with well-developed assessment capabilities and that requires assessment capable teachers who can support learners to use assessment information to further their own learning. Accordingly, the assessment beliefs, understandings and practices preservice teachers develop during their training will be in action from the first day as beginning teachers with responsibility for their own class.

School leaders were asked what they would want to know about preservice teachers’ assessment beliefs, understandings and practices when they were interviewing applicants for a beginning teacher position. All of the school leaders expected them to know the purposes of assessment but it was also important that they knew what to do with the assessment information they gathered:

What do they believe are the purposes of assessment? I want them to know more than formative and summative assessment. To what use are they going to put that data? I don’t want them to repeat my dreadful training college days of not knowing what to do with it. ‘Paralysis by analysis’, isn’t that what they say? (Barry, School Leader)

That they understood the purpose of assessment is to improve student teaching and learning. That they were reflective of what was happening in front of them in the classroom “Working with a group of children I’ve noticed . . . and I’ve planned this . . . and I looked for what their next steps might be.” They can usually spout the theory and may not really understand it but that is fine. (Julia, School Leader)

What is the purpose of assessment? What is the difference between formative and summative assessment? What are your beliefs about students who are performing or
achieving at different levels in the classroom? What can you do to assist that? How do you use data? What would you do with it? Those are the sorts of things. (Marie, School Leader)

Preservice teachers were expected to have had some practice at carrying out common forms of assessment, particularly in respect of literacy and numeracy. Nevertheless, the understanding of why a particular assessment tool was being used and a willingness to learn how to use it were considered more important than experience using a variety of tools. There was an expectation that each school would support their beginning teachers in the different assessment procedures:

I would want them to have some skill at being able to conduct simple assessments. Database entry and things like that, whether you can expect the tertiary institutions to train them in that I don’t know; I think the school has to do that because they are all so different. (Barry, School Leader)

You can tell, as long as they were open to learning [to use assessment tools] basically. So long as they have an understanding of “I know that I need to notice what is going on in front of me so that I can support them.” As long as they’ve got that basic understanding it is fine. It would be better if it was more but I can work with that. (Julia, School Leader)

Four of the five school leaders said they would ask specific questions about assessment in an interview.

We ask questions such as “What would you use to group your students? How would you know a student was ready to be moved to the next group? What sorts of information would help you to scaffold students to their next learning step? What evidence would you collect to make a judgement about what level your child is at?” (Julia, School Leader)

One of the first questions that we ask them is to describe a typical reading lesson and a typical maths lesson. The next question from that is how do they use their assessment to drive their planning? Often in the first question when it says describe your typical maths programme, they’ll talk about their maths groups and whole class teaching, a warm-up or warm-down and often in that discussion they will talk about a maths group and they know from their GLoSS testing what they need. If it doesn’t come up in a conversation we prompt that little bit further and say “how do you use assessment to plan for your children?” We are expecting to hear from them things like “from their running records I used that to help with my groups or to change my groups or to find out what the strengths are or what the children need to learn.” We are very specific about it. (Karen, School Leader)
Karen pointed out that in her decile 10 school the parents have high expectations. During interviews it may come up in discussion that the prospective beginning teachers like to be open with parents and would use assessment data. Karen gave an example of prompt questions she might ask that would elaborate on how the interviewee might do this:

The question would be “how would you handle the high expectations that parents have?” From that often leads into “what if you had a parent come to you and say my child is bringing home books that are too easy for them?” It is them having the knowledge of the child’s achievement through the assessment tools and saying “this is what I’ve noticed. This is their latest running record and this is what they can and can’t do.” It often comes out, the teachers that have a good understanding of using that data and evidence that they need. (Karen, School Leader)

On the contrary, Ruth did not like to specifically ask questions about assessment. Furthermore, she would be concerned about interviewees who talked excessively about assessment data. Ruth would rather discern their philosophy around assessment in the context of being part of their classroom programme rather than separate from it:

Well, you know what I really do? If they talk about assessment too much, I don’t want them. If they are driven by assessment, that is a real turn-off for me. I’m going to be really truthful here. When people go towards assessment that means to me they don’t have a love of the curriculum, a passion for the context. So if they talk to me too much about data driven things, fair enough I need to know their philosophy around assessment, but if there is an over-focus on that and it is out of balance I have concerns . . . . What we often say if it is a beginning teacher is “give us an example of what is a really good writing programme.” So they are going to tell us about environment, all those things and then they are going to tell us about explicit feedback. We don’t have a question on assessment because it is in kind of everything. We wouldn’t say “what do you know about assessment strategies?” We would want them to tell us about a quality programme in science or maths or whatever. (Ruth, School Leader)

Ruth’s comments reflect her concerns around beginning teachers’ focus on assessment data. This appears to be from her recent experience of new teachers coming into her school with an over-reliance on using assessment tools as the primary source of their professional judgements on student achievement:

I think what some of the young teachers are doing, which I am concerned about is that they are waiting for asTTle or they are waiting for IKAN or they are waiting for these tests to actually tell them how to teach. I have real concerns about that and I am saying you should have the strong content knowledge. You should be with the child every day looking at their writing or whatever and your own teaching. Your assessment data should be validating what you already know. I remember when I
first came here and some of the young teachers would say “well, we haven’t done their asTTle yet”, when the parents came for an interview “so I haven’t got the results to tell you where they are at.” When your learning or your philosophy is driven by assessment, I think you are in trouble so I have real concerns around that. (Ruth, School Leader)

Summary

The findings provide evidence of how these preservice teachers learned about assessment during their teacher education programme. They could clearly articulate how their assessment learning was influenced by different university and school practicum experiences. The rich description of these influences on learning was enhanced by the perspectives of others who had a role in the preservice teachers’ assessment education. The eight themes, illustrated by cameos from individual preservice teachers, clearly linked with the three principles of how people learn (Bransford et al., 2000).

The preservice teachers’ assessment beliefs, understandings and practices changed and developed over three years. As they prepared to exit their teacher education programme they had an expectation of continuing to grow their assessment learning through collegial support and ongoing professional learning. The preservice teachers’ change, development and growth in assessment learning are discussed in the next chapter.
CHAPTER SIX:
Discussion: Effecting change, development and growth in assessment learning

Introduction

The aim of this qualitative case study was to investigate how preservice teachers learned about assessment in university and school practicum settings during their teacher education programme. There is evidence that the preservice teachers’ assessment beliefs, understandings and practices changed and developed during the three years. Furthermore, they appeared oriented towards growing their assessment knowledge and skills through ongoing professional learning about assessment as beginning teachers.

The preservice teachers were able to articulate how their learning occurred through learning about assessment theory and practice at university and in school classrooms in the context of their preconceptions. In addition, the views of those educators with a role in helping the preservice teachers learn about assessment provided a broader picture of how assessment learning took place. Each preservice teacher entered the teacher education programme with a unique set of assessment beliefs, preconceptions and experiences, as well as individual abilities and dispositions. There were different aspects of university coursework and school practicum that appeared influential on each participant’s learning about assessment. Thus, individuals’ experiences of the same programme were different. Despite these differences, the preservice teachers all came to some common understandings about assessment.

To gain a deeper understanding of how the preservice teachers learned about assessment, this discussion is organised around the three principles of how people learn introduced in Chapter One. These principles are linked to the concepts of change, development and growth to discuss the findings from the two previous chapters with reference to the literature addressed in Chapters One and Two.

Changing assessment beliefs and preconceptions

The first principle of how people learn is that learners come to any new learning with preconceptions comprised of pre-existing beliefs and understandings about how the world
works (Bransford et al., 2000). Thus, preservice teachers come into teacher education with preconceptions about how teaching works (Hammerness et al., 2005). In this study, the eight preservice teachers entered their teacher education programme with preconceptions about the purposes and practices of assessment mainly based on their prior schooling experiences. Lortie (1975) described these experiences as an “apprenticeship of observation” (p. 61). In the substantial LTBACT study reported in Hill et al. (2013) and Smith et al. (2014), there were a set of common assessment beliefs and preconceptions held by first year preservice teachers at entry to their teacher education programme: that is, they were mainly summative, negative and student-centric (rather than teacher-centric). The findings from the present study were very similar, but the preservice teachers’ interview responses provided a more nuanced understanding of different influences on these preconceptions. For example, some had experienced school assessment as a parent as well. Such preconceptions can be accurate or inaccurate, but they “can have a powerful effect on the integration of new concepts and information” (Bransford et al., 2000, p. 15). Thus, they need to be investigated and built upon so that any change in beliefs and initial understandings about teaching, including assessment, is more than superficial. This is one the challenges of teacher education noted by Darling-Hammond (2006) and Richardson (2003).

**Shifting from a negative to positive view of assessment over time**

When they entered the programme these preservice teachers mainly had a negative view of assessment and reported feelings similar to the emotions of failure and anxiety described by preservice teachers regarding their assessment experiences in Crossman (2007). At the beginning of their teacher education programme, the preservice teachers’ preconceptions of assessment centred on standardised tests and exams that were often formal in nature and used for summative purposes. Their perceptions that assessment emphasised standardised testing and grading fitted with Crooks’ (1988) conclusions that evaluative classroom assessment practices tend to demotivate students. The preservice teachers identified assessment as something that was ‘done to’ students, ticked off, then the next learning objective was moved on to, whether understanding had been achieved or not. When describing their assessment beliefs and preconceptions prior to teacher education, the preservice teachers mostly associated assessment with a period of instruction followed by the measurement of student learning in order to give marks and grades or for reporting purposes. This view of assessment of learning for accountability purposes was consistent with the findings regarding the first-year preservice teachers in the LTBACT study (Hill et
al., 2013; Smith et al., 2014) and in line with studies of teachers’ conceptions in earlier studies (Brown, 2004; Hill, 2000a, 2000b; James & Pedder, 2006).

In this study, as in other studies such as Brown (2011), Crossman (2004) and Levin and He (2008), the preservice teachers’ assessment beliefs and understandings were strongly shaped by their personal experiences of assessment prior to teacher education. They had previously given little or no thought to what teachers did with assessment information in order to improve teaching and learning as envisioned by Shepard (2000), or of the student’s role in assessment emphasised by Earl (2013). The preservice teachers did not recall experiences in their schooling to do with receiving feedback to help identify gaps in their learning or next steps (Hattie & Timperley, 2007), nor did they report setting their own learning goals, monitoring their progress towards these goals or using self-assessment (Black et al., 2003; Sadler, 1989). This may be due in part to the assessment approach prevailing when they received the majority of their schooling. For six of the eight preservice teachers their most recent assessment experiences were at least twenty years prior. Since that time, substantial assessment reforms have occurred both in New Zealand and internationally, particularly in respect of assessment for learning (Black & Wiliam, 1998a, 1998b; Crooks, 2002, 2011; Mutch, 2012; Shepard et al., 2005).

Despite literature reviews that reported difficulties in changing the beliefs and conceptions of preservice teachers (Pajares, 1992; Richardson, 2003; Wideen et al., 1998), the preservice teachers in this study changed their beliefs and understandings about assessment markedly. By the third year, they believed assessment to be an important part of teaching and learning, in contrast to their views prior to entry. At the beginning of their first year, the preservice teachers reported that they had viewed assessment only from a student perspective whereas by the third year they had learned about assessment both as a student being assessed and as a teacher being the assessor. This changing identity from student to teacher was also evident in large scale survey results with preservice teachers in four New Zealand universities during the same time period. Consistent with Smith et al.’s (2014) study, they had moved from thinking of assessment as primarily summative, often with negative connotations, to understanding assessment as being useful for a variety of formative, summative and diagnostic purposes that were part of effective practice.

In line with the findings of Levin and He (2008), the preservice teachers in this study had clearly been influenced to change their assessment beliefs and preconceptions over the
course of their teacher education programme. Rich examples of how these changes were fostered through university coursework and school practicum experiences are provided by the participants. These include modelling and scaffolding by teacher educators and associate teachers. It could be said the three year teacher education programme was, in part, an apprenticeship of observation (Lortie, 1975). Thus, good modelling of effective practice by all educators with a role in preservice teachers’ assessment education is important. Bev, the assessment teacher educator, understood how negative prior assessment experiences could impact learning about assessment. Hence, she reported that the teacher educators specifically focused on ensuring preservice teachers had successful assessment experiences in the first year of the programme. Learning was broken down into manageable chunks and explicit feedback was provided on learning so the preservice teachers could achieve the standard of academic work required at university. In the compulsory assessment course, Bev used questioning and practice-based scenarios to draw out the preservice teachers’ beliefs about assessment and open them up for discussion, clarification and change.

One of the most striking examples of change was Angela, who demonstrated how her pre-existing beliefs about always giving positive praise and encouraging feedback needed to be challenged and examined (Bransford et al., 2000). The gold star and positive comment Angela gave for the boy’s writing was evaluative feedback (Tunstall and Gipps, 1996a) that was rewarding or approving and described by Hattie and Timperley (2007) as feedback about the self as a person. Angela intended to motivate the student but provided no information about the task that would impact on the student’s learning and his work did not meet the expected standard. The associate teacher’s reaction was quite challenging for Angela. To help her reflect on this incident and its impact on her teaching, Angela revisited written feedback she had received from coursework assignments and associate teacher observations that she had found helpful. She realised that the feedback on her university assignments was not directed at her on a personal level but rather it was always directed at her coursework or teaching practice so that she could take appropriate action to close gaps in her learning (Sadler, 1989). In order to reinforce her new understanding, Angela chose to make giving descriptive, task-related feedback a goal for development in her final practicum.
Moving from superficial beliefs to deep understandings

There was evidence that the preservice teachers had changed their prior beliefs and understandings about assessment, nonetheless Bransford et al. (2000) found that such preconceptions can appear to change yet be reverted back to if not sufficiently elicited and examined. For example, a study by Siegel and Wissehr (2011) established clear differences in the way preservice teachers thought about assessment theoretically in their written journals and philosophy statements compared with their planned classroom practice where they reverted back to the more traditional forms of assessment. Studies have found that preservice teachers’ beliefs on entry to teacher education can affect what and how they learn (Richardson, 2003), make it difficult to develop deeper understandings (Hammerness et al., 2005) and influence teaching practice (Pajares, 1993). Thus, it is important to know what their entry beliefs are, whether apparent changes in beliefs and preconceptions are more than superficial and if deep understandings have become embedded.

Two key changes that were apparent in all the preservice teachers’ beliefs and initial understandings were (a) learning how to use assessment in the service of learning (Hill et al., 2010) and (b) the importance of student participation in assessment of their own learning (Absolum et al., 2009; Earl, 2013; MOE, 2010). By the third year of their teacher education programme the preservice teachers described formative and summative assessment as being useful for a variety of purposes. In the first interviews the preservice teachers reported that at the beginning of year one they had questioned the point of standardised testing, whereas in year three they understood how collecting and examining evidence of achievement (Heritage, 2010; Timperley & Farr, 2004) could be used purposefully for goal setting, tracking progress, reporting and targeting of resources (Harlen, 2008; Harlen & Gardner, 2010). This evidence enables teachers to make decisions that are credible and defensible (Earl, 2013), and to make valid and reliable professional judgements (Brown et al., 2008; Davies and Hill, 2009). The preservice teachers’ responses over the four interviews indicated this new understanding about assessment had become embedded. This was evidenced by comments such as those by Maryanne and Rasela regarding the importance of using assessment data to inform their practice. In another example, Penny linked assessment to being an integral part of effective practice rather than something that sits alongside teaching and learning.
Evidence of these changes was also demonstrated in the way the preservice teachers talked about practices associated with assessment for learning principles (ARG, 2002). They described observing and practising key assessment for learning strategies conceptualised by Leahy et al., 2005 and explicated by Wiliam (2007, 2010) such as: sharing learning intentions and success criteria, effective questioning and classroom discussions, providing feedback to move learning forward and students’ active participation in their own and others’ assessment and learning. The five associate teachers in this study reported that they themselves used ongoing assessment practices such as: setting learning intentions, goals and success criteria; using feedback and feed forward; and engaging in assessment conversations with classroom students. This was unsurprising as they all said they had participated in professional development that emphasised assessment for learning, exemplified in Poskitt and Taylor (2008). Nevertheless, the preservice teachers’ comments supported these teacher actions as they described multiple examples of such strategies being used by associate teachers in the classroom, and, in some cases, by the teacher educators in university coursework, particularly Bev during the assessment course.

Preservice teachers had variable experiences in schools. Some saw assessment practice that was aligned with what they were learning at university and others did not. Some saw effective practices on early practicum experiences, while others did not report seeing it until their final practicum. Despite this variability, the preservice teachers’ assessment learning seemed to develop over the course of the teacher education programme. For example, Katelyn described the powerful influence of her second year associate teacher’s assessment practice on her assessment beliefs and theoretical understandings and how she drew on that experience for her own practice during her third year practicum. In contrast, Maryanne and Rasela both reported they did not observe their associate teachers in their first two practicum experiences exhibiting effective assessment practice. In the third year, however, both of their associate teachers modelled effective assessment for learning practices, thus supporting Maryanne and Rasela’s new beliefs and understandings about why assessments were used and what the information was used for.

When practising assessment during their third year practicum, the preservice teachers reported using assessment for learning strategies such as creating WALTs (We are learning to) for learning intentions, setting or co-constructing success criteria and giving feedback. They spoke of including their students in peer assessment, self-assessment and deciding
next steps. The preservice teachers’ comments and self-reported assessment actions indicate that they had captured the ‘spirit’ rather than simply enacting the ‘letter’ of assessment for learning (Marshall and Drummond, 2006). There was agreement in the preservice teachers’ responses that classroom students’ participation in assessment would enhance the students’ own role in learning. This resonates with the underpinning principle of assessment for learning of promoting student autonomy argued by Marshall and Drummond (2006). Furthermore, this underpinning principle is consistent with self-initiated processes such as metacognition, goal-setting and self-monitoring that contribute to the development of SRL (Pintrich, 2000; Zimmerman, 1998), thus leading to improved academic achievement (Alton-Lee, 2003; Zimmerman, 2001). It also links to the development of assessment capability, which emphasises the student’s role at the heart of assessment (Absolum et al., 2009; MOE, 2010).

Carmen demonstrated understanding of the spirit of assessment for learning by displaying a deep understanding of the purposes of feedback and peer assessment in promoting independence in learning. She clearly conveyed how the experience of giving peer feedback could have been carried out more effectively to improve the preservice teachers’ learning. The lecturer’s response of not having sufficient time to work through the peer feedback process could be interpreted as operating within the letter of assessment for learning (Marshall & Drummond, 2006) by using a technique or procedure associated with assessment for learning but not in a way that promoted autonomy. Carmen suggested that conducting the peer assessment task for formative purposes would have enabled the students (the preservice teachers) to use the peer feedback to reflect on their work and modify it, thus promoting their autonomy.

At the completion of their teacher education programme, the preservice teachers were particularly enthusiastic about using assessment for learning as they considered it to be a shared undertaking between teachers and students, as well as an integral aspect of classroom assessment. At the same time, they had come to understand the ways in which assessment of learning could support learning. This was in contrast with their previous beliefs that assessment was a product such as a grade or test score rather than a collaborative process to enhance teaching and learning. A study by Winterbottom et al. (2008) found a values-practice gap existed that constrained the preservice teachers’ implementation of an assessment for learning approach. In this study, however, the preservice teachers’
assessment beliefs and initial understandings had changed and moved beyond the superficial level to a deeper level and were becoming embedded in their practice (Bransford et al., 2000; Hammerness et al., 2005).

**Developing assessment knowledge and understandings to guide practice**

The second of Bransford et al.’s (2000) principles of how people learn is that learners must develop a deep foundation of factual knowledge within a conceptual framework so that they can retrieve and apply that knowledge. This requires preservice teachers to learn about teaching and then put these understandings into action. Hammerness et al. (2005) described this challenge in teacher education as “one that focuses on ways to help novices develop the kinds of organized understanding and skills that support effective action” (p. 370). In addition, they emphasised that it is not simply a matter of learning new knowledge and skills then applying them in practice but rather that learning about effective teaching emerges during practice (Hammerness et al., 2005).

In this study, the preservice teachers came to some common understandings about assessment despite, as the assessment timelines demonstrated, different experiences having varying impacts on their individual learning pathways. As Graham (2005) found, these different influences “tended to vary considerably since their receptiveness to those influences was situated within their personal histories, belief systems, learning styles, and relationships with mentor teachers” (p. 614). Nonetheless, by the completion of their third year, the preservice teachers considered they had developed a sound foundation of assessment knowledge and a reasonable level of confidence in using assessment to support learning. This was in contrast with previous studies such as Maclellan (2004) and Mertler (2003) that found preservice teachers had low assessment literacy and felt underprepared in their assessment learning. In this study, the preservice teachers’ assessment learning was influenced by their university coursework and school practicum experiences, as well as the clear alignment of assessment policy and practice in the university and schools.

**Building assessment understanding while developing practice**

The findings show that the compulsory assessment course taken by the preservice teachers at the beginning of their second year was one of the most important influences on their assessment learning. This is consistent with findings in other studies regarding the benefit of a specific compulsory course on educational assessment (DeLuca et al., 2012; DeLuca &
Klinger, 2010; Hill, Ell, Grudnoff, and Limbrick, in press). These studies concluded that explicit assessment teaching was valuable in helping preservice teachers to develop assessment literacy and the ability to critically examine assessment practices. In a study by Volante and Fazio (2007) the preservice teachers had participated in an observation and evaluation course yet strongly suggested the need for a course more focused on classroom assessment, including formative assessment despite it having been part of the course outline. Thus, Volante and Fazio (2007) suggested faculties of education conduct a systematic gap analysis to “remedy the potential disconnect between what is described within course outlines and what preservice teachers actually consolidate” (p. 764). In comparison, the recent study by Hill et al. (in press) demonstrated that the preservice teachers did develop a reasonable amount of assessment literacy and confidence in line with the intended assessment course curriculum. They were also influenced by a number of other factors such as the assessment curriculum being embedded across the teacher education programme and their practicum experiences. This study’s findings differed, somewhat, in that the preservice teachers reported the assessment curriculum only being embedded in some curriculum and elective courses.

As in Hill et al. (in press), the preservice teachers in this study developed a sound foundation of assessment literacy, evident in the assessment timelines and interview responses. The findings identified that the learning outcomes of the assessment course were focused on understanding the purposes and principles of assessment and using appropriate assessment practices to gather information for making defensible decisions about learning (Brown, 2008). Bev, the teacher educator, acknowledged that the assessment course content was constructed in separate blocks of factual knowledge about assessment. Nevertheless, she emphasised how they were then drawn together within a conceptual framework to help the preservice teachers make sense of using assessment to enhance teaching and learning (Bransford et al., 2000).

Evidence from the preservice teachers in this study, as well as the teacher educator, showed that Bev used a range of pedagogical practices including: modelling, giving effective oral and written feedback and feed forward, questioning preservice teachers’ beliefs and ideas about assessment and using research-based course readings and practice-based scenarios for discussion and critical reflection. These were identified by the preservice teachers as being very helpful in their learning about assessment. These strategies were also consistent with
the pedagogical constructs that emerged as supporting preservice teachers’ assessment learning in a study by DeLuca et al., (2013), namely (a) perspective-building conversations, (b) praxis activities, (c) modelling and (d) critical reflection and planning for learning. As concluded by Timperley (2013), these types of activities lead to deeper understanding that can result in changed practice and improved learning outcomes. Preservice teachers’ participation in discussions about assessment during the assessment course also developed their confidence in participating in professional conversations about assessment and learning when they were on practicum. They reported developing a vocabulary of the language of assessment, which helped them to understand and contribute to discussions with teaching colleagues and others about issues such as assessment tools and practices (Nolen et al., 2011), moderation (Gipps, 1994; Wyatt-Smith et al., 2010) and evidence of student learning (Davies & Hill, 2009; Graham, 2005; Timperley & Parr, 2004).

Immediately following the assessment course, the preservice teachers went into schools on their second year practicum. Most of the preservice teachers found that they were able to identify different types of assessment, particularly formative assessment practices such as feedback and questioning. In contrast, they reported being unable to do this in their first year practicum prior to the assessment course. Having a practicum so close to the assessment course seemed to be helpful in confirming and enhancing what they had learned in the assessment course. Similar findings were reported in studies by Alkharusi et al. (2011) and Buck et al. (2010). Many of the preservice teachers had commented about the difficulty in understanding so many new assessment concepts and terms in a relatively short time period during the assessment course but it began ‘to make sense’ once they saw assessment enacted in the classroom. This finding is in line with Darling-Hammond et al.’s (2005) argument for “entwining” coursework and field experiences throughout teacher education programmes to enable preservice teachers to “reinforce, apply, and synthesize concepts they are learning” (p. 401).

In their second year practicum, some preservice teachers, such as Carmen and Katelyn, had multiple opportunities to practise formative assessment whereas others, like Abigail and Rasela, reported that they did not practise assessment nor even see it modelled effectively. This highlights the variability of practicum experiences reported in other studies (Haigh, Pinder, and McDonald, 2008; Valencia et al., 2009; Volante & Fazio, 2007). Moreover, DeLuca and Klinger (2010) and Smith (2011) have cautioned about the impact of variable
assessment knowledge and skills of teacher educators and associate teachers on the consistency of assessment education. Popham (2009, 2010) argued that until teacher education programmes paid sufficient attention to developing preservice teachers’ assessment literacy, the inconsistent levels of inservice teachers’ assessment literacy would continue to need addressing.

It is evident from the findings that the 10-week third year practicum was another of the most influential aspects of the preservice teachers’ assessment education. It provided multiple opportunities for their understandings of assessment to be applied and refined in practice (Bransford et al., 2000). In this practicum each preservice teacher had a period of full responsibility for the entire class programme and teaching of at least 15-20 days. There was an expectation that during this time the preservice teachers could practise assessment through planning, monitoring, analysing and deciding on next steps, which occurred to a greater or lesser extent for each preservice teacher. It is clear that this final practicum experience was particularly important in consolidating the assessment knowledge and skills the preservice teachers had learned, as well as expanding and refining their understanding of the purposes of assessment. The associate teachers in this study saw their role in assessment learning as modelling effective assessment practice, providing many different opportunities to practise assessment in a safe environment and encouraging reflection on what worked, what did not and what to do next. This type of support enabled the preservice teachers to put their assessment learning into practice. For example, Rasela explained the different ways she monitored her students’ understanding and had to change her planning as a result, in consultation with her associate teacher. Maryanne described how reflection had become an important part of her practice. Reflecting on her associate teacher’s feedback helped her assessment learning. It was also looking back through university coursework notes and readings for other ideas and strategies to try that enabled Maryanne to make connections between assessment theory and practice. This assisted Maryanne in making teaching and assessment decisions as they emerged during her practice (Hammerness et al., 2005). These experiences are consistent with other studies in which preservice teachers had authentic opportunities to integrate assessment theory with classroom practice (Nolen et al., 2011) and interpret those experiences with support (Graham, 2005), in order to improve their practice.
The impact of aligning policy and practice on assessment learning

In this study, there were clearly aligned assessment philosophies between New Zealand educational assessment policy, the university teaching and the assessment practice in schools that provided common understandings about assessment in which the preservice teachers were immersed for three years during their teacher education programme. The focus of assessment policy for primary schooling in New Zealand has been to improve the quality of learning (MOE, 2007) and to raise student achievement (MOE, 2010), underpinned by assessment for learning principles and practices. This co-exists with the accountability demands contained within the regulatory framework of the National Education Guidelines and the National Administration Guidelines (Absolum et al., 2009; Crooks, 2011; Hill, 2000a). Practices associated with assessment for learning or formative assessment became the basis for much of the professional development programmes in assessment (Mutch, 2012; Poskitt & Taylor, 2008). They were informed by research-based studies and syntheses including Alton-Lee (2003), Bell and Cowie (2001a, 2001b), Black and Wiliam (1998a, 1998b) and Hattie and Timperley (2007). The preservice teachers in this study confidently reported how they observed and practised assessment for learning practices and strategies such as observing, modelling, questioning, scaffolding, using NRR, setting learning goals, learning intentions, success criteria, feedback, peer assessment and self-assessment. They perceived alignment between what they had learned about assessment for formative purposes in university coursework and how that type of assessment was being carried out in the school classroom.

Although the preservice teachers understood the importance of assessment of learning, they had observed very little until practicum Part A at the beginning of the third year. They reported having little or no confidence undertaking tasks associated with assessment used for summative purposes such as administering standardised tests, analysing assessment data and reporting on achievement. This contrasted with the findings of DeLuca and Klinger (2010), in which the preservice teachers were quite confident in these types of tasks. One reason put forward by DeLuca and Klinger (2010) was that the preservice teachers’ exposure to summative assessment practices in their own schooling had contributed to their confidence. In contrast, the preservice teachers in this study had summative assessment school experiences, yet they did not have the same confidence displayed by the Canadian study participants. While the school leaders and associate teachers in this study said they preferred the preservice teachers to have some familiarity with assessment tools, it was not a
major concern as each school would train their teachers to use the assessments that were part of the school-wide assessment procedures. They considered it far more important for preservice teachers in New Zealand to develop a sound understanding of the widely accepted philosophy of effective assessment previously mentioned, with the aims of improving learning and raising student achievement (MOE, 2007, 2010).

Despite the preservice teachers’ developing beliefs about students being involved in assessment of their own learning, they made no reference to the current educational assessment policy of developing students’ assessment capability (Absolum et al., 2009; MOE, 2010). Throughout the interviews, the preservice teachers and associate teachers gave numerous responses about students’ participation in assessment, including self-selecting learning goals and carrying out peer assessment or self-assessment tasks. The preservice teachers reported this occurring to varying extents and effectiveness in different classrooms. Hibiscus School had a cohesive school-wide assessment policy that focused on including learners in their own assessment. This was apparent in consistent comments about classroom practice from the school leader Julia, associate teacher Rebecca and preservice teacher Angela. Julia was the school leader with responsibility for assessment at Hibiscus School and she described how she organised professional development using DANZ (Absolum et al., 2009) as a basis for introducing the concept of assessment capable students and teachers.

There was very little mention of assessment capability and little discussion about assessment as learning or SRL reported by the preservice teachers in their university and school experiences. The exception was some teaching about assessment as learning in the assessment course. Despite the lack of identification of assessment capability by all participants in this study except Julia, there was evidence of assessment as learning occurring, as well as assessment practices that support SRL. Thus, a trend towards assessment capability that places students at the centre of assessment practice was apparent in this study though not yet ubiquitous. This may be due to a number of contextual factors such as the professional support required to change assessment beliefs and pedagogical practices (Flockton, 2012) and a system-wide adoption of policies and practices required to carry out the vision of assessment capable students and teachers (Booth et al., 2014). In Hill’s (2000a) study, she observed a similar issue when teachers enacted formative practice before the term and/or concept of formative assessment was generally understood. She
noted “although teachers were observed using formative assessment strategies known to improve learning, most did not identify these strategies as assessment and often understood the use of continuous summative assessment as formative” (Hill, 2000a, p. iii).

As in the large scale mixed methods study of the same cohort of preservice teachers in New Zealand (Hill et al., 2013), there was little comment in this in-depth study from the preservice teachers about other education policies, particularly in two areas linked to assessment. First, despite National Standards having been contentious in regard to reporting and accountability issues (Crooks, 2011; Thrupp & White, 2013), they featured very little in the findings. Some school leaders did refer to National Standards when explaining how they report to parents and one preservice teacher commented that their implementation had increased moderation requirements within her practicum school. There was some concern amongst the preservice teachers that they had received very little in their coursework about National Standards. This was also related to their concerns about a lack of familiarity with a variety of assessment tools used to monitor achievement and make overall teacher judgements, as well as their lack of experience with summative assessments and reporting. Second, there was no reference made to using assessment to enhance achievement of ‘priority learners’ (ERO, 2012). Abigail was the only preservice teacher who reported reflecting at length on using culturally appropriate or responsive assessment practices. She had chosen an elective course on supporting students with special needs and questioned why it was not a compulsory course. This was relevant given New Zealand’s diverse learner population and under-performance of certain groups of learners (ERO, 2012; Nusche et al., 2012).

As a result of the alignment between many aspects of assessment policy and practice, the preservice teachers in this study were able to identify times when dissonance occurred. They could recognise when assessment experiences were in contrast with their conceptual framework of assessment understandings (Bransford et al., 2000). When such conflicts or dissonance occurred, these actually helped the preservice teachers’ assessment learning rather than hindered it as they often questioned and critically reflected on the situation to make sense of it. As in DeLuca et al. (2013), debating and questioning assessment conceptions in relation to authentic practice problems facilitated connections between theory and practice. Conflict with the preservice teachers’ assessment learning sometimes occurred on practicum, including a lack of validity and reliability in standardised testing, an
emphasis on summative assessment for accountability and time constraints imposed on teachers and students to achieve school-wide assessment requirements. Rather than criticise the associate teacher’s practice however, the preservice teachers in this study reflected on what they would do differently. It also created opportunities for preservice teachers to see the dissonance teachers sometimes experience between competing assessment demands (Hill, 2000a; James and Pedder, 2006). For example, Katelyn and Scarlett conducted their third year practicum in different private schools yet both associate teachers expressed tension between the formative assessment they espoused and the summative assessments, such as exams, that were part of each school’s assessment policy.

An increasing awareness of the general alignment between assessment policy and practice during the assessment course enabled the preservice teachers to increase their ability to critique practice, particularly when they were the ones being assessed. Their focus in the assessment course was to increase their theoretical understandings so they could continue to expand their knowledge during practice. A salient example is when Penny explained why she questioned the teacher educator about the marking criteria to help her clearly comprehend what an excellent knowledge and understanding of social studies meant or ‘looked like’. This contrasts with findings in Hawe (2007) that preservice teachers focused on high grades for credentialing purposes at the expense of developing understanding. On the other hand, the teacher educator’s response that it was ‘subjective’ for her reinforced Hawe’s (2000) finding that preservice teachers could perceive assessment by teacher educators as highly subjective. They noticed when some assessment practices such as marking, feedback and peer assessment from teacher educators in other courses were inconsistent with the teaching and learning about assessment in the assessment course. Some also questioned why they were not assessed formatively more often, in the way they were learning to assess students in schools. On the other hand, the preservice teachers reported that when teacher educators gave effective feedback, consistently linked to success criteria in assignments connected to classroom practice, that type of modelling improved their assessment learning and practice.

The preservice teachers reported considerable inconsistency among the university visiting lecturers in terms of being supported and assessed on practicum learning outcomes related to assessment. In Haigh et al. (2008), visiting lecturer-preservice teacher relationships hindered 25% of preservice teacher learning during practicum and helped 2%. In contrast,
the preservice teachers in Valencia et al. (2009) reported that seven out of the nine visiting lecturers were helpful, although all nine were reluctant to suggest pedagogical strategies different to those of the associate teacher. Penny raised the possibility that the seemingly random selection of visiting lecturers and the quality of their assessment literacy could impact preservice teachers’ assessment learning, for better or worse, or even the way the practicum learning outcomes were assessed. Nevertheless, Maryanne reported that having Bev as her visiting lecturer was very constructive in helping her to identify connections between her knowledge of assessment theory and her actual classroom practice.

Growing assessment learning through metacognition and ongoing professional learning

Bransford et al.’s (2000) third principle of how people learn is that the teaching and learning of metacognition furthers independence in learning and self-regulation. The promotion of metacognition and SRL in preservice teachers underpins “the development of adaptive expertise, with professional learning an embedded imperative driven by the desire to improve outcomes for students” (Timperley, 2013, p. 18). Thus, developing metacognitive strategies and learning to teach those strategies in a classroom environment should be an important part of teacher education (Bransford et al., 2000). In addition, beginning teachers “need to figure out what they do and do not understand about how their students are performing and what to do about it. They also need to be able to ask themselves and others questions to guide their learning and decision making” (Hammerness et al., 2005, p. 377). In this study, the preservice teachers revealed differing levels of metacognitive and self-regulatory behaviours that impacted on their assessment learning. By the end of their teacher education programme they all had an expectation of ongoing professional learning about assessment, with support from others, as they moved into their first year of teaching.

Linking metacognition, SRL and assessment learning

The preservice teachers demonstrated, to varying degrees, instances of metacognitive awareness and self-regulatory strategies that helped their learning about assessment. For some time now, SRL has been linked with academic achievement (Alton-Lee, 2003; Andrade, 2010b; Perry, 1998; Pintrich, 2000; Zimmerman, 2001; Zimmerman & Schunk, 2001). In this study there was evidence that the preservice teachers undertook a variety of self-initiated processes consistent with strategies associated with metacognition and SRL such as: self-monitoring progress towards achievement of assessment learning goals, using
oral and written feedback to improve their learning and teaching, actively seeking help to achieve goals and selecting strategies to modify their actions or work being produced.

Metacognition involves a person thinking about their own learning (Gipps, 1994), accurately monitoring their progress towards learning goals (Dunlosky & Metcalf, 2009) and selecting strategies to take action or make any adjustments necessary (Bandura, 1997). By the third year practicum, Abigail, Maryanne, Penny, Rasela and Scarlett reported a gap between their assessment understandings and their ability to enact them in practice. Similarly, Angela wanted to improve her ability to self-assess how her lessons went and what could be done differently. Accordingly, on practicum they focused on practising assessment, monitoring their practice and students’ responses then changing what they were doing as necessary. These preservice teachers used self-monitoring and self-regulatory actions involved in metacognition, both of which Heritage (2013) argues are part of learning how to learn. Montalvo and Gonzalez Torres (2004) characterised self-regulated learners as those who take an active role in learning to improve agency and the ability to control and direct ones’ own learning actions. Thus, some preservice teachers demonstrated increasing agency by taking responsibility for improving their assessment understandings and practices.

A review of studies of expert teachers by Duffy, Miller, Parsons, and Meloth (2009) reported that the teachers engage in metacognitive and self-regulatory actions that enable them to effectively manage the complexity and unpredictability of the classroom. It was evident in Carmen, Katelyn and Scarlett’s responses that they had consistently taken a metacognitive and self-regulatory approach to learning throughout their teacher education programme; an approach which they intended to continue as teachers. For example, they set personal learning goals with high expectations, monitored their learning through attending to feedback and feed forward to improve achievement, asked questions to clarify understanding or seek help and reflected deeply on their own practice and their students’ learning while on practicum. The other preservice teachers also reported similar strategies and actions related to university coursework and school practicum experiences, however not to the same extent. In contrast with this study, DeLuca et al. (2010) found that preservice teachers struggled with self-directed learning and self-regulatory strategies, requiring specific teaching on engaging in SRL.
In this study, Bev reported that during the assessment course she modelled an assessment as learning approach by encouraging the preservice teachers to monitor their own progress. This is consistent with findings in a study by Korthagen et al. (2006) that provides evidence of the importance of teacher educators modelling the practices they advocate. Bev urged the preservice teachers to read feedback on assignments and act on it. Some found that difficult so she used pedagogical approaches such as individual conferences or group tutorials to assess exemplars together and discuss feedback given. Bev noticed that when assessment and feedback were not impacting preservice teachers personally they were able to see the gaps between the work produced and the required standard (Hattie & Timperley, 2007). She was passing on her guild knowledge (Sadler, 1989) so the preservice teachers could develop more independence in monitoring their own achievement, as well as improving their ability to make qualitative judgements. As proposed in Hammerness et al. (2005), preservice teachers who improve their ability to metacognitively monitor their own performance accurately (Dunlosky & Metcalf, 2009) reduce their reliance on external feedback from others. Thus, they are able to more appropriately reflect on their actions and change or adapt them accordingly. This example of Bev’s pedagogical practice was similar to DeLuca et al.’s (2013) findings that an assessment as learning approach supported preservice teachers’ metacognitive development.

Bev’s example is also consistent with Bransford et al. (2000) in respect of giving specific teaching in assessment practices that promote metacognition and SRL in preservice teachers, which they appeared to be developing. Studies by Perry and her colleagues demonstrated how teacher educators and associate teachers fostered SRL in teaching and learning (Perry et al., 2008; Perry et al., 2006). As a result of “explicit instruction and intensive scaffolding” by teacher educators and associate teachers, preservice teachers were able to design and engage in tasks that supported SRL in elementary students and literacy achievement increased (Perry et al., 2007, p. 32). In this study, many preservice teachers in their third year practicum reported using feedback and encouraging students to monitor their learning against stated learning intentions and success criteria, which are assessment practices that support SRL. For example, Angela described requiring her students to ‘self-check, peer check’ against stated success criteria before coming to her for feedback during a student-teacher writing conference. Her teaching goal was to develop their independence as learners in writing. At the same time, Angela was focused on her own practicum goal of improving her descriptive, task-related feedback, which she had learned about in the
assessment course but also experienced in other courses. Nevertheless, while aspects of metacognition and SRL were apparent in the preservice teachers’ interview responses, they did not report receiving explicit instruction in these concepts or how to teach them to their students. Evidence in this study supports Timperley’s (2013) argument that teacher education programmes could do more to build preservice teachers’ metacognitive and self-regulatory skills and dispositions. She maintained this would lay a foundation for developing adaptive expertise, leading to improved student outcomes.

**Building adaptive experts through ongoing professional learning about assessment**

At the conclusion of their teacher education programme the preservice teachers reported a positive orientation toward ongoing professional learning about assessment as beginning teachers. They described a sound foundation of assessment understandings and practices that gave them a reasonable amount of confidence. As in Hill et al. (2013), most felt prepared to use assessment in the service of learning as the result of university and school practicum experiences. This preparedness is also consistent with the findings in DeLuca et al. (2012), which challenged the phenomenon of ‘unrealistic optimism’ raised in DeLuca and Klinger (2010). Abigail exemplifies the preservice teachers’ expectations that they would continue to improve, refine and expand their assessment understandings and practice once they had responsibility for their own classrooms as beginning teachers. Abigail also exhibited a sense of responsibility for her students’ learning, thus embodying the spirit of assessment for learning (Marshall & Drummond, 2006). DeLuca et al. (2010) concluded that an important element of assessment education was “to foster an interest in continued learning about assessment and to provide candidates with the abilities needed to engage in meaningful professional development” (p. 28). As in DeLuca et al. (2012), this study offers evidence that the preservice teachers’ assessment learning provided a foundation for ongoing professional learning throughout their teaching careers. The preservice teachers had expectations of continuing to learn about assessment through classroom experience, collegial support and professional development.

An orientation towards ongoing professional learning is an important element of adaptive expertise (Bransford et al., 2000; Bransford et al., 2005; Timperley, 2013). Adaptive experts are able to change their core beliefs, understandings and skills to continually expand their expertise. They push themselves to do things better rather than doing the same things more
efficiently (Bransford et al., 2000). In this study, the preservice teachers demonstrated emerging adaptive expertise through their willingness to challenge and change their assessment beliefs, understandings and practices. For instance, through coursework experiences Abigail developed an understanding of the importance of modifying assessment procedures to be inclusive of students with diverse needs, reported as an important aspect of increased achievement in a study by McNaughton and Lai (2009). This experience is an example of her individual assessment learning pathway. In school practicum experiences, the preservice teachers were keen to try strategies and practices they had learned about and observed at university and in schools. As an example, Katelyn observed classroom students using highlighters as a quick form of effective self-assessment in her second year practicum then adapted and successfully taught the strategy to an older group of students in her third year practicum. This experience was unique to Katelyn’s individual assessment learning pathway.

In the third year practicum, the preservice teachers seemed quite comfortable with practising assessment actions such as setting learning intentions, developing success criteria and giving feedback to determine next steps. These teacher actions could be considered ‘routine expertise’ (Hatano & Inagaki, 1984) as part of an assessment for learning approach. However, it was the way they adjusted their teaching based on students’ responses that demonstrated a more ‘adaptive’ type of expertise. The preservice teachers’ interview responses indicated that at some point they all experienced the need to be flexible and to adjust and improve their practice as they noticed, recognised and responded to their students’ learning during the learning (Bell & Cowie, 2001a, 2001b). Some examples include: changing planning as a result of checking for understanding and daily reflection, changing the lesson plan during the lesson when unexpected student responses occurred and adapting questions to be more explicit to monitor understanding. There were several comments along similar lines that despite having ‘the most amazing lesson planned’ it was all ‘thrown out the window’ if, through constantly monitoring understanding, the preservice teachers could see that the students did not understand or were not achieving the learning goal. The preservice teachers found themselves acting on assessment information in ways consistent with assessment literacy (DeLuca & Klinger, 2010; Popham, 2011) and assessment capability (Absolum et al. 2009; MOE, 2010).
Summary

By the end of their teacher education programme, all the preservice teachers in this study demonstrated adaptive expertise in assessment at an emergent level. This was evident through their readiness to be flexible and adaptable while practising assessment. Bransford et al. (2005) noted that adaptive expertise is being adopted by teacher education programmes as the “gold standard for being a professional” (p. 76). There is evidence in the findings that the preservice teachers’ assessment learning can be attributed to the integration of three key elements associated with Bransford et al.’s (2000) principles of how people learn. They are: (a) the change to positive beliefs about assessment and deeply embedded understandings of the role of assessment in improving learning, raising student achievement and promoting student autonomy; (b) the development of understandings that guide practice within a system of clearly aligned assessment policy and practice; and (c) the growth of metacognitive and self-regulatory skills that foster ongoing learning in response to students’ diverse learning needs. This growth, development and change in assessment learning occurred through the many different influences exerted by each preservice teacher’s university coursework and school practicum experiences.
CHAPTER SEVEN:
Conclusions and looking forward

Introduction
This research study investigated how the university coursework and school practicum experiences of preservice teachers influenced and impacted on their assessment beliefs, theoretical understandings and practices during their primary teacher education programme. The following overarching research question guided the study:

*How do preservice teachers learn about assessment in university and school practicum settings during their primary teacher education programme?*

This final chapter draws from the discussion of the findings and relevant literature to answer the research question. Consideration is given to the limitations of the study and implications for teacher education practice, assessment policy and future research are proposed.

Conclusions
The preservice teachers learned about assessment throughout their teacher education programme, rather than from one particular experience or event. Change in the preservice teachers’ assessment beliefs, understandings and practices occurred through the interplay amongst multiple facets of the programme. The two most powerful influences on making connections between theory and practice that the preservice teachers identified were the compulsory course on assessment in the second year and the final practicum in the third year when they had a significant period of full responsibility. The preservice teachers’ assessment learning was helped by examining their own pre-existing beliefs and initial understandings about assessment, explicit teaching about assessment and having opportunities to practise a range of assessment approaches with support. Participating in professional conversations about assessment, during coursework and on practicum, also improved their understandings, practice and confidence.

The preservice teachers could articulate the ways in which their learning experiences at university and in the school classroom influenced how they learned about assessment. They explained how these experiences affected them individually in different ways. This indicates
there was no one learning pathway exactly the same as another. Just as teachers must cater for individual learning needs, teacher educators need to pay more attention to the different preconceptions, learning needs and contexts for preservice teachers. Nevertheless, all of the preservice teachers appeared ready to graduate with some common assessment understandings and reasonable levels of confidence in their assessment practices. They all expressed an inclination towards ongoing professional learning about assessment. The preservice teachers had an expectation of support as beginning teachers and a willingness to seek help or change their practice, when needed, in their own classrooms. Thus, there were signs of emerging adaptive expertise.

For the most part, the preservice teachers believed there was alignment between the theory and practice experienced in university coursework and on school practicum. There was accord between the university and the schools about their differing but complementary roles and responsibilities in assessment education. Moreover, there were consistencies in assessment beliefs, understandings and practices amongst all the participants. This reflects the alignment of educational assessment policy with practice in the New Zealand primary education system, which is underpinned by an assessment for learning approach. These consistencies enabled the preservice teachers to make connections between their coursework and the realities of classroom practice. Modelling and scaffolding by their teacher educators and associate teachers was influential on their learning. Throughout their teacher education programme, the preservice teachers were learning to assess while constantly being assessed. If dissonance occurred between their assessment learning and their observations or experiences of assessment practice, this often helped rather than hindered their understanding. The preservice teachers’ questioning and critical reflection in such situations resulted, for example, in an increased awareness of tensions between the different purposes of assessment sometimes experienced by teacher educators and teachers.

Two issues particularly related to the New Zealand context arose. First, the preservice teachers perceived there was limited attention in university coursework to understanding and reporting against National Standards. Some were anxious about their lack of experience with summative assessment generally, including using a variety of assessment tools to gather data and analysing assessment data to make overall teacher judgements. In contrast, the school leaders and associate teachers had an expectation of teaching preservice teachers and beginning teachers to use the assessment tools that formed part of each school’s own
assessment schedule. They considered having a sound understanding of the purposes for carrying out an assessment to be more important. A shared understanding about the teaching and learning of summative assessment seemed to exist between the university and schools, yet it was an area of real concern for many of the preservice teachers, which they considered needed addressing. Second, there was little evidence that by the end of their teacher education programme the preservice teachers were committed to using assessment to improve outcomes for priority learners. New Zealand has particular learner groups that are underperforming therefore it is essential that preservice teachers are prepared to use effective assessment in response to diverse learning needs.

The concepts of assessment as learning, metacognition, self-regulated learning and assessment capability are linked as they all place the learner at the heart of assessment, teaching and learning. Assessment education is particularly suited to making explicit links between the understandings and actions related to these concepts, due to the connection between assessment and learning. Teachers and students who understand this connection increase agency over their own learning and support the learning of others. The preservice teachers demonstrated metacognitive and self-regulatory skills and strategies in varying degrees through both their actions and their dispositions toward autonomy in their own learning. Some were more proactive than others in monitoring their own progress, setting their own assessment learning goals and selecting strategies such as acting on feedback and seeking help to improve their learning about assessment theory and practice. Explicit teaching of metacognition and self-regulation in teacher education programmes would assist all preservice teachers to take more responsibility for their own learning and assessment. Moreover, scaffolding preservice teachers to plan, teach and assess activities that foster metacognition and SRL will promote better outcomes for the diverse needs of their students.

Bransford et al.’s (2000) three core principles of learning provided an appropriate framework through which to view preservice teachers’ learning about assessment. These principles acted as a lens to see how the teacher education programme impacted this group of preservice teachers’ assessment beliefs, understandings and practices. At the start of their programme, they had pre-existing beliefs and initial understandings about assessment which were mostly negative and based on their own school experiences. These preconceptions of assessment changed towards a more positive view as they developed a foundation of theoretical assessment knowledge that was tested and refined through classroom practice.
There were individual differences in the metacognitive monitoring and self-regulating strategies the preservice teachers used to achieve their assessment learning goals. All three principles of learning were instrumental in the change, development and growth of the preservice teachers’ assessment learning. This study highlighted the integrated nature of the assessment education process, as well as the differences and commonalities in the preservice teachers’ individual assessment learning pathways.

Limitations of the research study

It is important to consider the limitations of this study alongside its conclusions. One of the issues with a case study approach is the problem of generalisability. For example, it is difficult to establish how well the conclusions drawn from a study such as this could be applied to other teacher education programmes, even those with a similar structure or a specific compulsory course on assessment. Nevertheless, consistent with similar qualitative studies, educators wanting to understand how preservice teachers develop their beliefs, understandings and practices of assessment could use the rich information provided to judge if there are enough similarities with their own contexts to establish transferability, as suggested by Lincoln and Guba (1985) and Miles et al. (2014). Furthermore, this study looked in an in-depth way at a small group within a cohort whose assessment learning was investigated using surveys and focus groups. The findings of both were consistent and this supports the robustness of the findings of the case study.

Another issue could be the size of the sample of eight preservice teachers, who were situated within one teacher education programme. This number of people is too small to warrant any type of generalisation (Yin, 2014), even if that had been the intention. They were volunteers from a much larger cohort of preservice teachers who were invited to participate because of the context of the teacher education programme (Miles et al., 2014). Their choice to participate may reflect something about their disposition towards learning, as well as a particular interest in assessment. In addition, there were no male preservice teachers and only one male school leader and two male associate teachers who participated. It is not known if a different gender balance might have produced more diverse perspectives. Despite the participants being self-selected and the same gender, their perspectives were not uniform and there was variability in their individual assessment learning pathways. Hence, any issues or differences that arose from the different perspectives could be assumed to occur in the wider population, perhaps at higher rates.
The focus of this research was mainly on the preservice teachers’ learning. Therefore, the preservice teachers supplied most of the data for the study. This may be considered a limitation because there may have been insufficient account taken of the multiple possible influences on their learning about assessment. Other participants considered influential in the preservice teachers’ assessment education were interviewed but in a much more limited way. The only teacher educator interviewed was the assessment course lecturer. It transpired that some of the compulsory and elective courses did have an impact on assessment learning. Thus, it would have been worthwhile interviewing other relevant teacher educators as well. Furthermore, only five of the eight preservice teachers’ final practicum schools consented to participate so there was not a complete data set relating to all eight preservice teacher participants. It was outside the scope of this research study to include other stakeholders in teacher preparation such as parents, students, administrators and school board members, as suggested by Borko et al. (2008). Nonetheless, the 43 interviews and the documentary evidence collected from the preservice teachers and the educators provided a rich picture of assessment learning. These findings were consistent with the larger LTBACT study reported in Hill et al. (2013) and Smith et al. (2014), suggesting that the sample was enough to draw useful conclusions from.

It was only possible to collect data during the final year of the three year teacher education programme due to the time constraints of this study. Consequently, the preservice teachers had to work from memory when reporting learning experiences that occurred in the first two years. Also, the researcher was unable to observe the preservice teachers’ assessment course lectures and tutorials at university, which occurred the year before data collection, and their assessment practice in practicum classrooms. This was a constraint of the research design. A characteristic of qualitative research is being able to link what participants say they do with what they actually do in practice (Creswell, 2007; Denzin & Lincoln, 2005; Flick, 2007; Punch, 2009). Observing and interviewing the preservice teachers in both learning settings over the three years may have helped to determine more accurately how the changes in assessment beliefs, understandings and practices occurred. It may also have provided evidence whether or not the educators’ assessment practices confirmed their reported assessment beliefs and understandings. That would have required a very lengthy and intense data collection process, more than would be possible for a sole researcher.
A further limitation of this study is the way in which the data was analysed and interpreted, raising the possibility of researcher bias. There was a large amount of qualitative data available for analysis, with the potential for different interpretations. The researcher endeavoured to search for and present disconfirming evidence, as recommended in Wideen et al. (1998). Moreover, the researcher addressed the trustworthiness of the data by providing evidence in the form of extensive direct quotations so that the reader could compare his or her own interpretations against those presented by the researcher. Providing such a wealth of rich data addresses issues of bias and subjectivity warned against by Bassey (1999), Lincoln and Guba (1999) and Yin (2011). Triangulation of data from different sources was provided to enhance credibility (Burns, 2000; Cohen et al., 2000; Creswell, 2008). Finally, the researcher strove to demonstrate reflexivity (Simons, 2009) to ensure that the participants’ thoughts, beliefs, actions and interactions were interpreted and represented as accurately as possible.

Implications for practice

Assessment can take many forms, with the main purposes of classroom assessment being to improve learning and raise student achievement. As reported by Hill et al. (2010), learning to use assessment through developing assessment literacy and building assessment capability is a complex process for preservice teachers. This has significant implications for explicitly addressing the complex, multi-faceted nature of assessment through curriculum content and pedagogical practices that support the development of assessment literacy (DeLuca et al., 2013). Preservice teachers enter a teacher education programme with prior knowledge and beliefs about assessment largely based on their previous school experiences. These often include negative beliefs or misconceptions that can be difficult to change unless specifically addressed. The challenge for teacher educators is to provide assessment education that:

(a) Identifies, examines and builds on preservice teachers’ pre-existing beliefs and preconceptions about assessment.

(b) Integrates the theoretical understandings necessary to underpin effective practice through authentic opportunities to practise assessment in a supportive learning environment. It is not sufficient to learn either assessment theory or assessment practice outside of a framework of conceptual understanding and authentic context.
(c) Addresses the needs of priority learning groups, including those with diverse cultural, social or special needs. Preservice teachers require an understanding of the effects of assessment on these groups, as well as being aware of and able to use culturally appropriate and responsive assessment practices.

The development of preservice teachers’ metacognitive and self-regulatory skills is particularly relevant to their assessment learning. Through university coursework and school practicum experiences they can learn to take responsibility for monitoring their assessment understandings and practice then take appropriate action to move learning forward. In order to develop teachers who are motivated, metacognitive and self-regulating, educators with a role in preservice teachers’ assessment learning who can model and scaffold these dispositions and capabilities are needed. Beginning teachers who have developed a sound foundation of assessment literacy can continue, with confidence, to grow their assessment understandings and practice by being adaptive to change. Finding effective ways to foster adaptive expertise needs to be addressed within assessment education.

**Implications for policy**

If the goal of educational assessment in New Zealand is to build system-wide assessment capability there are implications for the whole education sector, including initial teacher education programmes, school communities and policy makers. Evidence from the preservice teachers in this study indicated instances of metacognitive behaviours and self-regulatory strategies occurring, which are considered essential to the development of assessment capability. However, the use of the term ‘assessment capability’ was lacking from all but one of the participants, despite it being used by the researcher in the interviews. This suggests the concept of assessment capability needs to be disseminated more widely and clearly within and across the schooling system, including the learning settings in which preservice teachers learn to teach and as part of professional development. Further research with different groups of educators could establish how widely assessment capability is understood and practised, as well as how teachers and teacher educators develop such capability. If assessment capability was more widely understood and developed at every level of the schooling system, then there would be more likelihood of achieving the goal of all students progressing in their learning and realising the vision of empowering students to develop as independent and self-regulated learners.
Implications for future research

The preservice teachers’ learning was helped by being able to identify alignment and dissonance between the assessment theory and practice experienced in university coursework and school classrooms. This study has established that preservice teachers can use consistencies and contradictions in their assessment education to generate change and development in their understanding and practice. It would, however, be useful to investigate how teacher educators reconcile tensions between the competing demands of summative judgements for accountability and conferring qualifications with being able to consistently model and support student-centred assessment for formative purposes. As the preservice teachers in this study reported, teacher educator modelling of assessment practice influenced their learning about assessment.

Consistent with Valencia et al. (2009) and Wideen et al. (1998), using an ecological approach to research the multiple perspectives and actions of all those involved in assessment education could lead to a deeper understanding of the extent these influences have on preservice teachers’ learning. Such an approach could take account of the social and cultural contexts and investigate ways to maximise the benefits of collaboration between the universities and schools in which preservice teachers learn to teach. Such studies might include observing educators’ assessment practices and interactions with the preservice teachers for longer periods of time to note patterns or sequences often not evident in short or one-off observations. Data from studies into assessment education have often been obtained through self-report in questionnaires and interviews. Longitudinal studies that include observations of assessment practice over time may reveal more about the lasting contribution of assessment education to classroom practice. In addition, studies could track ongoing professional learning about assessment and the influence of adaptive expertise on improving practice. Such studies would help determine the existence and benefits of a professional learning continuum in assessment as there appears to be little known about the long-term development of assessment beliefs, understandings and practices from preservice education to experienced classroom teachers.

The field of assessment education would benefit from research investigating the metacognitive and self-regulatory skills preservice teachers use to achieve their assessment learning goals. They are also important elements in developing assessment capable teachers and students. Further research is required into the pedagogical practices, learning activities
and assessment tasks that promote metacognition and self-regulation in teacher education programmes. Metacognition is generally an internal feedback activity therefore research into preservice teachers’ engagement in metacognitive monitoring and self-regulation may require different methodological approaches. This study demonstrates that case study can provide a flexible and comprehensive approach to investigating and interpreting preservice teachers’ actions and interactions from different perspectives.

A final comment

This research study provided evidence that the preservice teachers learned about assessment in both university and school settings. The preservice teachers clearly understood the aspects of their teacher education programme that helped or hindered their assessment learning. They provided an important voice for rethinking and refining what, why, when and how assessment principles, purposes and practices are taught and integrated in the different learning settings. This does not apply only to a specific assessment course and school practicum experiences, but also to assessment theory and practice consistently embedded within a teacher education programme. Consequently, it would be useful for those involved in assessment education to carefully consider the voices and experiences of these preservice teachers to gain a better understanding of how they learned about assessment. This could stimulate critical examination of the content and delivery of assessment education programmes. A shared understanding of how preservice teachers learn to use assessment in the service of learning and to promote student engagement in assessment would provide a strong foundation for a collaborative approach to assessment education. This foundation could be used to build assessment capability that supports students to progress their learning and to foster adaptive expertise so teachers will be better prepared to change, develop and grow their learning about assessment throughout their teaching careers.
PARTICIPANT INFORMATION SHEET
for Final Year Preservice Teachers

Research Study: How do preservice teachers reconceptualise assessment theory and practice in university and school practicum settings?

Researcher: Gayle Eyers

My name is Gayle Eyers and I am a Doctor of Philosophy (PhD) student currently undertaking a research thesis at the Faculty of Education, University of Auckland. Based on my experiences as a teacher education student and primary school teacher, I have developed interests in using assessment to improve teaching practice and increase student achievement. I intend to investigate the impact of university coursework and practicum experiences on the assessment beliefs, theories and practices of primary sector preservice teachers. I would like to invite you to participate in this research study.

Effective assessment is a critical part of the teaching and learning process. Teachers must know how to use assessment to inform their teaching, measure student outcomes and support learning. Consequently, an important goal of teacher education programmes should be to build assessment capability in preservice teachers. This requires the integration of theoretical understandings about assessment and the ability to use effective assessment practices. There is a lack of research on the way preservice teachers learn about assessment, particularly within the different settings in which they learn to teach.

I intend to conduct a qualitative multiple case study of preservice teachers in their final year of a primary teacher education programme. The aims of my research study are:

- to investigate how the university coursework and school practicum experiences of preservice teachers impact on their assessment beliefs and theoretical understandings;
- to explore how preservice teachers’ own assessment practices are influenced by the connections they make between their theoretical understandings of assessment and their experiences of classroom assessment.

If you agree to be involved in this study, you will participate in four interviews with me during your final year of the teacher education programme. The interviews will occur: (a) at the beginning of Semester One; (b) just before you go on your final practicum; (c) during a period of full responsibility on your final practicum; and (d) towards the end of Semester Two. The interviews
will take approximately 30-40 minutes, and no more than 60 minutes. Interviews (a), (b), and (d) will be conducted at a convenient time for you outside of lectures and tutorial times, most likely at the university campus. Interview (c) will be conducted at your school practicum site outside of classroom time. Each interview will be audio-taped and transcribed by me. You can ask that the tape be turned off at any time. You will be offered the opportunity to correct, amend and make additions to the interview transcripts. There could be a need for follow-up conversations for clarification, which may be by telephone or email.

Teacher educators, associate teachers and principals or school leaders of schools at which preservice teacher participants are on practicum will also be interviewed. However, these interviews will be about developing assessment capability in preservice teachers and no questions will be asked about you or your teaching. These interviews will be conducted before you undertake your final practicum.

You will also be asked to share materials relating to your learning about assessment and developing assessment capabilities, both at university and on school practicum. These may include, for example, assignments, your professional portfolio, lesson/unit plans, assessment rubrics and examples of your assessment of student work. It is your decision what materials you would like to share. Permission will be sought to copy relevant materials and documents. Any excerpts referred to in the thesis or any other publications would be used in such a way that does not identify you as the participant, the teacher education programme, school or source of the information.

All participants will be given pseudonyms and will not be identifiable in publications or dissemination of any of the information gathered from the study. The information will be used for my PhD thesis and may also be written up for publication in educational journals or used in presentations. The data gathered will be stored for six years in a locked cabinet, after which time it will be destroyed. It may also be used as the basis for a further study. The privacy and confidentiality of all participants will be respected. You are asked that if you can identify participants from the information they give, you will protect their privacy and confidentiality. Following completion of the study, you will be offered the opportunity to receive an electronic copy of the completed thesis.

The Dean at the Faculty of Education has agreed that I can undertake this study and given an assurance that your participation, or non-participation, will not affect your grades or your relationship with the university or practicum school. Participation is voluntary and you have the right to withdraw, and withdraw any information you have provided, at any time up until 15 December 2012. If you agree to participate in my research study, could you please sign the attached Consent Form and return it to Pam Millward or Bev Hosking at MIT Campus by 7 October 2011.

Thank you for considering the invitation to participate in my research study.

Yours sincerely

Gayle Eyers
My supervisors are Dr. Mary Hill and Dr. Fiona Ell. If you wish to discuss any aspect of this study further, you can contact:

Gayle Eyers  
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Phone/Fax: (07) 855 1799  
Mobile: 0274 803561  
Email: geve001@aucklanduni.ac.nz

Dr. Mary Hill  
School of Teacher Education Practice  
Faculty of Education  
University of Auckland  
Private Bag 92601  
Auckland 1150  
Telephone: (09) 623 8899 ext. 48630  
Email: mf.hill@auckland.ac.nz

Dr. Fiona Ell  
School of Teacher Education Practice  
Faculty of Education  
University of Auckland  
Private Bag 92601  
Auckland 1150  
Telephone: (09) 623 8899 ext. 89847  
Email: f.ell@auckland.ac.nz

Dr. Lexie Grudnoff  
Head of School  
School of Teacher Education Practice  
Faculty of Education  
University of Auckland  
Private Bag 92601  
Auckland 1150  
Telephone: (09) 623 8899 ext. 48890  
Email: l.grudnoff@auckland.ac.nz

For any queries regarding ethical concerns you may contact:

The Chair  
The University of Auckland Human Participants Ethics Committee  
The University of Auckland Office of the Vice Chancellor  
Private Bag 92019  
Auckland 1142  
Telephone: (09) 373 7599 ext. 83711

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 21 SEPTEMBER 2011 FOR THREE YEARS, REFERENCE NUMBER 7596.
Appendix B: Preservice teachers’ consent form

CONSENT FORM FOR FINAL YEAR PRESERVICE TEACHERS
(This consent form will be stored for a period of six years)

Research Study: How do preservice teachers reconceptualise assessment theory and practice in university and school practicum settings?

Researcher: Gayle Eyers

I have read the Participant Information Sheet and have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction. I understand that participation is voluntary and that I can withdraw from the study at any time up until 15 December 2012.

I agree to take part in this research.

- I understand that permission has been obtained from the Dean of the Faculty of Education for this study to occur and assurance has been given that my participation, or non-participation, will not affect my relationship with the university or practicum school.

- I understand that I will be given a pseudonym and that my privacy and confidentiality will be respected throughout the study and in any resulting reports or publications.

- I agree to keep details about participants confidential.

- I understand that the four interviews will be audio-taped and that I can ask for the tape to be turned off at any time.

- I wish / do not wish the opportunity to correct, amend and make additions to the interview transcripts.

- I agree / do not agree to photocopying of relevant materials and documents shared by me with the researcher.

- I give permission for information to be used for Gayle Eyers’ PhD thesis, publication in educational journals, presentations and as the basis for a further study.

- I understand that data will be stored securely and separately from Consent Forms, in locked cabinets at the Faculty of Education for six years, after which they will be destroyed.

Full name: _______________________________________________________________

(First name)                                                                 (Last name)

Signed: _______________________________ Date: __________________________

Email: _______________________________ Phone: __________________________

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 21 SEPTEMBER 2011 FOR THREE YEARS, REFERENCE NUMBER 7596.
13 February 2012

Principal

Address

Dear (name)

Re: Research study on how preservice teachers learn about assessment

I am a PhD student currently undertaking a research thesis at the Faculty of Education, University of Auckland. I am conducting a case study of preservice teachers in their final year of a teacher education programme. My study is investigating how university coursework and school practicum experiences impact on preservice teachers’ assessment theory and practice.

(Preservice teacher’s name) is a third year preservice teacher who has agreed to participate in my study. She is conducting her final practicum at your school with (name) as her associate teacher. As part of my investigation, it is relevant to gain insight into the assessment beliefs, understandings and practices of the associate teacher and principal (or school leader with responsibility for assessment). These are two key staff members of the school who are likely to have an impact on the assessment understandings and practices being developed by the preservice teacher.

Accordingly, I am inviting (preservice teacher’s) associate teacher and principal (or school leader) to participate in my study. The time commitment will be one interview of approximately 30-40 minutes with each staff member outside classroom time, when convenient. No observations or interviews will be conducted with your school’s students. Please also note that I will not be asking any questions about (preservice teacher) or her practice. All information required in order for the two staff members to give informed consent is included in the attached participant information sheets.

Please find enclosed participant information sheets, consent forms and stamped addressed envelopes for the principal and board of trustees, principal (or school leader) and associate teacher. If you agree to participate, I would be grateful if you could pass the appropriate documents on to the associate teacher as your permission is required for this part of my study to occur in your school. It is my intention to conduct the interviews with the two key staff members before (preservice teacher) resumes her practicum in June. It would be appreciated if you could return the consent forms before 10 March 2012. My contact details and those of my supervisors are contained in the participant information sheet. Please do not hesitate to contact any of us if you have any questions or concerns.

Yours sincerely

Gayle Eyers
PhD Student

c/- Associate Professor Mary Hill
# Appendix D: Data collection timetable

## DATA COLLECTION TIMETABLE 2012

<table>
<thead>
<tr>
<th>2012</th>
<th>University</th>
<th>Practicum Schools</th>
<th>Preservice Teachers</th>
</tr>
</thead>
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<tr>
<td>February</td>
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<td></td>
<td>Semi-structured interview at beginning of university academic year.</td>
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<tr>
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<td>Collection of assessment materials.</td>
</tr>
<tr>
<td>March</td>
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<td><strong>7-14 March</strong></td>
</tr>
<tr>
<td>April</td>
<td></td>
<td>Semi-structured interviews with associate teachers and principals or school leaders at preservice teachers’ practicum schools.</td>
<td>Semi-structured interview before going on school practicum.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>School artifact and document collection.</td>
<td>Collection of assessment materials.</td>
</tr>
<tr>
<td>May</td>
<td></td>
<td></td>
<td><strong>16-17 May</strong></td>
</tr>
<tr>
<td>June</td>
<td></td>
<td>Semi-structured interview with teacher educator.</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>University/Teacher education programme artifact and document collection.</td>
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<td></td>
</tr>
<tr>
<td>August</td>
<td><strong>COMPLETED</strong></td>
<td>14 August</td>
<td>Semi-structured interview immediately after school practicum.</td>
</tr>
<tr>
<td>September</td>
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<td></td>
<td>Collection of assessment materials.</td>
</tr>
<tr>
<td>October</td>
<td></td>
<td></td>
<td><strong>29-31 August</strong></td>
</tr>
<tr>
<td>November</td>
<td></td>
<td></td>
<td>Semi-structured interview at end of university academic year.</td>
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<td></td>
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<td></td>
<td>Collection of assessment materials.</td>
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<td><strong>31 Oct-21 Nov</strong></td>
</tr>
</tbody>
</table>
Appendix E: Interview schedule for preservice teachers

INTERVIEW SCHEDULE:

SEMI-STRUCTURED INTERVIEW WITH PRESERVICE TEACHERS

Research Study: How do preservice teachers learn about assessment in university and school practicum settings?

Researcher: Gayle Eyers

Interview 1 – beginning of university academic year following three week practicum:

1. What do you think assessment is?
2. What are the purposes of assessment?
3. Why is assessment important?
4. What do you think ‘effective assessment’ means?
5. What ways do teachers gather assessment information?
6. How do teachers use the evidence gathered to inform teaching and learning?
7. In what ways do you think assessment affects students?
8. What have you learned about assessment from your university coursework so far?
9. What have you learned about assessment from your school practicum experiences so far?
10. In what ways, if any, have your beliefs and understandings about assessment changed since you began your teacher education programme?
11. What aspects of your teacher education programme have been particularly helpful for your learning about assessment?
12. In what ways could your teacher education programme have been better in helping you to understand and use assessment?
13. What are you hoping to learn about assessment theory and practice this year both at university and on school practicum?
14. What assessment materials would you like to share to demonstrate your learning about any aspect of assessment theory or practice?
15. Can you explain why you chose these particular assessment examples?
16. Do you have anything else you would like to share about your beliefs, understandings and practices of assessment? If so, please explain.

Interview 2 – before going on final school practicum:

1. What have you learned about assessment this semester?
2. Have any of your beliefs or understandings about assessment been challenged or changed?
3. What are you expecting to learn about assessment during your final school practicum?
4. What assessment practices and activities do you expect to use during your period of full responsibility?
5. What assessment materials would you like to share to demonstrate your learning about any aspect of assessment theory or practice?
6. Can you explain why you chose these particular assessment examples?
7. Do you have anything else you would like to share about your beliefs, understandings and practices of assessment? If so, please explain.
Interview 3 – after period of full responsibility on school practicum:

1. What assessment activities and tools have you observed being used in the classroom?
2. Do you consider them to be effective or ineffective? Please explain.
3. Are you aware of the assessment policies and procedures in your practicum school? If so, can you give examples?
4. In what ways, if any, are students involved in assessment of their own learning?
5. How have you used assessment to monitor and evaluate children’s learning?
6. How have you used assessment data to make decisions about children’s learning?
7. In what ways have you used assessment information to improve your teaching?
8. Is there anything you would do differently in regards to assessment in your own classroom?
9. In what ways, if any, did your Associate Teacher or other school staff support your learning about assessment?
10. In what ways, if any, did your Visiting Lecturer support your learning about assessment?
11. In your Professional Conversation, how did you demonstrate achievement of your practicum learning outcomes and evidence of the New Zealand Teachers Council Graduating Teacher Standards in regard to assessment theory and practice?
12. What assessment materials would you like to share to demonstrate your learning about any aspect of assessment theory or practice?
13. Can you explain why you chose these particular assessment examples?
14. Do you have anything else you would like to share about your beliefs, understandings and practices of assessment? If so, please explain.

Interview 4 – end of university academic year:

1. In what ways, if any, have you changed your beliefs about assessment during this final year of your teacher education programme?
2. How have this year’s university coursework and school practicum experiences increased your theoretical understandings of assessment?
3. How have this year’s university coursework and school practicum improved your understanding and use of assessment practices and tools?
4. In what ways have you been able to make connections between your theoretical understandings of assessment and your experiences of classroom assessment?
5. In what ways, if any, have there been instances of conflict or confusion between what you have learned about assessment at university and what you have learned or observed about assessment on school practicum?
6. As you prepare to move into your first year of teaching, how would you evaluate your assessment capabilities?
7. In what ways, if any, could the teacher education programme have better supported your learning about assessment?
8. What are your hopes and plans for teaching or further study next year?
9. What assessment materials would you like to share to demonstrate your learning about any aspect of assessment theory or practice?
10. Can you explain why you chose these particular assessment examples?
11. Do you have anything else you would like to share about your beliefs, understandings and practices of assessment? If so, please explain.
Appendix F: Interview schedule for teacher educator

INTERVIEW SCHEDULE:

SEMI-STRUCTURED INTERVIEW WITH TEACHER EDUCATOR*

Research Study: How do preservice teachers reconceptualise assessment theory and practice in university and school practicum settings?

Researcher: Gayle Eyers

*These questions will be asked for the purpose of understanding the teacher educator’s perspectives on assessment and how assessment is taught and modelled within the teacher education programme.

1. What are the purposes of assessment?
2. What do you think ‘effective assessment’ means?
3. Have you found preservice teachers’ beliefs about assessment tend to change or remain the same during their teacher education programme?
4. How does this affect the way you teach about assessment?
5. What are the most important theoretical understandings about assessment you want preservice teachers to gain from their university coursework?
6. How are assessment practices discussed and modelled within teacher education courses and specifically the assessment methods course you teach?
7. Can you give examples of the types of assessment activities and tools preservice teachers are taught to use within teacher education courses, including the assessment methods course?
8. What types of assessment do you use to collect information on preservice teachers’ learning about assessment?
9. How does this information inform your teaching about assessment?
10. What do you see as the role of the university in teaching preservice teachers about assessment?
11. What do you see as the role of the practicum school in teaching preservice teachers about assessment?
12. How do you encourage preservice teachers to make connections between their theoretical understandings of assessment and their classroom assessment experiences?
13. In what ways, if any, could the university and school have a more integrated approach towards building assessment capabilities in preservice teachers?
14. How do you keep up to date with assessment research literature and new assessment policy initiatives? How does this influence your assessment teaching practice?
15. What issues, if any, do you experience in teaching assessment to preservice teachers? How do you think they could be resolved?
16. Is there anything else you would like to share about assessment and how to develop assessment capabilities in preservice teachers? If so, please explain.
Appendix G: Interview schedule for principals/school leaders

INTERVIEW SCHEDULE:

SEMI-STRUCTURED INTERVIEW WITH PRINCIPAL

OR SCHOOL LEADER*

Research Study: How do preservice teachers reconceptualise assessment theory and practice in university and school practicum settings?

Researcher: Gayle Eyers

*These questions will be asked for the purpose of understanding the principals’ or school leaders’ assessment understandings and perspectives on teaching preservice teachers about assessment, as well as school assessment policies and procedures.

1. What are the purposes of assessment?
2. What do you think ‘effective assessment’ means?
3. What types of student assessment does your school undertake to gather evidence for reporting on student achievement?
4. How is the assessment data gathered used to increase student achievement?
5. What ways would you expect your teachers to use assessment data to inform their teaching?
6. Who are you required to report to on student achievement and for what purposes?
7. In this school, who has input into school assessment policies and documentation?
8. Can you give examples of school-wide assessment practices and procedures?
9. What type of professional development have teaching staff undertaken in assessment?
10. How do you ensure teachers, including new staff members, understand and use school assessment practices and procedures?
11. What knowledge and understandings about assessment do you expect preservice teachers to have in their third year of teacher education?
12. What do you see as the role of the practicum school in teaching preservice teachers about assessment?
13. What do you see as the role of the university in teaching preservice teachers about assessment?
14. In what ways, if any, could the university and school have a more integrated approach towards teaching preservice teachers about assessment?
15. If you were interviewing applicants for a beginning teacher position, what would you want to know about their assessment beliefs, understandings and practices?
16. Is there anything else you would like to share about assessment and how to develop assessment capabilities in preservice teachers? If so, please explain.
Appendix H: Interview schedule for associate teachers

INTERVIEW SCHEDULE:

SEMI-STRUCTURED INTERVIEW WITH ASSOCIATE TEACHERS*

Research Study: How do preservice teachers reconceptualise assessment theory and practice in university and school practicum settings?

Researcher: Gayle Eyers

*These questions will be asked for the purpose of understanding the associate teachers’ assessment understandings and practices, and their perspectives on teaching preservice teachers about assessment.

1. What are the purposes of assessment?
2. What do you think ‘effective assessment’ means?
3. What types of assessment do you carry out in your classroom?
4. How do you record, interpret and use the evidence you gather about what your students can do?
5. Can you give some examples of how you use assessment to inform your teaching?
6. Can you give some examples of how you use assessment to increase your students’ learning?
7. What assessment activities and tools do you find informative and useful?
8. What assessment activities and tools do you find not particularly useful?
9. What assessment activities and tools do you use to gather evidence for reporting on student achievement?
10. Who are you required to report to on student achievement?
11. What influence do school-wide assessment policies and procedures have on your assessment practices?
12. Have you received professional development on using assessment to improve teaching and learning?
13. If you were in a different school situation what assessment practices, if any, would you do differently?
14. What knowledge and understandings about assessment do you expect preservice teachers to have in their third year of teacher education?
15. What do you see as your role in teaching preservice teachers how to use assessment?
16. How do you model and discuss assessment practices for preservice teachers on practicum in your classroom?
17. What connections do you find preservice teachers are able to make between their theoretical understandings of assessment and their classroom assessment experiences?
18. Do you have any suggestions for a more integrated approach between the university and school towards teaching preservice teachers about assessment? If so, please explain.
19. Is there anything else you would like to share about assessment and how to develop assessment capabilities in preservice teachers? If so, please explain.
## Appendix I: Thematic nodes and descriptions

<table>
<thead>
<tr>
<th>Thematic Nodes and Descriptions</th>
<th>Parent Nodes and Description</th>
<th>Child Nodes and Description</th>
<th>Grandchild Nodes and Description</th>
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<td>National Assessment Policy</td>
<td>Conferences and conferencing</td>
<td>Conversations and conferencing</td>
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<td>conversations</td>
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<td>Teacher or student generated learning intentions, learning goals and success criteria for what learning is to occur and how learners will know it has been achieved.</td>
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<td>Overall Teacher Judgements</td>
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<td>Learners provide constructive and specific feedback on someone else's work according to a specific set of scoring criteria or rubric.</td>
<td>Learners provide constructive and specific feedback on someone else's work according to a specific set of scoring criteria or rubric.</td>
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<td>Assessment of learning - assessing the learning at the end of the teaching and learning activities teachers and students are engaged in. Whether the student knows (convergent assessment).</td>
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<td>Preservice teachers' prior knowledge and experiences of assessment.</td>
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<td>PT theory and practice conflict</td>
<td>Instances where assessment theory and practice are in conflict or hinder learning about assessment or where PTs think theory and practice could be better integrated.</td>
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<td>PT theory and practice linking</td>
<td>Instances where assessment theory and practice are linked to help learning about assessment.</td>
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<th>Improve student learning</th>
<th>Improve student learning - general comment</th>
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<td>Improve or support student learning.</td>
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<tr>
<td></td>
<td>Resourcing Using information to make resourcing and strategic decisions.</td>
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<td>Responsibility for learning Encourage students to take responsibility for their own learning.</td>
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<td>Target Target student needs and goal setting.</td>
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<th>Inform teaching</th>
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<td>General comment about using assessment to inform teaching.</td>
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<td>Gathering information Gathering information, data or evidence from different types of assessments.</td>
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<td></td>
<td>Grouping Using information to plan groups for different curriculum areas e.g. reading, writing, mathematics</td>
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<td></td>
<td>Individual learning needs Catering for each child's needs, whether it is more targeted support or extension.</td>
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<td>Monitoring Assessing the learning during the learning. Are the learning intentions or outcomes being achieved during the learning?</td>
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<td>Next steps Next learning steps or where to next?</td>
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<td>Planning More formal planning using teacher content knowledge and pedagogical content knowledge to further learning</td>
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<td>Measuring and reporting on student outcomes.</td>
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<td>Parents Parents involvement in assessment. What parents do and do not understand about assessment.</td>
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<td>Recording achievement Recording information about achievement or learning needs.</td>
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<td>Reporting achievement Reporting to whom and for what purpose.</td>
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<td>Student achievement Identify learning needs and achievement.</td>
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<td>Role of Practicum School</td>
<td>What do school leaders, associate teachers and the teacher educator see as the role of the practicum school in teaching preservice teachers about assessment?</td>
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<td>Role of University</td>
<td>What do school leaders, associate teacher and the teacher educator see as the role of the university in teaching preservice teachers about assessment?</td>
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</table>
|                         | Assessment conversations  
Professional conversations with PTs, ATs, VLs, other teachers about assessment and learning needs. |
|                         | AT formative actions PT obs  
Feedback, feed forward, questioning, observation, monitoring, planning, marking, recording that were observed by the PT. |
|                         | AT help assessment learning  
Associate teacher actions, feedback, feed forward that help or support the PT. |
|                         | AT hinder assessment learning  
Associate teacher actions and words that hinder PTs or cause them conflict. |
|                         | AT summative actions PT obs  
Teacher summative actions such as tests, exams, marking observed by PTs. |
|                         | AT teacher actions  
Building relationships with students, classroom management, behaviour management, planning, analysing, recording, scaffolding. |
|                         | Practicum assessment materials shared  
Assessment materials that are shared by the PTs that demonstrate good or bad examples of assessment they have seen on practicum or used themselves. |
|                         | Practicum requirements  
Tasks, assignments, assessments that are carried out while PTs are on practicum. |
|                         | PT formative assessment actions  
Observation, questioning, monitoring, conversations, conferencing, feedback, feed forward, student self-assessment, student peer assessment. NRR - notice, recognise, respond. |
|                         | PT Other  
Outside other codes. |
|                         | PT summative assessment actions  
Standardised testing, marking. |
|                         | PT teacher actions  
|                         | PT use of assessment tools  
Preservice teachers use of different assessment types and tools on practicum. |
|                         | Student assessment actions PT obs  
Student-set learning intentions, goals and success criteria, self-assessment, peer assessment. |
|                         | University-School integration  
Integration between the university and the school towards teaching PTs about assessment. |
|                         | Visiting Lecturer  
Visiting lecturer support, help, guidance, feedback, feed forward, actions that help or hinder the PT. |
<p>|                         | Year 1 Practicum - general comment |
|                         | Year 2 Practicum - general comment |
|                         | Year 3 Practicum - general comment |
| TEP School Practicum    | How PTs learned about assessment from their experiences on school practicum. |</p>
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<th>How PTs learned about assessment from their experiences of coursework at University</th>
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<td>Papers related to curriculum areas such as science, social studies and compulsory papers to do with educational theories, philosophy, politics, professional practice etc.</td>
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<td>Elective papers</td>
<td>Papers that PTs have a choice in selecting in addition to their compulsory papers.</td>
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<td>PT university assessment experiences</td>
<td>Coursework assignments, feedback, feed forward, assessment tools.</td>
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<td>PT university assessment tools</td>
<td>Preservice teachers experience of learning about assessment types and tools during university coursework, including introduction to the tools and practice using them.</td>
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<td>Coursework assessment, modelling assessment, TE teaching and learning about assessment. TE actions and interactions with PTs around assessment and assessment paper.</td>
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<td>University assessment materials shared</td>
<td>Assessment materials that are shared by the PTs that demonstrate good or bad examples of assessment they have experienced at university.</td>
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### Appendix J: Node coding frequency

#### Node Coding Frequency: How preservice teachers learn about assessment PhD research study

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REFERENCES


References


