Shifting conceptualisations of knowledge and learning in the integration of the New Zealand Curriculum in teacher education: A meta-ethnography

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December 2011

Abstract

The Teaching and Learning Research Initiative (TLRI) project *Shifting conceptualisations of knowledge and learning in the integration of the New Zealand Curriculum (NZC) in teacher education* generated a collection of eight case studies. The case studies describe individual teacher educators' personal journeys as they engaged with ideas relating to epistemological understandings and the NZC and undertook practitioner research in relation to their work with student teachers in initial teacher education (ITE) and practising teachers in schools. The findings of the case studies are synthesised using a meta-ethnography methodology. Consistent with the post-structural philosophical underpinnings of the project, which recognise that there are multiple ways of knowing and that different ways of knowing provide different insights and explanations, the meta-ethnography has been conducted from dual perspectives. Interpretive and post-structural analyses provide different and complementary understandings of the case studies and what can be learned from these.

The interpretive analysis suggests that epistemological shifts experienced by participants were complex, but that the nature of the participants' epistemological shifts was towards more relativist understandings of knowledge, learning and curriculum. This move was towards seeing knowledge, learning and curriculum as subjective, culturally and socially constructed, and contestable. The NZC was understood by teacher educators as a lever that could be used to advance social justice agendas, and by student teachers and teachers as supporting personal development and equity goals for learners. Teacher educators made sense of their shifting epistemological understandings and the personal challenges that these provoked through the metaphor of a journey. The post structural analysis suggests that educators' participating in the study continually framed and reframed their conceptualisations of knowledge, learning and curriculum in line with their current and emerging personal and professional identities and interests, relating to who they are and who they want to become. It also suggests that the teacher educators' and, to some extent, the student teachers', teachers' and school leaders' engagements in the project enabled them to resignify meanings of curriculum and of 'shifting' epistemological understandings. Given the intertwined nature of personal and professional identities, epistemological and ontological shifts for the participants involved dissonance, uncertainty and crisis. Over the duration of the project there was a move from seeing the NZC as a document to be implemented, towards seeing curriculum as a site of contested knowledges that could be strategically engaged with as a tool for social transformation. Resignifying the curriculum brought many participants into conflict with dominant understandings of the ways in which their roles as knowers are constituted in institutional and wider national policy discourses. These findings and specific strategies that supported participants' epistemological thinking and critical engagement with curriculum are elaborated in the meta-ethnography.

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INTRODUCTION

The Teaching and Learning Research Initiative (TLRI) project *Shifting conceptualisations of knowledge and learning in the integration of the New Zealand Curriculum (NZC) in teacher education* comprises a collection of case studies and a meta-analysis across the contributing case studies. The case studies describe individual teacher educators' personal journeys as they engaged with ideas relating to epistemological understandings and the NZC and their reports on pedagogical initiatives and associated practitioner research that they undertook in the context of their work in initial teacher education (ITE) and teacher professional learning (TPL). These case studies are reported separately as part of the project research portfolio. The meta-analysis across these case studies is described and reported herein. This meta-analysis takes the form of meta-ethnography.

The research questions which frame the overall TLRI project and towards which the meta-ethnography are directed are:

A. How are shifts in conceptualisations of knowledge and learning interpreted within the different knowledge domains of the practitioners (teacher educators) in this research? How do these shifts affect the way the NZC is interpreted?

B. How do shifts in the conceptualisations of knowledge and learning affect student teachers' and teachers' interpretations of the NZC?

C. What are the characteristics of effective initiatives for shifting student teachers' and teachers' conceptualisations of knowledge and learning?

These questions relate to different levels of inquiry and to different groups of participants in the TLRI study. The participants include student teachers and teachers in schools, with whom the teacher educators' worked and who were participants in teacher educators' case study inquiries. The teacher educators themselves are also participants in the study and their understandings and actions are a focus of the meta-ethnography. To distinguish the different groups and ensure clarity in nomenclature in this article, the three project investigators will be called *investigators* or *researchers*, the participating teacher educators will be called *practitioner researchers* or *teacher educators*, and the student teachers and practising teachers will be referred to as *student teachers*, *teachers, school leaders* or *teacher participants*.

The meta-ethnography begins with an outline of the process by which the meta-ethnography was developed. The main body comprises interpretive and post-structural analyses, presented as complementary readings, which relate to each of the research questions. It concludes with a discussion of the key themes and findings.

Meta-ethnography

The findings of the case studies are synthesised using a meta-ethnography approach, as developed by Doyle (2004). Meta-ethnography is used because it supports a holistic analysis across a range of case studies that are undertaken in different contexts and which utilise different theoretical and methodological approaches, but where these case studies answer the same research question within a project. This focus on research that was conducted within a common project framework distinguishes meta-ethnography from meta-interpretation (Weed, 2006), although the two meta-synthesis approaches are similar. Both meta-ethnography and meta-interpretation are underpinned by interpretivist epistemology and provide a synthesis across a range of studies. Both emphasise the role of interpretation in analysis and they seek to construct a truth or truths, rather than to find a single truth. These syntheses can be seen to follow a "triple hermeneutic" process (Weed, 2008, p. 21) where studies that are themselves interpretive (as researchers interpret the views of participants) are in turn interpreted by those engaged in the meta-ethnography or meta-interpretation.

The intentions of a meta-ethnography differ from those in traditional, positivist meta-analysis. Meta-analysis is used to generalise across large bodies of quantitative research in order to predict future outcomes for situations

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with equivalent conditions (Doyle, 2004). It involves the statistical analysis of a collection of data or results from a range of studies (Davies, 2011) and the use of statistical procedures to correct for biases in sources and from sources that use different methodologies (Weed, 2008) in order to provide statistical inferences and consistent findings. In contrast to this and in line with the interpretivist tradition, meta-ethnography does not usually involve statistical analysis, nor make any such corrections. In meta-ethnography, methodological differences are celebrated and may become points of insight and interpretation. Also, it uses interpretations of data, rather than primary data, as the material for synthesis (Weed, 2008). As explained by Savin-Baden, McFarland and Savin-Baden (2011) interpretive meta-ethnography "affords an opportunity not only to compare studies and the themes identified by the authors, but also to construct an (always contestable) interpretation" (p. 255).

Building on the work of Noblit and Hare (1988), Doyle (2004) used a meta-ethnographic methodology to synthesise findings across a range of projects on a similar topic but which did not necessarily use similar methodologies or comparable data sets. We adapt this meta-ethnographic approach to synthesise the findings of the individual case studies situated within the TLRI study. There are several points of congruence in drawing on a meta-ethnographic methodology that we share with Doyle. The first of these points of congruence is a shared intention in understanding the synthesis as an interactional interpretive process that establishes connections between the lived experiences explored in the case studies and the commonalities across them (Denzin, 1989, cited in Doyle, 2004). Doyle's approach involved the selection of case studies according to the extent to which they provided the most fruitful data in answering the research question, not necessarily those that used exactly the same theoretical and methodological approaches or were situated in similar contexts. In a similar way, the meta-ethnographic approach we utilise draws on a range of case studies that engage with the research questions, but which were undertaken in a range of differing contexts and which draw on differing theoretical and methodological approaches. In our study, a meta-ethnographic approach enables us to move across case studies undertaken in a range of institutional contexts and subject domains, by a number of teacher educators who are influenced by differing theoretical perspectives and who define their roles differently. The multi-voiced perspectives of these case studies provide new understandings and interpretations of what is involved in shifting conceptualisations of knowledge and learning and their effects.

Doyle's (2004) 'enhanced' approach to meta-ethnographic analysis of the case studies moves beyond the researcher writing translations of the individual case studies. Rather, the intention is to move from viewing the cases as part of a selection to seeing them as a collection that relates to the research questions. Rich interpretive translations drawing on descriptions and metaphors contained within individual case studies and comparisons across the case studies led to the development of codes and then the emergence of major themes in relation to the research questions. In Doyle's case the main themes characterising the synthesis provided new ways of understanding the research question. The synthesis of our meta-ethnography is similarly directed towards the TLRI project research questions.

Other aspects of a meta-ethnography, as identified by Doyle, that we incorporated in our analysis involved an explicit acknowledgement of the practitioner researchers' and the researchers' positionalities in the analytical process. To this end, the positionalities of the researchers are made explicit in their own words in the meta-ethnography. The practitioner researchers' positionalities as they affect their shifting (or static) conceptualisations of knowledge and learning are explored at length in their case studies, and in the findings of the meta-analysis. Member checks (Bogdan & Biklen, 2007) were undertaken with the practitioner researchers to ensure that the researchers' meta-analysis and reporting of others' ideas was in line with the practitioner researchers' thinking (Bogdan & Biklen, 2007; Doyle, 2004). The practitioner researchers were provided with the opportunities to comment on the meta-analysis. One person chose to do so.

A point of difference with Doyle's approach is our use of dual theoretical (interpretive) frameworks to provide multiple interpretations in the meta-ethnography. This is consistent with the philosophical underpinnings of the project, which emphasise multiple ways of understanding and of knowing (Grbich, 2007). These different frameworks recognise the multiple epistemological and ontological positions of the practitioner researchers and the researchers and provide different insights and explanations for the conceptualisations and shifting understandings of knowledge of the teacher educators and the student teachers, teachers and school leaders

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who were participants in the teacher educators' inquiries, and indeed of the researchers who were also participants in the TLRI research project. Another point of difference is the use of multiple texts in the meta-ethnography analysis, which comprise the reported case studies that were constructed by the practitioner researchers and the primary data collected from interviews with teacher educators and a questionnaire survey of student teachers and teachers. All of this data is treated qualitatively and with a view to constructing cogent interpretations based on a broad range of data.

Positioning the investigators

Working within interpretive and post-structural paradigms means that researchers relinquish claims to states of neutrality or objectivity in social research (Kelly, 2006; Preissle, 2006; Snape & Spencer, 2003). This means that integral to any interpretive or post-structural analysis is recognition of the positionalities of the investigators and how these may influence the analysis and writing of the meta-ethnography findings.

> Accompanying [the] relinquishment of neutrality is a focus on self-consciousness and self-awareness; we are studying ourselves studying others. If we can no longer use detachment, distance and neutrality to achieve objectivity, we can at least document and track how what we study is influenced by who we are. (Preissle, 2006, p. 691)

As we shall show, there is a strong connection between the practitioner researchers' epistemologies and ontologies, the research projects that they undertook, and the subject domains in which they were situated (Alsup, 2006; Bendixen & Feucht, 2010; Grbich, 2007). The same is also the case for the researchers, whose personal epistemologies and ontologies influence the ways in which they understand conceptualisations of knowledge and learning, and the ways in which these conceptualisations shift. In their own words, here is how the investigators describe themselves and their positions in relation to the TLRI project.

Jane Abbiss: Researcher

I am a Pākehā New Zealander. My professional background is in teacher education and secondary teaching. My research interests revolve around curriculum issues, particularly in relation to social sciences education, and gender relations in Information and Communication Technology (ICT) education. I acted as mentor for Alison, Jae and Juliet in relation to their case study research and as a co-researcher for the TLRI project.

In a position statement written at the beginning of the TLRI project I wrote that in becoming a teacher educator, I was compelled to engage consciously with theory and to think more deeply about curriculum, teaching and learning than I had as a classroom teacher. I felt that as a classroom teacher I acted and reacted instinctively to issues and situations encountered, based on experience and craft knowledge. These actions were not a-theoretical, but the theoretical underpinnings of my actions were implicit rather than explicit. When I became a teacher educator, I felt that an instinctive response was not sufficient when I needed to be able to explain the theoretical foundations of different classroom practices and approaches to others. This led me to deeper questioning of the nature of curriculum and a deeper awareness of how curriculum is socially constructed and how teachers, including myself, may act counter to their best intentions and maintain hegemonic social structures. I have been influenced, in particular, by social constructionist, feminist, and critical theoretical perspectives. I also noted in earlier writing that my personal experience as a teacher educator has been of a tension between an academic responsibility to challenge ideas and a professional responsibility to prepare beginning teachers for the realities, rigours and pressures of life in classroom and school settings. These interests in curriculum, teaching and learning – particularly in the socially constructed nature of curriculum and the lived tensions of teaching – led to my engagement in the TLRI project and my interest in understanding teacher educators' perspectives on knowledge, learning and curriculum.

My involvement in the TLRI project in general, and in the interpretive analysis process for the meta-ethnography more specifically, has been a personally challenging experience. I have found myself confronted by ideas and situations that have led me to question my own assumptions about curriculum, learning and teaching.

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Through involvement with practitioner researchers in the development of selected case studies, I have been led to question ideas about what it means to undergo epistemological shifts. From the start I was uncomfortable with linear ideas of what it means to 'shift' epistemological understandings and with assumptions made in epistemological tools and personal epistemological models (see, for example, Baxter Magolda, 2004 and Hofer, 2004) that particular ways of thinking about teaching and learning are superior or represent an advance on other positions. Also, I am conscious that these epistemological models do not attend to different worldviews and cultural ways of knowing and understanding curriculum, teaching and learning and that they assume a Western view of knowledge. These models seem to me to present teachers and teacher educators as deficient if they do not think or 'advance' in a particular way in their thinking. I was, and continue to be, uncomfortable with this deficit thinking. I felt that epistemological thinking and shifts were likely to be more complex and subtle than presented in personal epistemological models, and the experiences of practitioner researchers in the study and their case study investigations have revealed for me the nature of some of these lived complexities.

I have also had highlighted for me the nature of my own thinking about teaching and learning. This tends to a cognitive view. I recognise that a cognitive approach underpins my contribution to the meta-ethnography. Through engagement in the project, though, I have gained greater appreciation of different ways of knowing, particularly of embodied and affective dimensions of knowing, and how knowing involves multiple dimensions in combination and at the same time. This complexity of knowing has been my personal experience, as well as experiences attested to by practitioner researchers in the project.

Kathleen Quinlivan: Researcher

I am a 54-year old, fourth generation Pākehā New Zealander of mixed Scottish and Irish ancestry who grew up in the Manawatu and Hawkes Bay. I agreed to participate as a researcher and a mentor in this project because I am interested in exploring the possibilities of working with re-conceptualist understandings of curriculum (Miller, 2005), and in understanding the conditions of possibility for enabling transformation across a broad range of formal and informal educational contexts (Todd, 2011). My experiences as second wave feminist and my interest in feminist post-structural research theories and methodologies mean that I recognise that I am not neutral, and need to be explicit about my own positionalities and the ways in which they affect my own participation and analyses I undertook within the project.

I knew, in one of my previous incarnations as a high school English teacher, that what tended to influence my practices in the classroom were my own philosophies, values and interests, and the people I hung out with. In fact one of the reasons I became an English teacher was that novels, poetry, theatre and popular culture were one of the most meaningful ways for me to engage with what it meant to live a life. I took this 'past life' and current interests in the arts with me into my work with Kerri and Helen, whose case studies were exploring dance and the visual arts as 'ways of knowing' in the project. In turn I was also influenced in our collaboration by their world-views, life experiences and expertise. Their case studies emphasised the dynamically rich and varied ways our lives, interests, philosophies and work intertwine with one another. Working with them validated and expanded my research interest in understanding the arts as material and embodied knowledges which powerfully engage with emotions, affect and spirituality. I began to learn flamenco, and took up meditation!

Early on in the project I spoke in our group about the destabilising journey from being an 'expert knower' as a high school English teacher to becoming an increasingly less certain academic positioned at the uncomfortable nexus between theories and practices, and the crisis it provoked. In the past I have seen my identity as fixed, rational and autonomous. Over the course of my academic life I have become increasingly comfortable with post-structural perspectives that understand my identities as a knower as 'on the move'. While such perspectives are often discombobulating they can also prove quite productive for my research work. In the project I have been able to build on my interests in critical feminist, post-structural and queer theory and psychoanalytic theory and curriculum. These paradigms have proved useful in understanding epistemological transformation and change because they engage with the shifting exchange values of power/knowledge, conceptualise both knowing and learning as 'under construction', are understood as more 'rhizomatic' than linear, engage with ontology, and acknowledge crisis and affect can be an important part of the process.

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Meta-ethnography analysis

> When we talk about methodology, what we are really talking about is a certain order of philosophical commitment (Natanson, 1963, p. 271). Indeed 'methodology' is different from 'methods' precisely because it is about the logical and philosophical questions that particular methods assume. (Davidson & Tolich, 1999, pp. 25-26)

Underpinning the methodological decision-making for the meta-ethnography analysis is the philosophical understanding that there are multiple ways of knowing and that complementary ways of knowing can provide different insights and explanations (Green, Camilli & Elmore, 2006). This understanding led to the decision to provide dual analyses across the case studies. Specifically, interpretive and post-structural ways of knowing shape the process of the meta-ethnography analysis and the way in which the findings are reported. Given the diversity of perspectives regarding the nature, goals and values of educational research, Kelly (2006) argues for the benefits of multiple epistemological positions in terms of recognising the plurality, diversity, and social nature of knowledge. In line with Kelly's (ibid) intentions, as researchers we were interested in exploring the possibilities of engaging with epistemic plurality in ways that were consistent with the philosophical underpinnings of the project: an emphasis on the contested nature of knowledge and its differing exchange values (Popkewitz, 1997), and attending to subjugated knowledges (Andreotti, 2010). Bringing together interpretivist and post-structural theoretical analyses enabled us to recognise the multiple epistemological and ontological positions of the practitioner researchers, teachers, school leaders and the researchers. The complementary qualitative frameworks (Grbich, 2007) value the ways in which the practitioner researchers made sense of their experiences in the case studies and wider study. In some cases, these frameworks also provide an analysis of the ways the participants within the project negotiated the conflicting epistemic discourses circulating within their institutions to discursively resignify understandings of subjugated knowledges and epistemological and ontological shifts.

Undertaking a meta-ethnography from multiple theoretical positions means that different questions are asked and different things are looked for in the data. An interpretivist lens focuses on individuals' experiences, perceptions and understandings of why people do what they do. A post-structural lens focuses on situating experiences within broader social, historical and political discursive contexts. The key features of interpretive and post-structural analyses and the theoretical framework for the meta-ethnography are described below and in Table 1.

Interpretive analysis

Historically, an interpretive approach to research represents a response to, and a reaction against, positivist ways of doing and reporting research in relation to the social world. In particular, it challenges the idea that there is an external and objective reality or truth that can be discovered by scientific processes (Creswell, 1998; Lather, 2006; Preissle, 2006). It is grounded in the ontological understanding that the social world does not exist independent of people's subjective understandings and that these understandings are only accessible through participants' interpretations, which are revealed through their language and actions. Researchers interpret these understandings still further (Snape & Spencer, 2003). An interpretive approach is epistemologically a relativist, reality-constituting practice that privileges the lived experience of ordinary people over the theoretical knowledge of scientists and academics (Creswell, 1998; Jackson, 1996). Meaning is viewed as subjective, socially constructed and multiple. According to Lather (2006), questions that are central to interpretive understandings are: What is discoverable or un-coverable? What can we understand? This contrasts, for example, with a positivist view, which asks what it is that we know and what is true, and with post-structural and postmodern (deconstructionist) views that ask whether there is a truth and what constitutes 'truth'. The intention of interpretivist analysis, then, is to understand the subjective and socially constructed realities of people. Questions are asked about what people say, and why they might say that or think that way. These questions are descriptive (identifying 'what') and interpretive (suggesting 'why').

The interpretive component of the meta-ethnography is concerned with practitioner researchers' (teacher educators') understandings of knowledge, learning and NZC and how these were enacted in their pedagogical

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initiatives, and with their understandings of epistemological shifts. It is also concerned with how student teachers and teachers understand knowledge, learning and curriculum. The meta-ethnography presents a situated interpretation of the views and understandings of the practitioner researchers (teacher educators) and the participants (student teachers and teachers) in the case studies. The analysis is aimed at trying to make sense of how these people make sense of the world – in this case, their epistemological understandings in relation to knowledge, learning and NZC.

An idea that can be helpful in interpretivist analysis is that of the "interpretive repertoire" (Burr, 1995, drawing on Wetherell and Potter). This notion provides a way of understanding how people construct their accounts of events:

> … interpretive repertoires can be seen as a kind of tool-kit of resources for people to use for their own purposes. They represent a consistency in accounts which is not located at the level of the individual speaker…. The functions that these repertoires serve for people are seen as generally enabling them to justify particular versions of events, to excuse or validate their own behaviour, to fend off criticism or otherwise allow them to maintain a credible stance in an interaction. (Burr, 1995, p.116)

Interpretive repertoires represent collections of metaphors or understandings that people have that lead them to construe events in particular ways. For example, curriculum may be understood differently as legal responsibilities, a guide to practice, unproblematic policy, a site of conflict, or something else. Questions might be asked about the functions that are served by using particular interpretive repertoires (Burr, 1995). For example, does a particular repertoire act to challenge events and advocate change, or maybe to sustain the status quo? Analysis of interpretive repertoires is similar to, and may be conflated with, Foucault-influenced discourse analysis, where the analysis focuses on serious speech acts or institutionalised talk and practices, rather than on mundane talk and rules of speech (Burr, 1995; Talje, 1999). The idea of the interpretive repertoire is used in the meta-ethnography, as part of the interpretive analysis, to make sense of what teacher educators, student teachers and teachers say and of their understandings of knowledge, learning and NZC.

Post-structural analysis

A post-structural analysis of the data interrogates taken-for-granted/Enlightenment meta-narratives of concepts such as knowledge and learning, conceptual shifts, and educators as knowers. Rather than seeing these discursive understandings as 'describing' a reality, languages are seen as creating stories about realities, social practices and identities. In a constant state of production and contestation, discursive constructions of knowledge, learning, and teacher knowing are seen as unstable, contingent, dynamic and socially negotiated (Grbich, 2007). The relationship between the meaning of the word (signifier) and the object the word represents (signified) is therefore called into question. A post-structural reading provides analyses of the ways in which, in light of the 'discursive turn' (Popkewitz, 1997; Prasad, 2004) the practitioner researchers, teachers and school leaders used the project strategically as a way to re/signify discursive understandings of knowing and learning in line with their own understandings, and with the participants in their case studies. It also accounts for the way in which, in some cases, the participants' understandings of the meanings of knowing, learning and 'shifting' were re-signified.

Discursive constructions of curriculum are conceptualised beyond instrumental notions of development and implementation – to consider the extent to which curriculum can be understood more broadly and politically as contested – in the recognition that some knowledges are considered 'more worth knowing' than others (Pinar, Reynolds, Slattery & Taubman, 1995). The differing exchange value of knowledges is also called into question (Foucault, 1980), especially in relation to subjugated knowledges, such as indigenous knowledges, and material, affective and embodied ways of knowing (Felman, 1992). Curriculum, as 'the knowledge considered most worth knowing', is also understood as highly contested and tension-producing within educational institutions and wider society (given the competing understandings of crafting citizenry within the current context of the 'knowledge economy'), while also simultaneously being seen as a site of strategic intervention (Popkewitz, 1997).

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The nature of shifts in educators' conceptualisations of knowledge and learning were also open to re-signification throughout the course of the project, especially in relation to the connections between the participants' epistemologies and ontologies. These included re-signification of teachers' roles as rational, autonomous and fixed knowers. The role of crisis, holding uncertainty and affect as a feature of shifting conceptualisations of knowledge and learning, is also explored as emergent social, psychic, intellectual, emotional, spiritual and embodied labour (Felman, 1992). These processes of deterritorialisation, as Deleuze and Guattari (1987) describe them, can create 'chasmos', crises that precipitate new ways of thinking and acting. Rather than linear and cumulative, shifts in educators' conceptualisations of knowledge and learning appear to be more rhizomatic in form.

Conceptualisations of educator selves also were open to re-signification over the course of the project. Understanding educator selves as forms of working subjectivity, constructed through discourse and practice and historically contingent (Wetherell, 2008; Wetherell, Lafleche & Berkeley, 2007), emerged as significant. The data suggests that understandings of educators as knowers are produced through a complex interaction between social structure and individual psychologies and act upon—and act in relation to—the multiple discourses that constitute selves. Accomplishing subjecthood is seen as a paradoxical, ongoing process (Davies, 2006) characterised by struggles of both mastery and submission. As Alexander (2005) noted, a process more about becoming rather than arrival; "crossings are never undertaken all at once, and never once and for all" (p. 290).

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Table 1: Questions for the meta-ethnography

Research questions	Interpretivist understanding	Poststructuralist understanding
A How are shifts in conceptualisations of knowledge and learning interpreted within the different knowledge domains of the practitioners (teacher educators) in this research? How do these shifts affect the way the NZC is interpreted and implemented?	What are practitioner-researchers' perceptions and understandings of shifts in conceptualisations of knowledge? What are practitioner researchers' perceptions and understandings of the NZC? What frames of reference (interpretive repertoires) are used to present new interpretations of the NZC?	How do the practitioner researchers engage with the research project strategically in order to re/signify discursive understandings of knowing and learning? What are the ways in which some practitioner researchers' understandings of knowing, learning and 'shifting' are both validated and re/signified over the duration of the study? What are the challenges and possibilities which emerge in the processes of resignifying discursive understandings of knowledge and learning?
B How do shifts in the conceptualisation of knowledge and learning affect student teachers' and teachers' interpretations of the NZC?	What are student teachers' and teachers' reported shifting conceptualisations of knowledge and learning? What frames of reference (interpretive repertoires) do student teachers and teachers use to understand knowledge and learning? How do these shifts influence their understandings of the NZC?	What epistemic and ontic possibilities can be opened in the processes of re-signification? What are the tensions and risks involved in engagements with re-signification? What are the destabilising effects of engaging with complexity, uncertainty and 'becoming' as a teacher knower, and the implications for teacher's intertwined professional and personal identities?
C What are the characteristics of effective initiatives for shifting student teachers' and teachers' conceptualisations of knowledge and learning?	What factors are reported by the practitioner researchers as being effective in shifting student teachers' and teachers' conceptualisations of knowledge? How do the practitioner researchers explain or narrate successes and failures in their initiatives?	How did participating in the project support the practitioner researchers in the validation and resignification process? What are the features that characterised the case studies as spaces of re-signification for student teachers, teachers and school leaders? What are the effects?

Texts and data collection methods

Multiple data sources (texts) are used in the meta-ethnography. These texts relate to the understandings and actions of the practitioner researchers, (teacher educators) and of the student teachers and teachers who are participants in the teacher educators' inquiries.

The texts that were generated, and which were available to support the meta-ethnography analysis, include: the reported practitioner inquiries (case studies), which were written by the practitioner researchers with the support of a mentor researcher; pre- and post- interview transcripts, from interviews with the practitioner researchers; pre- and post- questionnaire responses, which were provided by the student teachers and teachers; written reflections, including researcher and practitioner researcher position statements; and classroom observations records, interviews and recorded conversations between practitioner researchers and teachers (where these were part of individual case study inquiries). Particular texts provide information that is pertinent to different research questions and these texts were the focus of the analysis for specific questions, with other data sources providing supplementary information. The specific texts used for the meta-ethnography analyses, relating to particular research questions, are identified in Table 2.

Table 2: Texts used in the meta-ethnography analysis

Research questions	Texts
A How are shifts in conceptualisations of knowledge and learning interpreted within the different knowledge domains of the practitioners (teacher educators) in this research? How do these shifts affect the way the NZC is interpreted and implemented?	Pre- and post- interviews with the practitioner researchers (teacher educators) Reported case studies
B How do shifts in the conceptualisation of knowledge and learning affect student teachers' and teachers' interpretations of the NZC?	Pre- and post- questionnaires (survey) completed by student teachers and teachers Reported case studies Interviews and conversations between practitioner researchers and teachers (supplementary data).
C What are the characteristics of effective initiatives for shifting student teachers' and teachers' conceptualisations of knowledge and learning?	Reported case studies Pre- and post- interviews with the practitioner researchers

Case studies represent a bounded system or a framework on which inquiry is concentrated and from which something can be learned (Stake, 2003; Yin, 1994). In the meta-ethnography, eight practitioner inquiries comprise a collection of case studies that is used to illuminate the research questions through holistic, multi-perspective analysis. These eight case studies provide rich descriptions of the teacher educators' personal learning journeys and their developing understandings relating to knowledge, learning and NZC. Seven of the case study texts also report on the design and implementation of specific, situated pedagogical initiatives relating to the practitioner researchers' practice and the findings of their research inquiries (see Table 3 for the case study topics).

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Table 3: Case study topics

Case Study	Practitioner researcher	Topic of Practitioner Inquiry
A	Alison Ayrton	Knowing differently, not knowing more: A practitioner inquiry in pre-service primary teacher education
B	Judy Bruce	Dancing on the edge: Exploring shifting conceptualisations of knowledge and learning through self study
C	Amosa Fa'afoi and Vanessa Andreotti	Relating to others: Re-arranging configurations of cognition and affect
D	Kerri Fitzgerald	The contribution of embodied ways of knowing in re-conceptualizing dance in the NZC: A grounded pathway for the 21st century
E	Wayne Freeth	Towards reconceptualising leadership: The implications of the revised New Zealand Curriculum document for school leaders
F	Juliet Fry	Shifting teachers' conceptualisations of knowledge and learning in secondary ESOL: A practitioner inquiry
G	Jae Major	Process of becoming: Changing practice in teacher education through inquiry-based learning
H	Helen Moore	How do visual arts as embodied knowing and being contribute to the exploration and development of 21st Century transformative learning sought by the New Zealand Curriculum?

Three mentor groups were established, each comprising two or three practitioner researchers and one of the project researchers, to support the development of individual practitioner researcher inquiries and the writing of the case study narratives. The methodologies of the case studies differed, depending on the personal interests, motivations and work contexts of the teacher educators and included auto-ethnographic and empirical research.

Interviews were conducted with the practitioner researchers (teacher educators) early in the first year of the project and in the later stages of the case study research. These interviews explored ideas relating to the research questions, including the practitioner researchers' understandings of curriculum and epistemological shifts. See Appendix 1 for a summary of the research questions that provided a guide for pre- and post- interviews.

As part of their individual research projects, most of the practitioner researchers conducted a survey with the teachers or student teachers who were participants in the case study research. The survey comprised simple pre- and post-initiative questionnaires. Appendix 2 provides examples of the questionnaires. These questionnaires were administered as and where they were deemed appropriate for particular practitioner researchers' investigations. Six practitioner researchers used questionnaires in their research, and four used them to collect both pre- and post- initiative data (Case Studies A, C, F and G). Some practitioner researchers chose to use interviews in addition, or in preference to, the questionnaire survey because interviews provided more in-depth data and spoke more fully to their specific research questions (Case Studies A, D, E, F, G and H).

The data gathered within specific case study research projects varied, depending on the nature and focus of the individual inquiries. Texts that were generated from all of the teacher educators' inquiries include the reported case studies and interviews with practitioner researchers. Other texts were produced in the context of specific case study inquiries. The variation in data sources provides rich but 'messy' (non-uniform) data for the meta-ethnography analyses. The variability reflects the different ways that the practitioner researchers engaged strategically with the research and the different contexts of their work.

Thematic analysis

The analysis of qualitative data can be seen as a process that identifies key themes and patterns in the data and that establishes the relevance of concepts by making theoretical connections (Bogdan & Biklen, 2007; Coffey & Atkinson, 1996). The data analysis began with a coding process, whereby concepts pertaining to the broad research questions were illuminated in the texts. These concepts included "curriculum", "knowledge",

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"teaching", "learning" and "epistemological shifts". It proceeded with the refining of categories and themes as meaning was sought through interpretivist and post-structural readings. Findings in the meta-ethnography are reported according to these themes.

A qualitative, interpretive analysis was undertaken of the questionnaire responses, across the four case studies from which pre- and post- questionnaire responses were received. This analysis focused on the data where student teachers and teachers had completed both the pre- and the post- questionnaires (35), or the post-questionnaire only (23), as this would potentially provide indications of shifts in thinking amongst student and practising teachers. Responses where teachers had only completed a pre- questionnaire were excluded from the analysis because they would not provide an indication of shifting understandings. The intention of the analysis was to highlight the nature and range of ideas expressed by student teachers and teachers – their varied and similar understandings of knowledge and learning – and to present a rich description of shifting conceptualisations of knowledge. The creation of rich description is the purpose of qualitative analysis, as opposed to the generation of statistically significant, generalizable and predictive findings (Bogdan & Biklen, 2007; Coffey & Atkinson, 1996).

Writing was a key part of the meta-analysis process. In qualitative analysis, writing is a way of organising thoughts, clarifying ideas, sorting out relationships in the data and deepening the analysis (Coffey & Atkinson, 1996; St. Pierre, 2002).

> Writing is as much about creating 'results' as it is about reporting them … Writing is part of the interpretive process through which the theoretical implications of data collection and data analysis are worked out more fully, though never completely. (Ezzy, 2002, p. 138)

In the meta-ethnography, different interpretations were formulated and refined through writing. The meta-ethnography can be thus be understood as a meta story (or stories), the hybrid narrative(s) that results from the editing and reshaping of others' stories and which develops understandings about the significance of those stories (Kvale, 1996; Reissman, 1993).

Methodological rigour

Conducting the meta-synthesis across multiple sites (case studies) gives credibility to the meta-ethnography by providing opportunities to consider both similar and divergent experiences and views among the research participants. The use of multiple data sources (multiple texts) also helps provide confidence in the findings. This is achieved through triangulation of data sources and methods (Coffey & Atkinson, 1996; Patton, 2001). In addition to these conventional forms of triangulation, the meta-ethnography also utilises theoretical and analytical forms of triangulation. Patton (2001) describes theory/perspective triangulation as "using multiple perspectives or theories to interpret the data" and analyst triangulation as "using multiple analysts to review findings" (p. 556).

The application of theory triangulation is integral to the meta-ethnography methodology. The dual perspectives adopted in the meta-analysis, through the interpretive and post-structural analyses, provide multiple understandings of the data. At the same time it makes clear the theoretical foundations of the analyses. Having two analysts, both collecting data and engaging with the data in the analysis process, helps to make visible some of the inevitable assumptions that are made in the process of data collection. For example, in the process of discussions within the project researcher team, it was evident to the researchers that they emphasised different ideas in the interviews with the participating teacher educators (even though working from a common interview guide), which may or may not have been apparent to them at the time. In combination, these strategies help to provide rigour throughout the meta-ethnography process and in the findings.

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META-ETHNOGRAPHY FINDINGS

The findings from the meta-ethnography are presented under headings that correspond with the research questions (see Table 1). Two readings, interpretive and post-structural, are presented within each section.

A. Teacher educators' conceptualisations of knowledge, learning and curriculum

This section focuses on the ways in which teacher educators, who were practitioner researchers in the TLRI project, conceptualised knowledge, learning and curriculum. In particular, it explores the ways in which teacher educators conceptualised and experienced epistemological "shifts" (if at all), their developing understandings of NZC, and how these understandings were applied within the specific knowledge domains of teacher educators' work in ITE and TPL.

Interpretive Reading

Ideas about knowledge and learning

The contexts of the case studies and the chosen foci for practitioner inquiries reflect participating teacher educators' developing understandings of the nature of knowledge and learning (epistemological understandings). These understandings were influenced by the theoretical explorations that were an integral part of participation in the TLRI project. Teacher educators engaged with a range or theoretical literature and tools (see Introduction paper), which contrast absolutist ideas of knowledge, as something that is provided by teachers and received by students, with more flexible and generative ideas of knowledge as something that is co-constructed and reflects contexts and cultural backgrounds. Practitioner researchers' understandings also specifically relate to developments within the knowledge domains and curriculum learning areas that are the context of their work, including social studies and multicultural studies, dance and visual arts, English as a Second or Other Language (ESOL), ITE and TPL.

The participating teacher educators draw on a variety of ideas about knowledge and what it means to 'know'. They variously explore: knowledge as a noun or a verb, which describes ideas of knowledge as static or active, fixed or fluid, reproductive or performative (Case Studies A, C, E, F and G); realist and relativist knowing (Case Studies A and G); liberal, critical and post-critical perspectives (Case Study B); head/heart spaces and physiological affects (Case Study C) and embodied knowing (Case Studies D and H). These ideas are translated and applied within particular knowledge domains. For example, in Case Study G, theory and ideas relating to realist and relativist ontology and epistemology are explored and Jae makes a commitment to "walking the talk" through the implementation of an inquiry learning model in a primary social studies ITE course. The action of teaching about inquiry learning by engaging student teachers in an inquiry process reflects relativist notions of learning as exploration, where learners are active participants, learning outcomes may vary for individuals, and teaching is about facilitation. In Case Study E, the context of practitioner inquiry is educational leadership in TPL. Epistemological understandings are conceptualized in relation to a noun/verb metaphor. Wayne's inquiry is focused on reshaping professional learning for school Principals to become an exploration of the principles of distributed leadership and of the spirit of NZC, to build knowledge in a collaborative way, rather than being focused on the provision of practical tools. Juliet similarly conceptualises knowledge and learning in noun/verb terms in Case Study F. Within the specific context of TPL for ESOL teachers, though, this is translated into the idea of learning as "languaging". This concept encompasses notions of learning English in relation to real-life and different curriculum contexts in order for students to be able to do or achieve something, rather than learning English as the acquisition of vocabulary and mastery of grammar. Languaging is seen to reflect performative rather than reproductive notions of knowledge and learning. In the context of a multicultural

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studies course in primary ITE, in Case Study C, the noun/verb metaphor is used to convey ideas about culture and identity. For example:

> [culture is] conceptualised as a noun as emphasizing representations of behaviours and traditions (generally associated with nationalities or ethnicities), suggesting ideas of homogeneity and fixity. Culture conceptualised as a verb was presented as 'agonistic and antagonistic negotiation of meaning' (Bhabha, 1994), emphasising heterogeneity, multiplicity and the dynamic nature of signification and of cultural practices. (Vanessa, Case Study C)

In Case Study D, Kerri explores ideas relating to connected (mind/body/spirit) ways of knowing, creative wondering and the use of imagination through the body in dance. This is done in relation to a particular model for dance education, the DiNE model, which emphasises such creative exploration.

A common thread across the case studies is the notion of desirable knowledge as something that is actively constructed by learners. Learning is concomitantly seen to involve active exploration by learners and knowledge generation, rather than the passive reception of ideas. The pedagogical initiatives that were undertaken by teacher educators were all designed to challenge ideas of teaching as transmission and learning as digestion and regurgitation of teacher-supplied information. These epistemological understandings can be seen to reflect social constructivist theories of learning, which have in common the positioning of learners as active rather than passive agents in learning processes (Burr, 1995; Philips, 2000; Scott & Palincsar, 2009). For some participating teacher educators, though, knowledge and learning are conceptualised as more than, or as different to, cognitive engagements, by embracing emotional, spiritual, material and embodied experiences and expressions of identity. These ideas were strongly expressed by Kerri and Helen, both of whom are personally committed to, and interested in, teaching and learning in the arts. As articulated by Helen, "conceptualisation of knowledge is all tied up with the whole of who you are, and that includes your body, which also included feelings" (Helen, interview 2). For others, it is conceptualised in ethical and political terms, in relation to notions of social justice and with conscious intent to effect social change and to challenge systems that sustain injustice or inequality through education.

These similar but varied conceptualisations of knowledge and learning influence practitioner researchers' notions of what might constitute epistemological "shifts".

Understandings of epistemological "shifts"

Shifting conceptualisations of knowledge are variously described and understood by teacher educators as movements between different knowledge representations: from seeking to acquire information to generating knowledge through active inquiry and social interaction; from realist to relativist ontological positions, traditional to critical perspectives, and critical to post-critical perspectives; towards experiencing 'being' in different ways and relating to others bodily through visual art and dance. The shifts that are identified in this interpretive analysis are discerned from the personal and individual reflective responses of teacher educators (from teacher educators' reflections on their own learning in interviews) and from their writing about their practitioner inquiries (as reported in findings of contributing case studies).

The notion of epistemological shifts is seen and experienced as problematic by the teacher educators in the project. Notwithstanding this, several broad themes emerged from the data. Epistemological shifts, related to changing ideas about the nature of knowledge, teaching and learning, are understood as:

• ongoing development;

• alignment of theory and practice;

• learning a language;

• personal challenge and transformation.

These understandings are further made sense of by teacher educators within the interpretive repertoire of a journey.

Ongoing development

The notion of epistemological shifts as ongoing development relates to ideas that the process of personal learning is continual, that there is not necessarily a linear progression in relation to changing epistemological understandings, and that new understandings build on, and develop from, current understandings and are grounded in previous and new experiences. Several teacher educators in the project actively resist the idea of epistemological "shifts", arguing that the notion of a shift is too linear and simplistic. They question notions of a simple linear progression and movement from one cognitive stage to another in models of personal epistemological beliefs. Helen, for example, describes epistemological shifts as "a lot more complicated and messy" than a linear process and sees shifts related to embodied learning as inescapably having an emotional dimension – including "the whole affective domain" (Helen, interview 2). These teacher educators express discomfort with the hierarchical labeling of stages, where later stages or ways of thinking are implicitly seen as superior and as an advancement on earlier stages of epistemological understanding.

Resistance to simplistic notions of epistemological shifts is based on awareness of the problematic nature of teacher educators' own personal epistemological 'shifts', on their practical experience of difficulties in identifying and categorising the epistemological shifts of student teachers and teachers with whom they worked, and on theoretical or philosophical grounds. This led to searches for different ways of conceptualising and describing shifts. Alison, for instance, draws on Piantanida, Tananis & Grubs (2004), in her case study, to argue for the notion of a "morph" rather than a "shift" because she feels that a shift implies something linear or sequential, whereas the ideas of a journey or morphing convey more closely the evolving nature of understanding complex concepts. Jae emphasises the idea of "spaces between" in personal epistemological models that define categories of understanding, such as those of Baxter Magolda (2004) and Hofer (2004), and argues for theory that recognises the socially contructed, fluid, provisional nature of shifting epistemological understandings. For her, epistemological shifts are about being in a "state of becoming" rather than arrival at a stage or end point. Juliet argues for the use of the word "developed" in preference to "shifted" because "for me [Juliet], a shift implies leaving something behind and I think, rather, of ideas building on ideas to reconfigure understandings" (Juliet, Case Study F). The ideas of morphing, developing, becoming and inhabiting the spaces in between suggest that a number of the teacher educators conceptualise epistemological shifts as ongoing development, where there is constant negotiation and contestation of beliefs about knowledge, teaching and learning.

In a different but related vein, Kerri presents her current epistemological thinking and ideas about learning through dance as a culmination of her broad life experiences (of people and teaching), her spiritual beliefs (about universal spiritual energy and harmony with nature), and of dealing with professional and personal challenges (which include job changes and bereavement). Rather than inspiring specific identified 'shifts' in her personal epistemological ideas, Kerri's engagement in the TLRI project seems to have validated a passion for learning through dance and ideas about the value of embodied knowing that have developed through the experiences of years.

> I believe in dance, and we have a very holistic way of mind, body, and spirit coming together….
>
> The conversations and the challenging reading [in the TLRI project] … has definitely confirmed and made me feel like I'm not alone, and made me feel I'm not nuts with this sort of approach….
>
> There are different ways of knowing, we say 'this person's knowledgeable, that person's knowledgeable', but there are different intuitive ways of knowing and feeling that are gained through the arts. (Kerri, Interview 2)

She signals that she has "a conviction that this is a really good way to teach and learn" and indicates that she feels a sense of mission to advocate for type of education (Kerri, interview 2). Epistemological understanding is thus understood as a reflection of historical and personal negotiations of ways of being and of knowing in a range of life domains, private and public.

Alignment of theory and practice

Epistemological shifts are understood to involve both developing awareness of assumptions related to teaching and learning and to changes in teaching practice. Implied in the descriptions of some of the practitioner

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researchers is the sense that more complete epistemological shifts are attained when theoretical understandings and practice are aligned. Jae explains:

> The main satisfaction for me was just feeling like I was working in a way that more closely aligned to what I believe is good teaching…. Its [engaging with ideas about knowledge] shifted my notions of what teaching is, and can be. But more than that, I think it's probably shifted my commitment to try and change my practice in this [tertiary ITE] environment. (Jae, Interview 2)

Achieving alignment between theory and practice is seen as difficult and problematic, for a variety of reasons. For example, Jae expresses discomfort at a perceived lack of alignment between her changing theoretical understandings and her pedagogical practices. She explains that the tertiary environment and institutional structures may not support pedagogies of co-construction. In the context of her case study, inquiry learning presents an opportunity for co-constructed learning in ITE, but time constraints are felt to impact on her ability to effect changes in pedagogical practice. Helen describes tensions in her role as an advisor for schools between her desire to engage in what she sees as more creative forms of TPL that are flexible and responsive to teachers' needs or interests and the requirements for outcomes reporting to the Ministry of Education. While several teacher educators expressed frustration at inconsistencies they experienced between their thinking and their ability to enact pedagogical change or to effect shifts in the epistemological understandings of student teachers and teachers in schools, these expressions of frustration can be seen as reflections of the teacher educators' own shifting epistemological understandings. They indicate heightened awareness of epistemological matters that may not previously have been of especial interest or concern to them, manifested through feelings of dissatisfaction.

Learning a language

Several of the teacher educators identified the learning of a new language as integral to the development of personal epistemological understandings. They express the idea that this new language facilitates different thinking by creating a new way of looking and providing a way of talking about new ideas and of testing out thinking on others. Juliet describes learning a new language of ideas, which includes concepts such as "epistemology", "post-modernity" and "social constructionism" (Juliet, Case Study F). Judy talks of developing a "whole new language" and "having the words to be able to articulate [new ideas]" (Judy, interview 2) and of being able to articulate a post-critical/relational approach, which opens new ways of understanding relationships with 'other' (Judy, Case Study B). For Amosa, the acquisition of new language was empowering and self-affirming. It helped him to articulate aspects of his personal learning process and validated his views: "I feel as if I have been to a space, or place, where I can now use the right language to speak my mind" (Amosa, interview 2).

Personal challenge and transformation

Whilst learning a new language and engaging with theory relating to knowledge, learning and shifting epistemological understandings is described as a positive experience by a number of practitioner researchers, they also describe their understandings and experience of personal epistemological shifts in terms of personal discomfort, dissonance and life change. Alison wrote of her feelings of discomfort and uncertainty as she entered a new conceptual world in exploring her own developing personal epistemological understandings: "While I was in this space of uncertainty and ambiguity I couldn't language what these feelings and experiences represented" (Alison, Case Study A draft). Jae experienced discomfort in her growing awareness of conflicting beliefs held about knowledge and learning as contingent and flexible and about there being a 'correct' content to be learnt and to be supplied by the teacher educator: "It was kind of hard to let go of the control of knowing, you know, that they [students] were reading the right things, and getting the right ideas" (Jae, interview 2). Amosa talked of his anger and resistance at having his thinking and practice challenged. He described himself as being in the same position as student teachers in his class: "I'm including myself in the same group [as the student teachers]. One of the biggest changes was within" (Amosa, interview 2). Juliet acknowledged a potentially uncomfortable position where her developing understandings of learning in ESOL might be in conflict with teachers' ideas. Her developing understandings suggested to her a need for

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change in practice in ESOL teachers' professional learning programmes, which might or might not be positively received by ESOL teachers. Speaking in broad terms, Helen described shifting understandings and practice as involving fear and potential loss: "And [there is] the fear that you might lose something before you can gain something, and that's all about change, isn't it?" (Helen, interview 2). Shifting epistemological understandings thus are revealed to present personal challenges and to engender emotional responses for those engaged in epistemological explorations.

Personal epistemological shifts are described as transformative (life changing) by some of the teacher educators. Several spoke of how their personal shifting ideas about knowledge, learning and teaching are intimately tied to their identities and notions of who they are and what they do. The impacts of new understandings went beyond their professional lives and work, influencing multiple aspects of their lives. This was particularly potent for Amosa, who explained that "I was moving from the student to the lecturer as well, you see, so multiple identities I had" and "… part of the shift within me has nothing to do with my professional life, it's right across" (Amosa, interview 2). The tension Jae experienced in "letting go" was tied up with her ideas about teacher authority and responsibility. Letting go meant relinquishing authority and control over course outcomes and rethinking assumptions about what teachers do. She also talked of how her shifting ideas had affected her life beyond work:

> It has impacted on everything, actually. You know, the whole, the way I make decisions, and the way I read the newspaper, and the way that I engage with my family. And, yeah, it certainly has, um, as my family would tell you! (Jae, Interview 2)

Alison decribes the process of grappling with different ways of thinking and knowing as something that has influenced her world view and sense of self: "It is challenging but invigorating, and 'wobblifying' (it has given me the wobbles in terms of my personal and professional identity and view of the world)" (Alison, Case Study A).

The responses of Alison, Jae, Amosa and Juliet, in particular, suggest that their ideas as to what teacher education and teacher professional learning is about, who they as teacher educators are and what they do, are changing. This is attested to be a life-changing experience. The process of epistemological exploration is also presented, by some participants, as life-affirming. Wayne for example, explains that:

> Acknowledging multiple truths and pathways has been very unsettling. Whether of necessity (because of the personal difficulties) or through development in my thinking (in my new identity as a researcher), I feel that I have become much more comfortable in living with uncertainty, diversity and multiple truths. While some of my old ways of thinking and behaving have been challenged and no longer 'work' for me, I have gained a fresh understanding of the challenge involved in changing deeply held beliefs and thinking. (Wayne, Case Study E)

Engaging with theory about epistemological understandings appears to have helped him to make sense of tensions he feels in his relationships with colleagues and Principals in schools, as he pursues a particular way of working and endeavours to stay true to what he believes is important work and to take, in his words, "the road less travelled" (Wayne, interview 2) in his approach to professional learning.

These cogitations around life-change and life-affirmation relate to ideas and feelings about personal and professional identities. Matters relating to identity negotiations and subjectivities are explored in depth in the post-structural interpretation (in the Post-structural Reading section of Part A). The interpretive analysis reveals, though, that while the teacher educators in the project acknowledge personal challenges and discomfort in shifting personal epistemological understandings, they also construe their discomfort as a necessary part of personal learning and transformation.

Repertoire of a journey

An interpretive repertoire (metaphor) that appears to have helped a number of the teacher educators make sense of their experiences within the study, and the oft-times confusing shifts in personal epistemological understandings that this entailed, is that of a journey. The excerpts below, which are taken from written case studies and interviews with teacher educators, reflect and sustain the interpretive repertoire of a journey.

> I think there's always a tension, but I think the other thing is that I've realised is that it's always going to be a work in progress, and it's never going to be fixed and final, and that's hard, because I always kind of thought "oh, some day

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I'll read a point where I can say 'this is how I should teach, this is what it should be'" … and I realise now that that's never going to happen. And it never should happen, because if that did happen it would mean that I'd stopped learning …. I thought I was on a journey to discover the perfect course and the perfect approach. Now I realise that I'm on a never-ending journey of just finding new ways, adjusting and adapting to the contexts and to people. (Jae, Interview 2)

It [the case study narrative] represents a personal learning journey and tracks how my understandings have developed. (Juliet, Case Study F)

It [discussions with others] affirmed where I was at … affirmed that it was okay to be in that place, you know, that that was actually part of the journey. (Judy, Interview 2)

I ended up thinking, this journey that the students were taking [in the ITE course], they were not alone, I was with them most of the time! … Because you [TLRI project leaders] were asking me to do exactly the same. (Amosa, Interview 2)

The journey metaphor describes a process of ongoing personal growth, development and empowerment. It puts discomforting experiences, which challenge beliefs about who teacher educators are and what they do, into a positive context as a necessary, expected and desirable part of personal development. Potentially difficult experiences are able to be rationalised in positive terms.

Understanding the New Zealand Curriculum (NZC)

Teacher educators' understandings of the NZC, as articulated through interviews and case study writings, reflect their developing beliefs about what teaching and learning should be about, in general and in specific curriculum contexts. They also reflect practitioner researchers' strategic engagements with the NZC, as they seek to make the curriculum relevant and meaningful in their work. The NZC is understood in relation to the opportunities that are provided to do things differently in schools and in teacher education. Interpretive repertoires that help to explain teacher educators' understandings of the NZC include social justice and twenty-first century learning repertoires.

Opportunities for teaching and learning

A common thread in teacher educators' talk about the NZC is a focus on the early sections of the NZC document and the principles, values, key competencies and effective pedagogy for teaching and learning in Aotearoa New Zealand schools (Ministry of Education, 2007) that are described in the early sections. The early sections of the NZC are understood by all of the teacher educators to provide opportunities to do things differently in their own teaching and leadership, and to support student teachers, teachers and school leaders to do things differently in schools. The NZC is understood as an empowering force.

Judy sees the vision, values (diversity, equity, fairness, justice), principles (inclusion, cultural diversity) and key competencies (participating and contributing, relating to others) of the NZC as providing a window of opportunity to explore with student teachers the socio-cultural orientations to Physical Education (PE) and ideas around service learning. She talks of "sociological imaginings" as a way of understanding PE as a socio-critical rather than a technocratic discipline. Jae focuses on the intentions that are signaled in the early sections of the curriculum for education to support lifelong learning and to create independent learners. Inquiry learning and the social inquiry pedagogy for social sciences that is described in the social sciences rationale of the NZC document are seen to be consistent with these broad intentions. Jae also talks of the NZC as providing opportunities for education to be less prescriptive, more forward looking and flexible. The "opening up" of education is understood to give teachers greater professional authority to make decisions in their own disciplinary contexts. Alison similarly focuses on the front sections of the curriculum document in her personal reflections about curriculum, explaining that:

I was drawn to the front sections of the curriculum (including sections describing Principles, Values, Key Competencies, Effective Pedagogy) because I felt that this part of the curriculum was getting to the core of teaching and learning by articulating key understandings about the role and nature of education … more holistic and contextual understandings and approaches to teaching and learning resonated with me. Also, I liked that

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the achievement objectives for specific learning areas (e.g. English, Social Sciences, Mathematics) appeared to be broader, more conceptual and less prescriptive in nature across all curriculum areas. This potentially allowed teachers more flexibility in the interpretation and implementation of NZC, to meet the needs of their learners, the children in their classes. I was now asking questions about how the new curriculum could become a central part of our initial primary teacher education programme and how we could develop a considered and consistent approach to understanding and working with it. (Alison, Case Study A [draft])

Helen also sees the NZC as giving teachers permission and providing opportunities to nurture creative, connected and energetic learners and to acknowledge and explore different worldviews with students—ideas that appeal to her and that she feels are supported through the principles in the front section of the curriculum. However, she challenges an idea that she has heard promoted that teachers should just staple up the back of the curriulum document and focus on the front section, arguing that it is important to explore the interaction between the broad principles at the front and the specific achievement objectives in the back to get a deeper understanding of the curriculum and the different voices and tensions within the curriculum.

In the context of TPL for school Principals, Wayne uses curriculum change as an opportunity to think differently about leadership in schools, both in relation leadership actions within schools and the nature of TPL for Principals.

> … what I was arguing was that the spirit of the new curriculum [NZC] was for building knowledge in a collaborative way … those processes of collaborative leadership … Were they [school principals] involving other staff? Were they involving students? Were they involving the community? (Wayne, Interview 2)

He advocates for a distributed leadership model and a collaborative, power-sharing approach to decision-making. Other teacher educators – Juliet, Amosa, Kerri – similarly engage with broad principles from the NZC as opportunities for exploring new or different ways of teaching and learning in a particular knowledge domain, specifically in secondary ESOL, tertiary multicultural studies, and primary and secondary dance and visual arts.

The attention given by practitioner researchers to the front sections and to the broad principles of the NZC, as opposed to the back portion of the curriculum that outlines specific subject achievement objectives, is consistent with the intentions and focus of the broader TLRI project. The project was overtly and intentionally structured to engage participating teacher educators with theoretical discussions that explore and deconstruct ideas relating to twenty-first century learning and transformative education (see Introduction paper). However, individual teacher educators in the project have translated theoretical writings in ways that are meaningful for them, by focusing on broad principles from the NZC that they think challenge ideas about the nature and purpose of teaching and learning in the learning areas in which they have particular interests in their work in ITE and TPL. For example, Kerri focuses on the front sections of the NZC as a validating document for education in the Arts:

> I think the Arts curriculum [in the NZC] is fantastic. I love … the focus on key competencies. I love the principals and vision of the curriculum … that opening statement about creating the creative, energetic and enterprising young people … I can see how 'enterprising' … [could be interpreted as] profit-oriented, but … 'enterprising' implies to me a very active and engaged child … a fantastic goal to have. (Kerri, Interview 2)

She interprets the curriculum in a way that reflects and supports her goal to advocate for embodied learning through dance.

A social justice repertoire

A common thread in the teacher educators' talk and thinking was concern about perceived social injustices in a range of education contexts. An interpretive analysis reveals a social justice interpretive repertoire relating to schooling in Aotearoa New Zealand. This is articulated through concerns, expressed by teacher educators, that students from different cultural and linguistic backgrounds need to have positive learning experiences and achieve strong educational outcomes, and observations made by them that different and non-Western worldviews are largely invisible in the curriculum in practice, and that learning experiences and outcomes for students from different cultural backgrounds are frequently negative. A social justice repertoire is also revealed

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in teacher educators' observations of a lack of student and parent voice in schools and of leadership structures that undervalue the knowledge and experience of teachers. Intentions to address such injustices act as a rationale for actions taken by teacher educators to change practice (their own practice and the practice of teachers in schools) in relation to the implementation of the NZC. It guides them to engage with aspects of the curriculum that they feel speak to issues of social equity and fairness.

By way of illustration, Jae expresses strong feelings in response to perceived social injustices:

> I feel very strongly about social justice, ... equity and that sort of thing, and if you do care about those things, then the world is a messy and confusing and uncertain place. And there's lots of stuff that happens that makes you fairly upset and angry. (Jae, Interview 2)

She displays interest in the potential of the NZC to respond to the needs of culturally and linguistically diverse learners and communities, by encouraging culturally responsive teaching and learning practices. Inquiry learning is seen to support culturally responsive practice and is advocated by Jae in her pedagogical initiative. Similarly, Juliet talks of a need to recognise and value the knowledge and experiences of students from different cultural and linguistic backgrounds.

> ... implicit in teaching in schools [is the idea that] ... you're going to speak English ... ignoring the whole resource that students are bringing to their learning ... the whole amount of [students'] thinking that's happening in the home language. (Juliet, Interview 2)

Juliet advocates for the integration of social and cultural contexts in ESOL teaching programmes in order to provide opportunities for students to draw on, and share, from their own knowledge and experiences. She also promotes the use of the English language progressions in ESOL as a way of recognising and responding to individual students' different and individual English language learning needs.

Kerri expresses the view that learning in dance should engage students with big issues, such as issues of social justice.

> I was teaching a year 11 dance class this morning out at [high school] … they were doing this whole Michael [Jackson] dance, so we'd picked different songs, but really the kids haven't really listened to what Michael Jackson's on about, so … each class I do we have big discussions about civil rights … I want some big issues to come through about social justice, and about how we can change the world to be a better place, which was what he [Michael Jackson] was on to. (Kerri, Interview 2)

Judy's focus on the vision and principles of the NZC, service learning in PE and pedagogies that assist people to "be relationally" and to explore ways that they relate to "other" also suggest a social justice view of schooling, teaching and learning.

A social justice repertoire is also evident in Amosa's talk about his personal experiences of education and his views of what education should be about. He talks about the opportunity he sees for doing things differently in schools and the mandate that he feels the NZC provides for this. He is particularly concerned about the learning experiences of Pasifika students and relationships with Pasifika communities.

> … [NZC is] a head up about what community is all about, and what learning should be about, and who for, and why … What has allowed, or should allow the community and schools to work with in the education of their [Pasifika] students … It [NZC] is a nice shiny document, that should act as a key towards furthering the partnership between schools and the communities … I think community should be able to walk into a school and see, without having to use the looking glasses, to find out what they can identify as them in the schools. (Amosa, Interview 1)

Amosa describes schooling as a place of struggle for Pasifika and Māori students and communities: "… people like Māori people have been fighting for such a long time … it [inaction in effecting positive changes in education] is immoral really" (Amosa, interview 1). For him, teaching and learning in social studies, and social sciences more broadly, is primarily about developing relationships between students, schools and communities. The NZC is an instrument to this end.

Twenty-first century learning repertoire

A second and linked repertoire, the twenty-first century learning repertoire, encompasses ideas about education for the future and teaching and learning that supports students to live and work in a rapidly changing and globalised world and a knowledge society. Twenty-first century learning becomes a metaphor for educational reform and a 'way forward'. The notions of twenty-first century learning that are explored by the teacher educators relate to social goals, in particular to the valuing of knowledge of people from different backgrounds and cultures in a globalised and interconnected world. These notions of twenty-first century learning vary from those underpinned by neoliberal discourses that emphasise the role of teaching and learning to produce a workforce that is flexible and technologically literate in order to serve the economic needs of businesses and nation states (see arguments by Baumann, 2005; Best & Kellner, 2003; Gilbert, 2005). They are more consistent with transformative agendas, both in relation to broad democratic ideals and more specific educational practices that foster pedagogies for imagining, critical reflection and empowerment (Taylor & Jarecke, 2009; Torres, n.d). Curriculum change and concomitant reforms in teaching and learning practices are seen as means of helping to address the needs of twenty-first century learners and to create a more equitable and just society.

The twenty-first century learning repertoire is discernable in overt statements about what education, teaching and learning in the twenty-first century should be like and in the conceptual frameworks that teacher educators constructed to guide their practitioner inquiries. Juliet aligns twenty-first century learning ideals with the principles and values articulated in the NZC document and with pedagogical practices that focus on performativity in ESOL learning. For her, teaching ESOL should enable students to use and apply ideas and skills in varied curriculum contexts, to be active participants in the learning process and involved in generating new ideas, and it should ensure that the knowledge and life experiences of students are drawn upon and valued in classroom learning contexts.

> … the professional learning focused on supporting learners to develop competencies for learning and using language in contexts that can be transferred outside the ESOL classroom, rather than teaching the language itself as an isolated, precise and finite body of knowledge. This is consistent with notions of language for learning and with the principles and values of the *NZC*. It reflects a twenty-first century discourse related to language learning. (Juliet, Case Study F)

A twenty-first century learning discourse is understood to support the transformation of teaching and learning in ESOL.

Judy overtly addresses ideas relating to twenty-first century education in her written reflection on desirable student teacher knowledge:

> A shift in conceptualisations of knowledge and learning is desirable for 21st century education in order that students may be equipped with the skills, knowledge and attitudes necessary for them to engage successfully in the 'Knowledge Society'. Shifts that include concepts of knowledge that are performative, concerned with process, are generative, fluid and contextual, are all now well documented (Gilbert, 2005). Of concern here is that these concepts may continue to reproduce existing and known dominant, neo-liberal ideologies based on systems of inequality, exploitation of others and of the environment, and concerned primarily with competition and individualism rather than the collective. However, through ITE, student teachers may become aware of the way in which political and economic macro systems operate and the ways in which these factors impact knowingly or unknowingly on schooling and the politics of knowledge production. (Judy, Case Study B)

She focuses on possibilities for critical thinking and critical pedagogy to foster teacher political awareness and, by implication, to support the adoption of critical pedagogies in schools.

Jae similarly engages with ideas of twenty-first century knowing, in the development of a conceptual framework to guide her inquiry. She contrasts different ways of engaging with ideas about twenty-first century (postmodern) knowledge and learning, through ideologies of contextual realism and contextual relativism. Contextual realism is aligned with ideas of adaption to new social and economic situations, and contextual relativism to critical engagement, questioning and challenging of hegemonic and coercive systems.

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Contextual realism … takes the 'post' in postmodernism as meaning 'after'. This suggests that postmodernity is a development from modernity and, in the realm of education, this is interpreted as meaning that teachers need to adapt their practices to be effective in the postmodern world. The postmodern (21st century) world requires education that produces workers for a 'knowledge society', able to respond to change, generate knowledge and manage it effectively. Teachers, then, must cognitively adapt to understand new ways in which knowledge is generated and managed using digital and traditional media, and to equip learners with skills to manage diversity and uncertainty, complexity and change. In this view, issues related to social justice are about equity and redistribution. Marginalised groups that have been unsuccessful in traditional forms of schooling need to be equipped with the tools to succeed in the knowledge society (whether or not they subscribe to the values inherent in this society). (Jae, Case Study G)

Implicit in these arguments are the ideas that teaching is a political act and that teachers can transform education and influence students' lives through the ways in which they interpret and enact curriculum principles. This is achieved by creating learning experiences that are critically engaging and affirming for students – within teacher education and within compulsory schooling. The NZC becomes an instrument to be appropriated for social transformation.

Post-structural Reading

Reconceptualising curriculum within initial and continuing teacher education

Crossings are never only taken all at once, and never once and for all. (Alexander, 2005, p. 290)

The politics of research is to disrupt the given-ness of the present. (Popkewitz, 2008, p.149)

This post-structural analysis draws on the notion of the 'discursive turn' (Popkewitz, 2007; Prasad, 2004) to understand the ways in which the teacher educators, as practitioner researchers in the project, undertake a strategic re-conceptualisation (Miller, 2005; Pinar, Reynolds, Slattery & Taubman, 1995) of shifts in their constructions of knowledge and learning within the site of a curriculum research project. The 'discursive turn' moves beyond the notion that language describes reality, to look at how language creates and shapes people's realities (Maclure, 2003). It explores how particular forms of knowledge are privileged in particular social relations and historically defined power relations (Popkewitz, 2007). Because meanings are in a constant state of production and contestation, they can be engaged with, destabilised and challenged (Foucault, 1980).

The understanding of curriculum as re-conceptualisation, draws on understandings of curriculum that have underpinned developments in the field of curriculum studies in the USA over the last 30 years. These entail a shift in meanings of curriculum; from instrumental understandings of curriculum which frame it as concerning design, development and implementation, to a more humanities-based approach which sees curriculum in terms of understanding human experience and knowledge more broadly—particularly its political, cultural, social and historical dimensions (Pinar et al., 1995). The re-conceptualist curriculum movement challenges traditional, static conceptualisations of curriculum as a predetermined, linear, depersonalised and apolitical body of knowledge. Miller (2005) argues that such a definition completely misses the complications of lived experience, including power relations and discourses. The re-conceptualist curriculum movement was interested in moving the curriculum field from a technicist and prescriptive emphasis on content design and development to an emphasis on understanding intersections of the political, historical and autobiographical Miller (2005). These understandings of curriculum encourage the consideration of knowledge as a contested cultural object, requiring interpretation and critique (Phelan, 2011).

In the analysis I map the ways in which the practitioner researchers engage with the research project strategically in order to re/signify discursive understandings of knowing and learning in line with their existing and emerging interests, philosophies and personal and professional identities. I also explore the ways in which, due to a range of influences and life experiences some practitioner researchers understandings of knowing, learning and 'shifting' are both validated and re/signified over the duration of the study. In closing, I critically analyse the challenges and possibilities which emerged in the processes of resignifying discursive understandings of knowledge and learning for the practitioner researchers.

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Teacher educators' resignifying shifts in understandings of knowledge and learning

… in my view, the transformation of the researcher is not just about adopting an attitude of openness, it is an exposure that risks the very sense of 'who' not 'what' she is. (Masschelein with Todd, 2011, p. 366)

In this section of the post-structural analysis I argue that the eight practitioner researchers strategically engage in the project in line with their existing and emergent interests, philosophies and personal and professional identities over the course of the two-year study. I explore the ways in which they, as teacher educators, resignify understandings of what it means to accommodate and shift conceptualisations of knowledge and learning over the course of the project. Finally I discuss the epistemic and ontic challenges and possibilities characterising the shifting process.

The Intertwined Nature of Knowing and Being

"Everything is biographical", Lucian Freud says. What we make, why it is made, how we draw a dog, who it is we are drawn to, why we cannot forget. Everything is collage, even genetics. There is the hidden presence of others in us, even those we have known briefly. We contain them for the rest of our lives, at every border that we cross. (Ondattje, 2007, p.16)

The eight practitioner researchers strategically engaged with the research project in line with their current and emergent interests, philosophies, and notions of who they are and who they want to be. Pinar et al. (1995) would frame this as understanding the curriculum as an autobiographical text.

Several of the teacher educators chose to engage with the intentions of the project because it validated ways of knowing which resonated powerfully with their personal and professional lives, and which they felt were marginalised in the schooling system. These practitioner researchers used the case study as an opportunity to resignify subjugated knowledges. Participating in the project validated Helen and Kerri's commitment to the arts as a knowledge domain (Pinar et al., 1995), and their important identities as a dancer and as a visual artist respectively. Their case studies provided a venue within which they could resignify what they saw to be the subjugated knowledges of the visual arts and dance, as forms of embodied knowledge and as legitimate and valued ways of knowing.

Kerri validates dance as an embodied and creative way of knowing that can holistically integrate the mind, body and spirit:

> I was looking to see the sorts of dance teaching that would most expand children's consciousness and learning. So, the practices that I shared with them, um, were what I believed could enhance children's learning. It was a lot more to do with creative play and creative wonderings, rather than teaching a set of steps, or a certain dance. So, it was about the use of the imagination, and, through the body. Movement exploration through the body. But also to achieve, um, to achieve for the children a state of being where there was a different way of feeling and knowing and being which can happen through dance. And, um, some people might say it's called "flow", and you can achieve that through, um, like there's a guy Csikszentmihalyi. But, I believe in dance, and we have a very holistic way of mind, body, and spirit coming together. (Kerri, Interview 2)

As a visual artist, and in-service teacher educator, Helen speaks to the importance of understanding the ways in which the practitioner researchers' (and case study participants') conceptualisations of knowledge and learning reflect deeply-held personal and professional identities, beliefs and values (Alsup, 2006; Britzman, 2003, 2009; Connelly, Clandinin & He, 1997; Weatherall, 2008):

> … when I work with teachers, that it's the whole of who they are that they bring to the moment that they're in. And it's the same with us working with teachers, because it's the whole of our biographies actually. It's just not the bit that's academic or the bit that was working with kids when we were in schools, or just one person that might have had an inspiring influence on us. Um and that came through doing some reflection there before, actually. I'm more consciously awareness of that. And I think fits where I'm thinking at the moment. That I like, I don't want to divide myself up into these things. I know we've all got multiple identities and I'm really interested as an artist in that idea. But I do always want to feel more connected across all the bits of me, that I bring to something. (Helen, interview 1)

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Amosa's life experiences also inform and shape his strong commitment to addressing social inqualities for Pasifika and Maori students and their families, and his desire to draw on those knowledges in the case study he undertakes with student teachers:

> … some of what I talk about and believe in is really what life has taught me … that there are parents working at night, who never catch up, or talk school, or, those were the things that I wasn't aware of. And, I knew that some parents were struggling with drugs with their kids … You know, those Pacific parents, those Maori parents. What do you do when a Pakeha parent's crying in front of a group of Board of Trustees, and … the principal, because she ran out of ideas about her daughter taking drugs… and you're sitting there chairing, facilitating the meeting, do you hug them … Or, do you look at the daughter and curse them? You know, all those other things … I walk into a classroom full of students, and … I think "one day some of you will come across some out of these world experiences to do with education. Are you going to be able to cope with those changes? Because most of the time I couldn't … (Amosa, Interview 1)

Similarly, Judy's desire to explore the usefulness of postmodern paradigms to address issues of student inequality and social justice was influenced by her teaching experiences with students excluded from mainstream. The topics of the other researcher practitioners' case studies similarly reflect their current and emerging personal and professional identities, interests, beliefs and values.

Given the deep connections between epistemologies and ontologies, it is understandable that being exposed to differing paradigms of knowledge can either validate or challenge how you see yourself as a knower and affect practices accordingly. The process of shifting understandings of knowledge and learning has the potential to unsettle personal values and beliefs, as well as professional identities as knowers (Bendixen & Feucht, 2010; Miller, 2005; Todd, 2011; Wetherall, 2008). In the next section I explore the ways in which participating in the project in some cases called into question the roles of the teacher educators as knowers, and I discuss the features of the shifting process.

Resignifying the roles of teacher educators as knowers and the epistemic and ontic challenges and possibilities

> I didn't expect this journey to take place at all, to be honest. Yeah, I actually thought it was gonna be a journey that I would take my students on! … but here I am going on my own journey. And, I mean, fantastic place to start, you know, as a teacher, to understand the shifting process, as a teacher-educator. Then to be able to work with student-teachers, um, in considering their journeys. And, maybe, one say being able to mentor and support other people in their journeys of shifts. (Judy, Interview 2)

Judy's comments speak to some of the tensions and possibilities surrounding the ways in which educators frame themselves as knowers and how that can affect their pedagogical practices. Significantly, she explains that participating in the project unexpectedly calls into question how she sees herself as a knower. Judy emphasises the important role that shifting her conceptualisations of knowledge and learning plays, both in terms of her own teaching, and in her ability to mentor student teachers to shift their conceptualisations of knowledge and learning.

Several of the teacher educators spoke about the ways in which being exposed to multiple knowledge paradigms called into question how they understood themselves as knowers and gave them the opportunity to explore the implications of those ideas for their pedagogical practice. Several teacher educators found the resignification of themselves as 'expert knowers' challenging, in terms of working with students, and with school leaders. Alison, Jae and Wayne speak to the tensions that emerge in the process of shifting away from the role of the 'expert knower' as they begin to explore, with student teachers, performative conceptualisations of knowledge as contingent, contextualised and relative (Gilbert, 2007):

> Well, it's like the dilemma of, it's, I have this big tension between, um, like letting them find, letting them discover things and work things out, but I know what they need to know! You know, it's like, it's just a real thing! (Laughs). Yeah, and that, that sounds, um, that sounds like I'm thinking back into knowledge being certain, but, I think there is in, there is stuff that they need to know about to be able to manipulate, and generate new ideas and things. So its like I feel this responsibility to ensure that they have, that they develop some understandings of things, kind of some core knowledge, to be able to work beyond that. (Alison, interview 2)

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There is the tension between different ways of thinking about knowledge. And, (pause), yeah. And I guess what I've realised is that, um, it's not, there's not one place to stand. That it is, it always does depend on the context, and while I might, my aim might be to operate more, you know, at the constructionist end of the knowledge as contingent and as contextualised and as more relative, um, there are, there are still things that pull me back towards, you know, wanting to say 'well, that's all very well, but here's their knowledge that you really need' (laughs). (Jae, Interview 2)

I struggled with, um, with the idea, um, of, you know, at an intellectual level I did accept the multiple perspectives, but at an ingrained level I was still looking for, um, a way! So, on one hand there's many ways, but I was still trying to find a way, because I was a leader, I was thinking, 'how do I? What's the pathway?' you know? So, I needed someone to point that out to me. (Wayne, Interview 2)

In her role as an inservice teacher educator, Juliet recognises that even though her conceptualisations of knowledge have shifted, those of the teachers that she is working with have not necessarily, and that this lack of 'epistemological fit' can produce epistemic and ontic tensions for her. Juliet finds it uncomfortable and difficult to reconcile her conceptualisation of knowledge and learning five years ago, with the ideas she has now, and therefore who she is/what she represents, because her teacher and advisor identities have shifted:

It's been interesting to think about the fact that I've been in this job for eight years now, and teachers might perceive my ideas as the ideas that I had five years ago, but actually I've shifted, and so I have to be able to relay that shift in my thinking to, um, teachers. And that puts me in an uncomfortable position, because I might actually be in conflict with their ideas about things. (Juliet, Interview 2)

For the practitioner researchers whose conceptualisations of knowledge were validated by the project, the teaching and learning processes that sit with their existing ways of knowing were legitimated, built on and strengthened through their participation. Despite the goal-oriented and managerial culture of the school in which Kerri now teaches dance, she sees herself as agentically being able to resignify knowledge within her curriculum domain:

It's quite hard to embody it yourself, because you have to because our culture doesn't allow for it, our culture's very time orientated, very goal orientated, you know, I'm having an appraisal tomorrow where I have to set out, you know, supposedly what kids are learning all yeah, you know, with goals, and really my goals with the children change in a minute by minute process, really. And, I look back and say, "well, what do you think we've been learning?" Because I'm not ever sure what my specific learning objectives are going to be. So I totally believe in that sort of flow. (Kerri, Interview 2)

Helen's belief in the visual arts as embodied knowing and being continue to inform the pedagogical approaches she employs as an inservice teacher educator in the visual arts:

I don't want them to go in and act something. I can't make someone learn. We all know that, it's about, something bubbling up, isn't it? It is from them and, um, that's kind of the raw material of our work … (Helen, Interview 2)

Amosa, through participating in his case study with student teachers, recognises that student teachers who are challenged by courses resignifying subjugated knowledges are having both their epistemic and ontic selves destabilised (Britzman, 2003, 2006, 2009; Ellsworth, 2005; Todd, 2011). He maintains that pedagogical approaches need to be developed that will enable both educators and students to understand and work with crisis and affect as part of the shifting process:

… if we're going to ask people who were educated in the 20th century to teach in the 21st, that obviously some major shifts must take place in the heads of those people. And, as part of the shifts we have to deal with our support for those kind of shifts to take place in a very safe environment, and supportive environment. Otherwise the comments to do with, you know, a 26 year old [student], "and you're asking me to de-value all those things I haven't learnt to accept". I mean, we're asking people to lose part of themselves. (Amosa, Interview 2)

Engaging with crisis and affect in shifting conceptualisations of knowledge and learning

It pushed my thinking and understanding to the edge, really, (Alison Interview 2)

In this section I explore the extent to which crisis, affect and destabilisation can characterise epistemic and ontic shifts. Rather than understanding shifts in conceptualisations of knowledge and learning as rational, cognitive

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and linear, the findings of the project suggest that shifting can be messy, discombobulating, deeply affective and embodied (Boler, 1999; Ellsworth, 2005; Felman, 1992; Quinlivan, 2009).

Helen suggests that the project provided a venue within which taken-for-granted understandings that rational and cognitive epistemic shifts will occur could be called into question, and thus resignified. She notes the high levels of affect which can characterize the shifting process:

> I'm … interested in … the re-conceptualisation of the expectation of shifting … I just thought that, well yeah, that shifting is a messy process, it involves affect. that's one think that I did learn last year, actually, just how much emotional stuff that's going on in teachers that are in a dilemma or in discomfort" (Helen, interview 2)

Alison described her process of epistemic shifting as profoundly destabilising, and characterised by feelings of uncertainty, fear, and risk:

> I was in it, but I couldn't language it, I've talked about that with Vanessa, yeah. I was in it, and I was feeling it, but I couldn't language it. I knew in my mind that I was in this state, but I couldn't talk about it. And, one of the things that helped me think about it was like the metaphor of driving in the fog. Like, you're driving in the fog, and you're still that person driving, but you don't know where, you know where you're going to eventually, but you don't know how you're going to get there, because you can't see the route. And, you can only see things as they become visible, as your headlights hit on them. But, until you see that bit, you don't know where you're going in the next bit, it's like walking across a precipice, you know, like you don't know where you're gonna, if you're gonna fall or float. (Alison interview 2)

Like Alison, Judy found it difficult to articulate in words what she was experiencing, describing the process as a learning loop, a loop that is characterized by confusion and discombobulation. She recognizes that the process of shifting was significant because the epistemic shifts were also ontic moves, challenging her core beliefs and values:

> … I now have an understanding of [the "learning loop",]. Because it's quite a difficult place to be in, in terms of, there's an awful lot of confusion in that place, and an inability to articulate, and you really, like I really did feel incredibly muddled and confused, and that is part of the shifting process! And, for me it wasn't just about, shifts in knowledge, shifts in epistemology, it was ontological, so it was about my actual beliefs, and the way, you know, because it was actually shifting of my whole worldview. Which is really significant, and Vanessa was empathetic to that. (Judy interview 2)

Judy speaks to the importance of being able to hold and sit with the feelings of uncertainty and discomfort as she went through the epistemic and ontic shifts she experienced (Britzman 2006, 2009; Britzman and Gilbert, 2004; Butler, 2004; Ellsworth, 2005; Skattebol, 2010).

As the lecturer who had previously taught the course his case study was based on, Amosa also experienced grief at losing his deep personal investments that had previously shaped the course. He recognises in retrospect that he was angry because the differing knowledges drawn on in the class with student teachers, required him to rethink both himself as a knower, and the pedagogical practices he had relied on previously. In that way he aligns himself with the challenges facing many of the students in the class:

> I said to her "you were asking me to question my values. Everything in that paper came from here" (points to heart). "And you're asking me to sort of, why?". So, but I said to her, "you know, I ended up thinking, this journey that the students were taking, they were not alone, I was with them most of the time! I wasn't with you! Because you were asking me to do exactly the same" (Amosa, interview 2)

While Juliet didn't experience the high level of affect that characterised the shifting process for several of the other participants, she recognized that, to a certain extent dissonance can be a powerful provocation to move towards thinking and understanding differently. As she thoughtfully suggests, "until you get some kind of dissonance, is there actually any motivation to change?" (Juliet, interview 2).

Thinking otherwise: Creating epistemic and ontic possibilities

In this section I discuss some of the possibilities that resignifying understandings of knowledge and learning provided for the practitioner researchers, and the ways in which the project provided a venue to support epistemic and ontic processes.

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As Amosa's comment indicated earlier, several of the practitioner researchers recognised that the uncomfortable and discombobulating nature of epistemic and ontic shifts was also being experienced by the students and teachers they were working with in the case studies. Alison, Helen and Jae were able to draw on a range of different knowledges to resignify understandings of shifting. Alison explains how she now wants to understand more about the relationship between teacher identity and knowing:

> Well …I think [for the students in the case study] that there was a willingness to be thinking about things differently, but there was, um, its just, I think it was the same as what I experienced, it was disconcerting. Because it was thinking, it was challenging everything they had thought about, and at some level, with some of them, it was challenging their idea of what a teacher is … Yeah. Their identity. Which is something I want to look at a little bit more now, is teacher identity. (Alison interview 2)

Along with Amosa and Vanessa, and Kerri, Helen resignifies epistemological shifts to account for affectivity and embodiment:

> … feelings are involved, and that's something I've realised with the teachers. And, often we don't have language to talk about that in education. I mean we see the resistances of people, and we sometimes see the passion, and we might, and the enthusiasm and cynicism. And, I mean, I think it's just a conceptualisation of knowledge is all tied up with the whole of who you are, and that includes your body, which also includes feelings. And, it's not like, just a conceptualisation of the cognitive aspects, separate from feelings. (Helen, interview 2)

Jae also recognises that engaging in epistemic shifts involves student teachers engaging with personal ontologies and resistance:

> But then there are also the constraints of what students expect. So, some students don't want to be given that freedom, don't want to have to, you know, think for themselves and take that control… some of them still just sort of would rather sit in a lecture and be told they need to know, and told what they should do. They don't necessarily want to have to engage with the issues, and think deeply about what that might mean, because it is challenging, and it can challenge your own sense of who you are, and what sort of a teacher you want to be, and what you thought teaching was about, even. (Jae, interview 2)

Conceptualising and enacting knowledges

Over the course of the project, several of the practitioner researchers began to draw on a range of different knowledges and experiment with the implications of these for framing educational issues. In this way participating in the project has shifted what it means for the practitioner researchers to know.

Alison feels much more open to listening for the implications of differing epistemological paradigms and considering their implications:

> … I just think it's an ongoing thing to be working at and thinking about … "what other different perspectives are there on this? What is it that I'm not seeing?", because really, you know, things that are hidden from us we don't know about, because we just haven't thought about it that way. So, that's always, I think I'm much more open to that now, and much more open to hearing, really hearing, or rather listening, rather than hearing, different ways of interpreting things, or, yeah. (Alison, Interview 2)

Jae emphasises the extent to which participating in the project has enabled her to engage much more critically in analysing the implications of the ways that differing knowledges frame issues:

> Oh, yeah. So, you know, I've certainly, um, I've become more, um, critical in my thinking and engaged in it with, (pause), with a whole lot of stuff, you know? … Stuff on the news, particularly when I hear, um, stuff on the news or read things in the newspaper, I'm much, um, much more willing to engage with it at a much more critical level, and to question, and to look beneath the surface, and to kind of analyse the discourses, I guess, and perhaps be more cynical? Well, I suppose at one end, at the extreme you'd say it's cynicism, but I prefer to think about it as critical thinking, and critical analysis (laughs). (Jae, Interview 2)

Juliet too, feels that she has a clearer understanding of the theoretical underpinnings of different knowledge paradigms and their implications for educational issues. She explains how, despite representing teacher perspectives, her understandings gained through the project actually meant she agreed with the academic arguments presented. This epistemic decision came with some significant ontic implications for her:

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[My shift] did physically happen! I was representing ESOL teachers in submissions to the Ministry of Education for inclusion of ESOL in the curriculum document, and the academics who were at that meeting, um, dismissed the[ir] …. quest for a … positioning in a learning area. And, came up with a strong reason for having it across all learning areas … I was kind of sitting on the fence in a way, I was representing TESOLANZ and putting across it being in one learning area, but I also kind of liked the academics notion of it being across all learning areas, but now, so I was kind of sitting on the fence and sort of, um, but now I'm actually very definitely supportive of those academics' notions about it being across all learning areas. And it's also partly to do with me understanding more about the theoretical underpinnings of different thoughts, and I'm sure now that I understand that those academics were coming for a sort of post-structuralist notions of curriculum, and I was, I didn't know where I was coming from! (Juliet, interview 2)

Judy explains that she has been able to resignify epistemic shifts, noting that not only can she reconceptualise knowledges as multiple, but also that she tends, at this stage, to move between different knowledge paradigms, challenging the idea of epistemic and ontic shifts as linear:

I think I am more likely to consider different conceptualisations of knowledge and learning, but I still step between two sort of worldviews, in a way? So, um, for example, if you took the idea of knowledge as fixed, which is probably something that I would have, um, considered, prior to starting the study, and now I see it as more fluid and partial, and context dependent, but I think there's times when I still go between two different conceptualisations. So, it's a shift, it's definitely a shift has occurred, ontologically. (Judy, interview 2)

She spoke to the ways in which working with post critical theory positions her as a more humble and reflexive knower. She suggests that working within this knowledge paradigm positions her as less of an expert knower, and more open to authentic dialogue and shifting and changing as a knower over time:

…when I consider what they post-critical has to offer within my own teaching, the main things that stand out to me are the, um, the usefulness of dialogue, or the way that I use dialogue in the classroom… looking at being much more, um, open and honest, and trying to create spaces in the classroom that are more open and honest to exploring, um, issues without judgement… for me as a teacher-educator, is to be more humble, really, in the way that I teach, and to be more open to what the students perspectives are. And, to consider other possibilities without judging. Because the critical is quite binary: there is a right and a wrong, there are people in power, and there are those who aren't. And, you know, it's very much that there's this way of seeing the world, there's this way of seeing the world, and, um, this way's wrong, and this way's right! And, that's it, you know? And, so it's, yeah, it's really moving, or considering ways beyond that. Or, acknowledging the limitations of that… (Judy, interview 2)

Helen was able to critically engage and questions some of the normative assumptions that lie behind instrumental and linear understandings of epistemic shifts. Her resignification of shifts emphasises the importance of engaging with subjugated knowledges, which challenge 'twenty-first century' western narratives of progress and enlightenment:

It's like … we've got this idea of an implied kind of timeline, that's going out into some amazing future, um, that hopefully we are co constructing, but we might not be! … we just have to be mindful that there's lots of worldviews, and an indigenous worldview, you know, just where we're at at the moment, maybe we should pay more attention to that. (Helen, interview 2)

Working with student teachers in the case study encouraged both Jae and Juliet to rethink their roles as a teacher educators, away from playing the role of the expert knower, and enabling students and teachers to feel more in control of their own learning:

I guess just giving the students a bit more responsibility for engaging with the content, and I have a sense that overall most of them did engage, possibly, some of them, more than they would have if it had just been coming to lectures and listening to me and … doing activities in class. Um, it gave them more opportunities to bring their background knowledge into play, and experiences. Because it was a group activity they had opportunities to work collaboratively, and to share experiences and their understandings. And, um, and I think that for many of them they were more motivated. Um, yeah. So, and it gave me an opportunity to take a slightly different role of being more of a guide and a facilitator rather than a presenter, and a, you know, up the front kind of lecturer. (Jae, interview 2)

Another example of how it's changed is that, um, this week I'm running a workshop for a group of teachers saying that, um, rather than running the workshop of "this is what the workshop's on", I'm running a pre-workshop!

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Saying "what do you want to know? What do you, what's up in your minds?", you know? "What's big in your mind?" So, its sort of saying instead of me being the, um, the purveyor of stuff, um, it's actually, I've shifted to saying "well, we've all got stuff that we are bringing, and let's understand what each other's got and where everybody's at, and then lets move forward from there, and let's explore where we want to go, and then how were gonna go about doing it". (Juliet, interview 2)

Helen also validated her interest in challenging the role of the expert knower in terms of acknowledging and learning to sit with notions of ambiguity, uncertainty, complexity and dissonance as knowing (Britzman, 2006, 2009; Todd, 2009). As she explains:

But actually it is about dialogue, so, you don't always have control over where that's going to go. So that actually sets you up to, be in the world in a maybe slightly different way … in living with uncertainty… holding your uncertainty. (Helen interview 2)

Both Amosa and Kerry recognise that considerable tension surrounds the connections between what is espoused in the 2007 revised curriculum and what actually happens in practice in schools (McGee, 1997). In this way they both resignify understandings of curriculum, moving beyond instrumental notions of curriculum as development and implementation to consider understanding knowing as highly contested 'knowledges considered worth knowing' (Pinar et al, 2006) at both the level of the intended and the operational curriculum. While Amosa sees the potential in the curriculum document to redress educational inequalities, he is also sceptical of the extent to which such intentions can be realised in school practices:

What I think has changed for me is I'm a lot more aware of what is not in the curriculum. But, I'm also very aware of what the curriculum is saying, in a way, but also the writers of the document seem to also say "this is important, but we know damn well it's gonna be difficult to sort of implement". … And, because of that, I am anxious of the thinking of different ways of selling the curriculum, and what I believe in within the document. … my take is that if we can actually sort of combine what the current curriculum is saying about inclusion… I think we should be able to make a much better job [of meeting the needs of the 20 or so percent of non-performers in schools… but, unfortunately, um, writing things down in education quite often does not mean that's what the classroom and the learners will get. (Amosa interview 2)

Speaking to the contested nature of 'the knowledges considered most worth knowing' in schools, Kerri suggests that one of the reasons Amosa's desired developments may not happen is the way in which the work to implement the 2007 curriculum has been superseded by the move to National Standards. Despite these challenges, she sees that teachers who are strongly committed to the ways of thinking about knowledge that underpin the NZC, will find ways to draw on those conceptualisations of knowledge and learning:

Well the revised curriculum with it, I think was wonderful, is wonderful, but because we've been slammed with National Standards it's taken the, um, oomph out of the new curriculum, and it's slammed teachers back into the three Rs, really, I think. So, what the new curriculum had to offer has been subverted. It might not last forever, because I think quite quickly, um, the results might be a bit damning, actually. Because there needs to be arts happening, and, you know, other forms of education, kids get so bored. So, I think there'll be a revolution again, but people are having to wear the National Standards and be forced into delivering those. So it's changing the consciousness. But, there are teachers who are holding up against that, anyway, and who will just go with the, yeah, find their way through, and will sort of manipulate the system. (Kerri interview 2)

Over the course of the project, a number of the practitioner researchers felt more comfortable claiming the authority of authorship, both in terms of valuing their own ideas and in tailoring their own writing to specific audiences. Juliet gained confidence in recognising that her own experiences can provide valuable understandings about epistemic and ontic shifts that readers may be interested in learning about;

Being able to articulate my own ideas in terms of, like this case study that we're writing up, and in a sense I'm writing about myself, so that's a bit, um, that's a bit (pause) I suppose, do I feel justified in thinking that anybody would want to read about my own ideas! (Laughs). You know, like that kind of, um, it seems a bit arrogant, really, to think that somebody might like to read about your ideas, and your shifts in thinking, and so on. But, that's what I feel like I have got something to say about, I suppose. So, that's an interesting sort of shift in terms of confidence about authorship" (Juliet, interview 2)

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Judy also feels more comfortable claiming the authority of an author, and also resignifying herself beyond writing as an 'expert, all knowing' author. She has gained confidence in becoming more circumspect and exploratory, less definitive as a writer and has learnt to tailor her writing for different audiences and different times. She has also become more accepting of the fact that, as a writer, she will conceptualise similar ideas, quite differently over time:

> … my claiming the authority of an author…that's probably something that has shifted quite a lot in the way I write now... just putting forward, um, things a more, um, being more explicit about something being contextual, …and being more explicit about the usefulness of something in a particular article... And so it's writing in a way that's … less authoritative, if you know what I mean?... and it's just an acknowledgement that actually, um, for a particular writing that you might position something in a certain way, but its usefulness for that, whatever purpose that is, and that you might write something completely differently in another time. And so that is a really good example of knowledge being partial, and being a verb. And, its utility, its usefulness for a given context, might look quite differently if you're writing a month later on something similar, your ideas can shift. (Judy interview 2)

Epistemic and ontic shifts: Ongoing work-in-progress

Over the course of the project, several of the practitioner researchers have come to problematise instrumental conceptualisations of linear epistemic and ontic shifts which occur in a short, defined time frame. As Judy suggests:

> I don't think it's not really very linear in terms of, you know, undertake these steps and you'll come out the other end a different product, sort of thing! It's a journey that I think takes probably longer than the 12 months I've been on it, actually, to be honest. (Judy interview 2)

Both Jae and Judy acknowledge that conceptualisations of knowledge and learning take time to shift. Jae notes that this process challenges and actually resignifies traditional expectations of the teacher educator, shifting their exchange value as an expert knower:

> I think the other thing is that I've realised that it's always gonna be a work in progress, and it's ever gonna be fixed and final, and that's hard because, you know, I always kind of thought 'oh', you know, someday I'll reach a point where I can say 'this is how I should teach, this is what it should be, this is what the course should look like', and that would be it, it would be settled, and I just you know, that's what I would do, and I realise now that that's never going to happen. And, it never should happen, because if that did happen, it would mean, actually, that I'd stopped learning, and I probably wasn't going to be a very good teacher from then on, if the content didn't change, if the processes didn't change, then I think I probably wouldn't be doing my job. (Jae, interview 2)

Alison emphasises the importance of understanding and attending to her own process of epistemic and ontic shifts, and valuing the time and the form it takes, both for herself and for her students. She recalls feeling frustrated and puzzled by the fact that, even though she was being exposed to different conceptualisations of knowledge, it was not affecting her practices with student teachers. She describes the struggle over time of integrating conceptualisations and practices, a reminder of the intense thinking and working though that the shifting process demands:

> Like I remember thinking myself, thinking "well I'm, if I think this, why am I still teaching like this?" you know, I couldn't get the shift from how I thought about it, into how I actually worked. Until I worked, until I, I had to do quite a lot of thinking about how to do that, and that might be the same for them. Because they're, they have to do certain things on practice, you know, there are requirements for them. But if they, you know, layering a new way of thinking about it, it's sometimes too hard. (Alison, interview 2)

Building on her epistemic and ontic shifts in the project, Judy's work-in-progress is to develop a new teacher education course that draws on post-critical theoretical perspectives to encourage student teachers to develop programmes which resignify normative and deficit constructions of young people alienated in schools. As a result of participating in the study she recognises that she needs to carefully think through the pedagogical implications of engaging with affect as part of the resignification with students. Her thinking reveals understandable tensions between encouraging some of the students to challenge their constructions of marginalised students while also creating an accepting environment for them to undertake the epistemic and ontic shifts that some may experience as part of the process:

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I'm conscious that for [student teachers] to journey, will be an emotional journey as well. I have reservations about taking them through that ... It will be a large group, well, probably around 40 students, and it's possibly myself journeying with that many students would probably be almost too much, that would be a reservation, um, because of the emotional issues that they may be faced with. So, it's managing that. It's wanting to create a safe and meaningful environment for them to journey in. And, my other reservation would be that if their experiences are really, if they had a negative experience, that it would cause resistance. It's likely to cause actual resistance to engagement, and it could entrench already existing ideas, for example, of racist ideas, or something like this, you know? So, as you can see, just from this conversation, there's still a lot of thinking that has to go on this year about that. I think, for some of them, for some people to consider ways of relating to people who are really different to themselves is, may be a challenge, because it may bring up feelings of anxiety or fear about that, because, of not quite knowing how to connect. Yeah, so that's an example of how it could be emotional. (Judy, interview 2)

As for the other practitioner researchers who participated in the study, Judy's thinking, as she weighs up the pros and cons, represents ongoing work-in-progress for her as a teacher educator, one for which there is no panacea, just a willingness to want to engage and a certain kind of courage to take the risk of doing so.

In the final section (Part C) I consider aspects of the project that supported the practitioner researchers and the student teachers, teachers and school leaders with whom they worked in the resignification process.

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B. Student teachers' and teachers' shifting conceptualisations of knowledge and understandings of the NZC

This section focuses on the student teachers and teachers who were participants in ITE classes and TPL programmes and their shifting ideas about knowledge, teaching, learning and the NZC. The interpretive reading seeks to draw together threads from the case studies in order to identify a) the nature of student teachers' and teachers' shifting conceptualisations of knowledge, teaching and learning, b) the frames of reference student teachers and teachers use to understand knowledge and learning, and c) how student teachers' and teachers' shifting understandings of knowledge and learning may influence their understandings of the NZC. The post-structural reading draws on data from the case studies, undertaken by the practitioner researchers, to explore the extent to which, working within teacher education and classroom and school contexts, the beginning teachers, practising teachers and school leaders were (in some cases) able to resignify their understandings of knowledge and learning as knowers over the relatively short duration of the case studies.

Interpretive reading

The focus of the interpretive analysis is the seven case studies within which empirical explorations in relation to student teachers' and teachers' (including school leaders') conceptualisations of knowledge and curriculum were undertaken by practitioner researchers. Shifts in student teachers' and teachers' ideas about knowledge, teaching and learning are discerned from a) reported case studies, and b) student teachers' and teachers' responses to the questionnaire survey. The first of these sources comprises teacher educators' analyses of the shifting epistemological understandings of the student teacher and teacher participants in their inquiries, according to particular theoretical frameworks. These interpretations were based on a range of data sources, including interviews with teachers, which were analysed according to particular theoretical frameworks for viewing epistemological understandings and shifts. The second of the sources is the pre- and post-questionnaire survey responses of student teachers and teachers.

An examination of both the case studies and the survey data reveals particular and shared understandings held by student teachers and teachers about knowledge and related understandings about teaching, learning and curriculum (NZC). Common threads in relation to the nature of shifts in conceptualisations of knowledge and the NZC, held by teachers and student teachers, can be identified, along with the interpretive repertoires that are utilised and supported as they try to make sense of their changing ideas about knowledge, teaching and learning.

Shifts in student teachers' and teachers' conceptualisations of knowledge and learning

Case study and survey data suggest that most of the student teachers and teachers who participated in the teacher educators' research projects experienced shifts (changes or developments) in their understandings of knowledge, teaching and learning. These shifts take the form of sensitisation to new or different ideas about knowledge, teaching and learning and of reported changes in practice. These shifts, as reported by practitioner researchers, can be broadly understood in relation to realist and relativist perspectives or orientations.

Realist and relativist perspectives

The nature of the shifts reflect the theoretical orientations and the nature of the specific analytical frameworks that were developed and applied within the individual case study inquiries. Shifts in student teachers' and teachers' understandings of knowledge and learning are presented as having variously to do with:

'noun' to 'verb' constructions – from an emphasis on knowledge as a thing that is to be transmitted and acquired, to the idea of knowledge as process and effect, where it is the application of ideas and how knowledge can be used (performativity) that matters most (drawing on Gilbert 2005, 2007) (Case Studies A, F and G);

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dimensions of knowledge – relating to the certainty and simplicity of knowledge, sources of knowledge, and justification of ways of knowing – where teachers and learners are positioned in different relationships with knowledge and with each other, depending on the level to which knowledge is understood to be fixed and certain or to be co-constructed through social interaction, contingent on context, and changeable (drawing on Baxter Magolda 1992, 2004; Hofer 2004; Hofer and Pintrich 1997, 2002) (Case Studies A, F and G);

teaching and learning paradigms – relating to theoretical frameworks for different ways of teaching and of learning, such as cognitive (intellectual) or embodied theories of, and approaches to, learning (Case Studies D and H);

head/heart spaces – a map for describing cognitive and embodied effects and student teachers' responses to their learning experiences (Case Study C);

epistemological and ontological realism and relativism – where understandings are categorised in relation to realist-relativist continua and epistemological and ontological dimensions (drawing on Schraw & Olafson, 2003, 2008) (Case Studies A and G).

At some level, all of the theoretical frameworks that were incorporated in the case studies, and used to define epistemological shifts, can be seen to reflect distinctions between *realist* (or *objectivist*) and *relativist* (or *subjectivist*) ways of understanding the world and of understanding education, teaching and learning more specifically. Realism broadly describes philosophical beliefs that posit that "things and events exist; that is, they have being independently of the knowing subject" (Clegg & Bailey, p. 1356). Within schooling systems, this might translate into things like an emphasis on standardised curriculum, teaching for acquisition of information (facts) and mastery of skills or methods, and teaching learners the 'right way' to act. In contrast, relativism describes a "doctrine that truth or morality is relative to situations and not absolute or universal" (Clegg & Bailey, p. 1371). Epistemological relativism holds that knowledge is subjective and depends on the conceptual frameworks and viewpoints that are adopted by individuals or groups, which are framed in cultural and social contexts. In relation to schooling, relativist philosophies might translate into things like flexible curricula, teaching in ways that emphasise learner choice and self-directed learning, and which provide opportunities for co-constructed learning.

Shifts between realist and relativist perspectives are revealed in the sensitisation of student teachers and teachers to new ideas about teaching and learning and what it means to "know" in different curriculum and school contexts.

Sensitisation to new ideas

Sensitisation describes growing awareness of new or different ideas about knowledge, teaching practices and learning processes. It is revealed in student teachers' and teachers' acknowledgement of, and their support and advocacy for, particular teaching and learning approaches. It is also revealed in reported observations of tensions experienced by student teachers and teachers as they questioned what teaching and learning entails and how their ideas about this might translate into their practice.

All the case studies that involved empirical research relating to student teachers' and teachers' epistemological understandings describe sensitisation by participants to new or different teaching and learning strategies. In Case Study G, for example, student teachers recognised the potential of inquiry learning, which they were introduced to through a social studies ITE course, and saw this as a desirable approach for them to use in their own teaching.

> Related to the student teachers' understandings about inquiry, were their ideas about its benefits, both as a pedagogical process and as an experience in their teacher education programme. Heather, for example, spoke of inquiry developing social knowledge and skills for managing relationships, communicating and relating to others. The role of multiple perspectives and resources that challenged taken-for-granted knowledge was identified as important for appreciating other points of view. As Peter put it, "it enabled me to embrace much more about where people are coming from." (Jae, Case Study G)

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In Case Study D, teachers recognised the potential of dance for discovery and embodied knowing. Marcy's response exemplifies this sensitisation to a new approach for teaching and learning.

> Marcy noted in the middle interview that before the PD process began her teaching of dance had been quite prescriptive. "When I thought of teaching dance, I'm really thinking … ok step to the side, do this, put your hand there" (Marcy, 19/6/09). By the endpoint interview her definition included an understanding about the creative emphasis of dance education as she explained how her class were "exploring through dance and discovering it together."
>
> ….
>
> Later, Marcy articulated new understandings about dance as a way of knowing in and through the body. She also understood that working in this way means that knowledge is constructed together … and builds on students' and teachers' experiences. "Through dance we're exploring, but we sort of discover it together" …. Marcy explicitly affirmed in the final interview: "You build it, you build on experience." (Kerri, Case Study D)

These examples suggest that, in being exposed to new or different teaching and learning approaches, student teachers (in Case Study G) and practising teachers (in Case Study D) shifted their ideas about what it means to know and, allied with this, their ideas about what teaching and learning is about. Rather than knowledge being viewed as something that is fixed and absolute, to be transmitted by teachers and acquired by learners (such as by teachers supplying information on the topic in Case Study G and instructing on the correct order of dance steps in Case Study D), it became something that could and should be developed and generated through inquiry and creative processes and through interactions with others. Shifts towards more relativist views of knowledge, teaching and learning are portrayed in these and across the range of case studies.

The survey also shows broad sensitisation to new ideas about knowledge teaching and learning, across the four case studies for which pre- and post- questionnaire data was collected from student teachers and teachers. Generally speaking, this sensitisation was towards an appreciation of: students as active participants in the learning process; valuable learning as that which is authentic, relevant and meaningful for all students; and education which serves the interests of diverse communities. For example, a student teacher in Case Study C, described the role of education in society as being "to help children benefit in their lives" by "getting knowledge and information" in the pre- questionnaire, which was altered in the post- questionnaire response to read that education is about "doing what is best for all students and making parents and community part of it" (Case Study C, Student 7 [C7]). Another student wrote initially that learning is about "expanding knowledge and developing individual thoughts and opinions", which changed to the view that learning is about "sharing stories that have meaning and someone choses to keep" (C10) in the post- questionnaire. A student in Case Study A described the role of teachers as "teaching children academically and role modelling how to behave in the community" in the pre- questionnaire, and that "the role of teachers is about empowering children to become lifelong learners" (A4) in the post- questionnaire.

Tensions and complexities

However, shifting understandings towards more relativist notions of knowledge reportedly created tensions for participating student teachers and teachers as they questioned what learning entailed and their own roles and practices as teachers. For example, Jae writes:

> There is a challenge here in moving from a teacher identity grounded in being a source of knowledge and the decision-maker in the learning environment, towards an identity as co-constructor of knowledge and meaning, with some implied loss of authority. Peter was not alone in expressing this. The inherent paradox here lies in the need for teachers to know a lot about what they are teaching, not in order to tell children and control the process, but in order to guide and support learning. (Jae, Case Study G)

And

> There is recognition here [in student teachers' responses], of the uncertainty of knowledge, the notion of questioning and critique and interpretation that suggests multiple ways of knowing, with no single 'right' answer. And yet, there remained, for most of the students, a sense of tension in this uncertainty; this space between realism and relativism where the notion of 'knowledge as a verb' was interpreted as referring to skills that could be deployed to construct 'knowledge as a noun'. (Jae, Case Study G)

In another ITE case study context, Alison similarly identifies tensions and challenges for student teachers as they negotiated what their developing understanding might mean in practice.

> Megan identifies a tension between aspirations to teach in a particular way and the reality of the assessment processes and criteria. She seems to be working at the transformative edge. She is thinking in a more relativist way about the source of knowledge but cannot yet see how to apply this thinking to her practice. (Alison, Case Study A)

In the context of TPL for school leaders, Wayne also perceived that teachers experienced tensions as they negotiated their roles as school leaders.

> … a change of rhetoric does not necessarily lead to a change of leadership style. In my work in schools I noticed that of the many who espoused collaborative decision-making some were better able to translate into practice than others. However, it seems to me that being able to articulate the difference between centralised and distributed models of leadership is a start. (Wayne, Case Study E)

The analyses conducted by the teacher educators in their practitioner research suggest that, for many student teachers and teachers, shifts in epistemological understandings took the form of sensitisation to new ideas, but that these ideas may or may not have translated into practice. However, the tensions experienced by student teachers and teachers as they questioned what their developing understandings might mean for practice are, in themselves, evidence of sensitisation to new ideas about knowledge, teaching and learning. Also, a lack of evidence of changing practice does not signal immutability of epistemological understandings (although there are examples of student teachers and teachers across the case studies whose ideas appear not to have changed notably); rather, that student teachers and teachers may be struggling to reconcile their changing understandings with their ideas about teachers' roles and practice. In addition, a lack of evidence of shifts in practice by student teachers and teachers may, in some of the case studies, reflect methodologies that were not directed towards gathering data about shifts in practice (as opposed to shifts in thinking).

Questionnaire responses also show that student teachers and teachers have mixed and complex ideas about knowledge, teaching and learning. They may at one and the same time reflect realist and relativist epistemological positions. An individual may, for example, describe learning in relativist terms, while at the same time describing a realist conceptualisation of teaching. In responses to questions about what education and learning is about in the pre- questionnaire, one student teacher from Case Study A described learning as "making connections through experience, prior knowledge and new understandings to reach a conclusion" (A9), which implies a degree of active involvement by students in the learning process. In relation to teaching, though, s/he described teaching as being about "conveying information", which appears to present a realist perception of teaching and learning relating to the transmission and acquisition of facts or content. Responses to the post- questionnaire by this same student teacher indicated a shift in her/his thinking about teaching to being more about "providing opportunities for students to experience success and reach their personal goals." This student's understandings of teaching and learning are both complex and shifting.

Student teachers and teachers who were sensitised to new ideas about knowledge, teaching and learning showed appreciation of the potential for new or different ways of knowing. Their shifting epistemological understandings were expressed as new appreciation for particular learning approaches, (such a authentic learning, lifelong learning, inquiry learning, critical thinking, inclusive practices). They may or may not have tried these out in practice.

Trying out new approaches to teaching and learning

There is some evidence of shifting epistemological understandings leading to changes in practice by particular student teachers and teachers, and vice versa, as they tried out new ways of teaching and learning in schools. In Case Studies D and H, the teacher educators worked with small numbers (one or two) teachers in schools, participating in classroom contexts to model and guide changing teaching and learning approaches in relation to dance and visual arts education. In these case studies, engaging in and undertaking new and embodied ways of working were a necessary part of the TPL. In other case studies, TPL and ITE sessions took place with larger groups of student teachers and teachers away from classroom settings. In these contexts, changing practice involved participants taking ideas and understandings from the TPL and ITE sessions and voluntarily

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implementing these in their classroom practice. This occurred away from the supervision and gaze of teacher educators.

Examples of such voluntary changes in practice include Case Study A, where student teachers describe new or different approaches that they enacted with classes on school placements. For instance, Jenny explains, "I particularly got better at using open questions, and promoting their [children's] own thinking. I got much better at my wait time as well… (Alison, Case Study A)

And Megan:

> I just looked around for ideas for how we could assess … this unit. How the children could actually get a picture of themselves as performers ....
>
> … using the video and the fact that they could immediately reflect on what they'd just done, and self-assess, with my assistance … I don't think they'd done much of that themselves, before. And, I found that really gave them, um, a boost, and they could move on from that point. (Alison, Case Study A)

Both of these reported instances suggest that the student teachers were endeavouring to enact more student-focused strategies that were consistent with their developing and more relativist epistemological understandings, which positioned children as active participants in the learning process and as generators of knowledge and understandings. The success of the changes in practice (in Megan's case, a "boost" to the confidence of students that she observed) appears to have reinforced shifts in thinking towards more relativist and student-focused orientations.

In Case study F, data is presented that indicates that a number of teachers in the TPL group took and used models of units of work with students in their ESOL classes. These units were underpinned by a "performative" (Gilbert 2005) conceptualisation of knowledge. Processes were encouraged whereby school students would learn with and from each other, through role-play, debate and critical engagement with resource management issues, to generate ideas and new understandings about resource management. Teacher responses, as reported in the case study, indicate that the cross-curriculum focus of learning and the type of the discussion activities included in the unit were unusual in ESOL classes. However, they also indicate that the trialling of units (trying out new approaches) encouraged some teachers to reconsider their ideas about what ESOL teaching and learning should be about.

> … teachers are starting to see possibilities for ESOL teaching and learning that they may not have seen before. For example, Anne and Jill were excited by the active engagement of English language learners in discussion and debate. The tone of their responses indicated that the noise of the classroom was being seen as a positive feature, not a negative. For these teachers, this activity appears to reflect a change from the norm or what they would expect to see in ESOL classes – supported by Jill's comment that students' constructive argument was "quite extraordinary." (Juliet, Case Study F)

These examples suggest that teachers' shifting understandings about what constitutes valuable knowledge and learning in specific educational contexts are reinforced (and also potentially undermined) by their experiences of implementing new teaching and learning approaches in their classroom practice.

Framing understandings of knowledge and learning

A qualitative analysis of questionnaire survey responses suggests that student teachers and teachers frame their understandings of what constitutes valuable knowledge and learning within two dominant and co-existing interpretive repertoires. These are described here as life preparation and equity repertoires.

Life preparation repertoire

The life preparation repertoire draws together a range of ideas and associated, interconnected interpretive repertoires that support the notion that education serves a function in preparing students for life outside the classroom and in the future. It is reflected in comments such as "schooling is about preparing youth for their future" (F7); "education success is about gaining knowledge that is useful to life" (C1); and "learning is about gathering a tool box to use through life, next steps" (A18). Allied with this repertoire are notions that

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education, teaching and learning are about personal development and citizenship, goals that are supported by student-oriented pedagogies.

The personal development repertoire emphasises the development of individuals, both academically and personally. This is reflected in notions that "the role of education in society is to support learners to become independent, happy, integrated adults" (Al8) and "schooling is about learning and developing social and academic ability" (C2). The personal development repertoire encompasses a skills-development approach to teaching and learning, where the development of thinking, information, life and social skills are seen as important for personal development and to support the aspirations of individuals for their future lives and work. These ideas are expressed in a variety of ways and across the range of case studies:

> The role of education in society is about learning skills to get a job later in life, improve skills, knowing, understanding to extend self (A15);

> Schooling is about learning how to learn. Learning the skills for further independent learning, ie reading … writing, listening, communicating effectively. It is about learning how to socialise with peers and how to behave in society (F5);

> The role of teachers is about bringing children up in a way which they can leave with knowledge, skills, and an understanding for life (C6);

> Education in the 21st century is about encouraging the children to think for themselves and to find their own information (G15).

Central to the citizenship repertoire is the idea that the purpose of education, teaching and learning is the preparation of responsible citizens; that is, the equipping of young people to be active members and positive contributors to society. For example:

> Schooling is about a student becoming a happy, socialised and contributing member of society (F4);

> Educational success is about being fit for society, feeling good about yourself(G1);

> The role of education [is] developing socially aware citizens … (G4);

> The role of education [is] educating children about fundamental skills that they will need throughout their lives … about what is acceptable in the society we live [in] (C4).

There is a sense that education should support the personal development of students, but that the nature of this development should also serve the broad interests of society. These interests are variously described and include workforce needs and perceived needs for people to be critically aware and to be culturally and socially tolerant.

Student-oriented pedagogies are understood by student teachers and teachers to sustain broader personal development and citizenship goals. These pedagogies include inquiry learning, authentic learning and cooperative learning. For example, a student teacher in Case Study F supports inquiry learning as a way addressing both citizenship and personal development. S/he indicated in her/his response to the pre-questionnaire that schooling is about "enabling and empowering students to find information by many means, to become life long learners and to … launch students into society as successful participants and managers" and that the role of education in society "is about strengthening and empowering your people to become worthwhile citizens … through sound knowledge and wisdom" (F6). These ideas were adjusted in the post-questionnaire to read that schooling is about "enquiry learning/helping students to find the information they need for a specific purpose" and that the role of education is about "expanding the brain and skills of students and challenging our beliefs, assumptions and methods." Teaching was described as being "about igniting curiosity and guiding students to ask deeper level questions." Citizenship and personal development repertoires were utilised in both pre- and post- questionnaire responses, but a more critical form of citizenship was advocated by this student teacher in her/his post- questionnaire response. Inquiry learning and approaches supporting critical thinking were promoted as pedagogies that support the development of active citizens, the personal development of students, and which are valuable for life beyond school.

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Equity repertoire

The equity interpretive repertoire represents an accumulation of ideas that are concerned with fairness and justice in education. These take the form of concerns for equal educational opportunities for all students, for the creation of positive learning experiences for all students, and for broader social justice issues. The equity repertoire incorporates interrelated repertoires relating to inclusiveness, cultural sensitivity and community connections in education. These are presented as important educational principles that should guide teaching and learning practices.

Within the inclusiveness repertoire, what is understood by student teachers and teachers to be important in education, teaching and learning is variously constructed. These constructions include the ideas that inclusiveness is about the provision of equal opportunities for all students to succeed and, related but different to this idea, that inclusiveness is about recognising and being responsive to cultural difference. Examples of questionnaire responses that reflect these ideas include:

> Schooling is about giving opportunities, asking questions, learning from students, giving knowledge, support, making connections, supporting everyone (C7);

> Teaching is about helping all cultures to succeed in their studies (C11);

> Teaching is about creating inclusive classrooms … learning together. Giving children opportunities to experience success and rich learning activities (A6).

The purpose of education is to support all learners and enable them to achieve success, although what constitutes success is not always clear.

Cultural sensitivity and understanding are seen as important in achieving equity in education. Questionnaire responses from student teachers in Case Study C suggest that they, in particular, utilise a cultural sensitivity repertoire to explain what is important in schooling, teaching and learning. This reflects the focus of teaching in their multicultural studies course. These student teachers feel that cultural sensitivity is enhanced by learning about other cultures and perspectives (culture as content), and by learning with others (through social and cultural interaction). By way of examples, student teachers in Case Study C advocate learning about culture:

> The role of education in society is about teaching individuals about their culture, other cultures, equality, racism, dominance … and equipping them with the tools to overcome these issues (C9);

> Educational success is about everyone is receiving things that they want to. Eg. about their culture … (C7).

Other student teachers in Case Study C identify valuable learning with socially interactive pedagogies that enable students to learn about and with others:

> Schooling is about gaining knowledge, understanding and a way of sharing [with] others what you know (C6);

> Learning is about learning from each other … not always teacher focused – learning can be from the community and other children (C2).

Valuable knowledge comes to be seen as that which is generated by students as they work with and learn from each other and community members, and also information about culture that may be imparted by the teacher.

Within the associated community connections repertoire, the making of connections between schools (including teachers and learners) and communities is seen as performing a broad social justice mission. Making connections with communities is considered important because it supports inclusive education, where students and their cultural backgrounds are valued, as well as supporting the communities themselves by valuing cultural difference and creating closer community-school relationships. The following excerpts from student teachers' responses to the questionnaire survey exemplify these ideas:

> The role of education is about bringing people and communities together (A16);

> The role of education in society is about doing what is best for all students. Making parents and communities part of it (C7);

> The role of education in society is about incorporating the whole community into the learning process – interacting with different cultures (G2);

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> Schooling is about learning, accepting, experiencing new things. Surrounding yourself in a multicultural environment (C11).

Valuable knowledge is not only that which teachers have and can transmit to students, and which students can acquire from teachers or from traditional learning materials. It includes knowledge that is located in communities and which is part of the cultural experiences of students.

Within an equity repertoire, student teachers and teachers support pedagogies that they think are inclusive, that support and enable students to succeed and which provide relevant learning for students from different cultural backgrounds. The pedagogies that are advocated are similar to those that are described within the life preparation discourse, but with greater emphasis on students learning with and from each other, of teachers and students learning together, and teacher and student engagement with communities.

It is evident from the analysis of the questionnaire responses that student teachers' and teachers' understandings of education and what counts as valuable knowledge and learning can be understood within the context of two broad interpretive repertoires – life preparation and equity repertoires. Also, it is apparent that individual student teachers' and teachers' understandings of what is valuable knowledge and learning have shifted, albeit in different ways and to different degrees, as different ideas have resonated with individuals. In general, the ideas that have been taken up by student teachers and teachers tend to reflect the content of the ITE and TPL initiatives in which they were participants, with student teachers in Case Study G, for example, focusing on the value of inquiry learning and student teachers in Case Study C emphasising equity concerns and community connectedness. These repertoires are not exclusive, though, to any single case study.

Student teachers' and teachers' shifting conceptualisations of what constitutes valuable knowledge and learning may or may not reflect shifting epistemological positions in relation to realist and relativist orientations. For example, education that helps prepare students for life is seen by some student teachers and teachers to be achieved through the transmission of relevant knowledge from teacher to students and through training in skills (a realist orientation), whereas other student teachers and teachers may associate it more strongly with student-directed inquiry and cooperative learning approaches (a more relativist orientation). Both of these orientations are evident in student teachers' and teachers' responses to the questionnaire survey and individuals may subscribe to both realist and relativist views at the same time. Thus, student teachers' and teachers' shifting conceptualisations of knowledge and learning are complex.

Student teachers' and teachers' understandings of the NZC

The complex constructions of knowledge and learning that are held by student teachers and teachers are reflected in their understandings of the NZC. As with their understandings of knowledge and learning, student teachers' and teachers understandings of the NZC reflect broad life preparation and equity repertoires. These and a 'guidelines' repertoire are exhibited across the case studies.

A number of respondents to the questionnaire survey described the NZC as guidelines for teaching and learning content and for teaching and learning processes – a guidelines interpretive repertoire. Within this repertoire, a range of factors are emphasised that represent requirements for teachers to address in their practice. Aspects of the NZC document that were identified as important requirements for teachers included the overarching principles, values and key competencies of the curriculum and subject specific achievement objectives. The guidelines repertoire is reflected in the following responses to specific questions that asked what the students teachers and teachers thought the revised NZC is about. Responses included ideas that NZC is about:

> … guidelines to follow in teaching practice and planning (A13);

> … the topic and subject areas that children are to learn about (C4);

> … all elements, strands and curriculum areas in one book. A shift from key understanding to key competencies (A12);

> … effective pedagogy and KCs [key competencies] and incorporating these into our subject areas (F7);

> … inquiry, the process, the reflection (G1);

> … providing a framework in which the processes of learning are made more explicit, where achievement objectives meet learning outcomes (F11).

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Student teachers and teachers were also trying to reconcile their ideas about curriculum with their ideas about teaching and learning. Thus, the NZC is also interpreted and made sense of through life preparation, equity and other associated repertoires. For example, a life preparation repertoire is evidenced in the following questionnaire responses:

> The new NZ curriculum is about making classrooms student centred with best practice activities to make students life long learners (F6);

> The new NZ curriculum is about meeting the learning needs of our students to set them up for life long success, in our ever changing world (A16);

> The new NZ curriculum … provides values and key competencies that teachers and schools can teach students that will help them to develop into life long learners and successful part of society (A7).

A personal development repertoire:

> The 'new' New Zealand Curriculum is about social connections. Covering all the basics of education with more focus on Arts and personal growth (C1);

> The new NZ curriculum is about focusing more on the emotional and social development of the child than about specific learning (G16).

A citizenship repertoire:

> The 'new' New Zealand Curriculum is about empowering the students to take charge of their learning to become productive members of society (G7).

An inclusiveness repertoire:

> The new NZ curriculum is about development of the key competencies in a very multicultural society … (F8);

> The new NZ curriculum is about cultural inclusion (G17);

> The 'new' New Zealand Curriculum is about inclusion. Tries its best to provide a system for all cultures (C10);

> The new NZ curriculum is about guidelines for teachers so that all NZ children are getting an equal opportunity to learn (A6).

And a community connections repertoire:

> The 'new New Zealand Curriculum is about teachers needing to be responsive to the needs of the learners and their communities to engage and challenge them (C3);

> The new NZ curriculum is about empowering schools to provide children and their communities with knowledge and skills they need based on each individual situation/community (A4).

In addition, the student teachers' and teachers' developing understandings of the NZC reflect realist and relativist orientations and tensions between these perspectives. For example, a student teacher in Case Study C (C2) described the NZC in the post- questionnaire in realist terms as a "base to enable some standards and inclusion of all subjects", implying a perceived need for consistent standards and a common or standardised school curriculum. The same student teacher wrote in the post- questionnaire of teaching as being about "making connections with the students, involving and engaging all students" and about learning as involving "learning from each other … not always [being] teacher focused." These responses imply a more relativist view in the recognition that what is relevant or meaningful learning for individual students may vary and in the advocacy for a flexible curriculum in practice. A tension is evident between a desire for consistency and 'sameness' in curriculum structures and offerings and a desire for flexibility in pedagogical approaches.

For a few student teachers, the ideas about the NZC that are presented in their pre- and post- questionnaire responses show clear shifts from realist to relativist positions. One student teacher in Case Study C (C8), for example, wrote in the pre- questionnaire that NZC is about "giving the school and teacher ideals or standards to work towards – a level of consistency", which was adjusted in the post- questionnaire to reflect a more relativist perspective and the idea that NZC is about "giving teachers and schools a wider scope in how they go about getting the subjects they have to cover out there – more responsibility, less rigid." For most student teachers and teachers, however, shifting understandings of the NZC reflect a complex mix of realist and relativist thinking and reflect multiple and coexisting interpretive repertoires.

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Research findings from the cases studies show that student teachers' and teachers' understandings of the NZC were developing and changing. Across the case studies, a commonly held understanding was that NZC presents a guide for practice, rather than a prescription. Student teachers and teachers showed sensitivity to new ideas about NZC, within the specific curriculum contexts that were the focus of their ITE courses or work. They developed new interpretations of different aspects of curriculum. For example, in Case Study C, selected students are found to show shifting ideas about the key competency 'relating to others'. This is exemplified here in the response of one of these students:

> Prior to this course I would have described relating to others as the ability to get along with people and accept others. Basically, being able to be polite to everyone and have the ability to work with everyone, even those that one may not usually associate with. The thing I would have said about relating to others is that it is about treating everyone the same regardless of differences in race, culture, ability, gender etc … Now I understand that treating everyone the same does not mean not discriminating. I believe that one of the most important parts of relating to others is having empathy, this coupled with the ability to see and accept different perspectives equates to a person who should not have difficulty relating to other people. (Case Study C)

In Case study G, students reportedly developed new understanding of inquiry learning, which is a pedagogy that is encouraged in the NZC. They moved from an understanding of inquiry learning as a technique or procedure to inquiry learning as a philosophy that is underpinned by principles of student-centred learning.

> There was also strong engagement with the idea that inquiry was driven by learners' interests and needs. The student teachers were enthusiastic about the motivational power of giving learners choices, and they talked about the importance of 'buy-in' and student ownership. This aligns with the vision of the *NZC* for life-long independent learners, and placing the learner at the centre of the learning process. These notions seemed to resonate for the students in terms of their own learning experiences. (Jae, Case Study G)

In Case Study D, Kerri found that both teachers with whom she worked were sensitised to different ways of working in dance education and were seeing the NZC as a policy document that supported new approaches in dance education. For example:

> By midpoint, Lulu was emphasising holistic learning and embodied knowledge. She saw, in the NZC, an opportunity to allow for diversity and different intelligences.

> …. during the last interview, Lulu expressed her strong belief that the ideals of the *NZC* were being implemented through this kind of work [embodied learning and the DiNE dance education model]. (Kerri, Case Study D)

Across the case studies, practitioner researchers (teacher educators) reported changes in student teachers' and teachers' understandings of curriculum, and the NZC in particular. They also reported tensions in understandings and resistance to change. How the teacher educators account for this resistance and for their successes and failures in shifting student teachers' and teachers' understandings of knowledge, learning and the NZC are explored in Section C.

Post-structural reading

Towards student teachers, practising teachers and school leaders resignifying shifts in understandings of knowledge and learning

The post-structural analysis explores the extent to which student teachers, teachers and school leaders worked towards re-signifying shifts in understandings of knowledge and learning within the case studies. The analysis begins with an examination of the epistemic and ontic possibilities that can be opened in the processes of re-signification. Next I explore the destabilising effects of engaging with complexity, uncertainty and 'becoming' as a teacher knower, and discuss the implications for teachers' and school leaders' intertwined professional and personal identities.

Epistemic and ontic possibilities that can be opened in the processes of re-signification

Over the course of participating in the case studies, several student and practising teacher participants and school leaders showed indications that they were moving towards being able to resignify understandings of

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knowledge and learning. In this section I discuss two forms of epistemic resignification that occurred, the features that characterise moves towards re-signification for the teacher participants, and how it affected their sense of themselves as knowers. I begin by examining the extent to which some participants moved towards legitimating subjugated knowledges, and then I discuss the extent to which, over the course of the case studies, a number of teacher and school leader participants called into question the role of the teacher and school leader as an expert knower.

Legitimating subjugated knowledges

The participation of several of the beginning and practising teachers in the case studies enabled them to legitimate knowledges that have traditionally been marginalised in schooling and teacher education contexts.

Kerri's case study challenges the low exchange value of dance as an embodied way of knowing within school contexts that tend to privilege the intellect and cognition (Bresler, 2004; Ellsworth, 2005). Over the course of participating in the research project both student teacher participants grew to move beyond a prescriptive definition of dance, to understand the creative and holistic potential of dance as embodied knowing and being:

> Marcy's concept of dance in education shifted rapidly. Marcy noted in the middle interview that before the PD process began her teaching of dance had been quite prescriptive. "When I thought of teaching dance, I'm really thinking … ok step to the side, do this, put your hand there" (Marcy, 19/6/09). By the endpoint interview her definition included an understanding about the creative emphasis of dance education as she explained how her class were "exploring through dance and discovering it together." (Kerri, Case Study D)

> When describing the complex inter-relatedness of body and mind, Lulu observed: "I think through moving you are using your senses as well … through using your body, that triggers your brain to think, so you are not just communicating something through your body, but like using your body to do something that does trigger your emotions and your thinking as well. It's really hard to put into words." (Kerri, Case Study D)

Framing dance as creative exploration shifts the role of the teacher as a knower to that of a guide and a facilitator as well as a co-learner with the children. Over the course of the project both teachers gained confidence and pleasure in engaging with the less certain process of creative exploration through improvisation:

> Lulu emphasised the idea of their being " … in the learning together" and she crystallised ideas about the role of the teacher as one of an artist: "I participate alongside them, … discovery is big for me, learning alongside them. I am guiding and facilitating but I am in the process – creating it together" (Lulu, 24/11/09). Her teaching process had become more one of 'becoming' rather than of 'arrival' (Alexander, 2005) and she showed a greater readiness to engage with uncertainty. (Kerri, Case Study D)

> By mid-point Marcy's ideas about the teacher's role reflected her changing emphases and her value of exploratory play. The teacher's role in scaffolding the process was identified. "They're learning as they're doing, so not being fed information, they're actually playing and the teacher's obviously scaffolding …". She commented on her enjoyment of teaching dance creatively. "I could just enjoy it so much more" (Kerri, Case Study D)

By the end of the project with Kerri, Marcy asserted that dance, as an embodied way of learning, should have as high a status as literacy and numeracy. "The body is just as important as literacy and numeracy" (Kerri, Case Study D).

Through participating in a case study exploring the potential of the visual arts as embodied knowing and being, Chris has drawn on the visual arts as a way for children to both learn and express what they want to say in inquiry based learning processes. Helen and Chris suggest that their mutual experimentation with the visual arts has shifted both Chris's role as a teacher and the students' roles as knowers:

> As the school has put in place a lot of the skills for student understanding of the steps required by an inquiry learning process in their learning up to Year 7/8, Chris now sees her role as less about teaching students the "nuts and bolts of questioning or finding information. I'm now teaching them different ways to expressing their information … they can be so much more expressive with what they want to say and learn and find out. (Helen, Case Study H)

Participating in the project with Helen also enabled Jac to recognise and value the knowledge funds and expertise of her students, and engage more fully with their diverse knower identities:

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She also talks about how "I've got such a diverse range of children in there" and mentions a story told by a particular child during 'discovery time'. "I just loved his story [from the student voice data], about his work, because what he'd seen and experienced in China. And, yet it was right in this moment, as well. It was like all at once." This child's painting had encapsulated multiple known worlds simultaneously and alongside his encounter with the materials, and his immersion in the act of making and the dialogue, it could be read as a form of connecting and negotiating the complexity of identity. (Helen, Case Study H)

As Kerri notes, even in the face of National Standards, Lulu affirmed the value of dance as an embodied way of knowing, and, working with dance, shifted away from traditional approaches to teaching and learning, towards that of a collaborative guide and catalyst:

[Lulu]… had different children, but she could see their creativity manifested through their bodies… So disciplined, and so successful, so she expanded her idea about what learning and knowledge can be. Being faced with the avalanche of National Standards, she was still saying, "this way of educating is very, very valid, and this way of knowing is very, very valid". Um, the teachers became a lot more playful with their student, instead of teach out there, students down there, it's a lot more teacher with the students, guiding, seeing themselves in that role, as a guide and a facilitator, and a catalyst. (Kerri, Case Study D)

Jac, after having participated in the project with Helen on valuing the visual arts as a way of knowing, feels validated to work with children in a way that is commensurate with her beliefs and values, and this is helped by working in a school setting where such approaches are valued and appreciated:

Jac describes her confidence to now enact her beliefs about teaching and learning in her school setting. She also mentions the trust and support she has experienced, and being valued by her principal ... she resolved that tension that by deciding to "just do" what she believed in. (Helen, Case Study H)

Helen also noted the extent to which, over the course of the case study, the two teachers who worked with her became more open to let go the control that being an expert teacher knower demanded, and open to feeling more comfortable as a learner, with playful experimentation and uncertainty:

I noticed an approach being affirmed in the teachers' practice that felt more playful, with intentional diverse outcomes for students. This supported my earlier hunches that, alongside a systematically planned PLD experience, underpinned by effective relationships, the dispositions to 'not know' also supported teachers' agency in finding diverse ways to enact 'shifts' and contextualise changes in their practice. In this way implementation of curriculum was conceptualised as an ongoing process of becoming. Rather than talking of effective pedagogy perhaps we should talk about an effective learner-ology – the teacher maintaining her ability to be a learner. (Helen, Case Study H)

Indigenous knowledges and deficit conceptions of 'the other' were also resignified over the course of the project for some student teacher participants. A number of Year One student teacher participants in Amosa and Vanessa's case study found their normative values and beliefs shaken and destabilised. As student 3 suggests, being exposed to knowledges that called normative constructions of whiteness into question proved to be overwhelming for many students in the class and called previously seen certainties into question:

'From this session I am taking with me an extraordinary sense of being completely overwhelmed. I have found myself asking so many questions. I know that New Zealand society is white dominated, but have I ever actually considered that this may have a negative impact on some people's experience of society? How do I perpetuate white dominance? How many people have I hurt by my ignorant actions? My hands are sweating and my heart is racing as I write this, because I am thinking, "oh my gosh, I am actually one of these terrible people who think that the society that I live in is the 'norm' and anyone who doesn't fit, should 'deal with it". The fact that this seems so harsh is incredibly awful, and my initial thought is that I am a horrible, ignorant person and how could I possibly have lived my life with such a narrow mind? I know that I am an intelligent person, I know that I am capable of critical thinking, so how is it possible I have not realized this on my own?' (Student 3, in Amosa & Vanessa, Case Study C)

Student 3's embodied distress at recognising the limits of knowing do not just relate to professional teacher identities, but also to personal subjectivities (Alsup, 2006; Britzman, 2009; Connelly et. al, 1997). Student 3's comment speaks to the deeply intertwined nature of epistemic and ontic selves, and the recognition that shifting your identities as a knower will also involve destabilising both your professional and personal subjectivities (Britzman, 1993; Ellsworth, 2005). Student 3 insightfully recognises this fact, and despite the personal crisis that engaging with indigenous knowledges and problematising normative discourses of

whiteness provoked, she recognises that her Nana was the product of a generation for whom eugenics was an acceptable knowledge base that wasn't called into question:

'Multicultural education was a shock to my system. The subject that instigated the most reflection and reconfiguration of my original thoughts was the subject of white dominance. For me it wasn't just accepting that I was a fundamentalist white, but that my Nana, who I had grown up loving and respecting, was epistemologically racist. Learning about white dominance, which I was unaware of, led to guilt of my ignorance. Ignorance about the continuous struggles of indigenous people on a global scale, due to colonization and atrocities committed by my ancestors. This steered me towards anger towards my upbringing, how could someone knowing the history of the world teach children a perspective of superiority? Through intensive reflection I realised that the reason I was brought up that way was because they didn't know. Their government taught them this through the laws it passed, their teachers through the content taught, and families passed opinions through generations that this was the case. The Charles Darwin theory of white superiority and the darker the skin the lower down the ladder of society that person was, was what they were taught…' (Student 3, in Amosa & Vanessa, Case Study C)

Through their participation in the case study, a number of the student teacher participants became open to new possibilities for reimagining learners and relationships away from fixed categories and social hierarchies that characterise deficit thinking. Both Student 2 and Student 7 suggest they have moved towards engaging more thoughtfully with multiple ways of knowing in relation to understanding and engaging agentically with student difference:

'Before starting this course I would've thought that this part of the curriculum meant that students need to get along. To have access to a range of different culture settings and understand the way in which different cultures live. Now I see that it is about taking it a step further in that it is not only the students acknowledging the diverse range of people we see in society but about working together as a team to come up with new ways of approaching multicultural ideas and ways of thinking.' (Student 2 – week 10, in Amosa & Vanessa, Case Study C)

'When I wrote my first learning journal in March I noted my feelings of guilt about the way that people from cultures other than my own have been treated by society ("society" being a carefully contrived euphemism for the dominant white culture, of which I am a member), and I noted that I felt powerless to remedy the failings of the past. I stated that I was beginning to understand that I didn't have to make amends for history, but as a teacher I will be tasked with the responsibility to shape the future into a more inclusive society. However at that point I didn't know how to complete that task. I no longer feel powerless to make a difference - along this journey (which is just starting) I have found some tools to help me. For example, in my learning journal for session 7 I wrote "I need to remember not to treat children from other cultures as visitors or guests, but as part of the cultural tapestry that makes up our society."' (Student 7, in Amosa & Vanessa, Case Study C)

Over the course of the case study Student 5 expressed a level of confidence and comfort with complexity, with unresolved dilemmas and with ongoing learning. This student was more at ease with seeing themselves in a state of 'becoming' rather than arrival as a teacher knower:

'The biggest area of learning and relearning I am experiencing is to be still and open. To be aware of situations around me, my assumptions and beliefs of others, to be honest and examine them, allowing time to let go of guilt and change negative beliefs to honest accurate realisations, one belief at a time. This is and will take time, but it's freeing to know that there is no right answer, but listening, considering and experiencing honest and appropriate changes in thinking.' (Student 5 – Week 9, in Amosa & Vanessa, Case Study C).

Moving towards resignifying teachers and school leaders as expert knowers

In this section I explore the ways in which the teacher and school leader participants moved towards resignification of traditional understandings of themselves as expert knowers over the course of the case studies, and the ways in which this affected their knower identities. A number of the case study participants moved towards reconceptualising the ways of knowing that had traditionally characterised their fields, however the degree of movement for participants was by no means universal, and in some cases, no movement occurred at all.

Juliet's case study called the traditional notion of ESOL as a taken-for-granted, discrete, fixed body of knowledge into question, and introduced the teacher participant to more performative ESOL epistemologies.

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However as she explains, the approaches challenged traditional constructions of silo-ised knowledge in secondary schools, which some participants found difficult:

> However, some resisted a construction of ESOL as learning in contexts where the ESOL teacher was not an authority – one teacher said "I am not a science teacher". This appears to reflect a fixed notion of what ESOL is about, and what ESOL teachers do. This idea of what ESOL is, relates to there being a body of knowledge that should be taught and there being a right way of doing it (which isn't through science or other curriculum contexts…. Another example of the packaging of learning into 'silos' or discrete disciplines is when a teacher, who is both an ESOL and a science teacher, said that when she teaches the science class she teaches science, not language. She teaches language in the ESOL class. (Juliet, Case Study F)

Despite some resistance to reconceptualisations of ESOL knowledge, over the course of the case study some teacher participants indicated a willingness to engage with performative epistemologies of ESOL teaching and learning:

> In response to the initial questionnaire, Alexa, Suki and Brent, for example, variously described ideas of knowledge as information, as a "bank of data" (Brent) and learning as the acquisition of information and "retaining knowledge" (Suki), as well as describing knowledge and learning more in terms of experience and acquisition of tools to process information. In their later responses the emphasis was different. They added ideas signalling understandings of knowledge more as process and learning as empowerment. For example, Alexa mentions teaching as helping students "'discover' learning as a fun activity" and the role of education being to "'question' and think critically about values". Similarly Suki describes education as being about learning where and how to access information and being able to analyse critically. Brent describes knowledge in terms of problem-solving and ability to "interact with people" and "cope with diversity". Learning is described in meta-cognitive terms as "learning how to learn" and extending beyond the classroom to being able to "keep on learning" and to "adapt to an ever-changing society". (Juliet, Case Study F)

Wayne experienced some similar challenges to reconceptualising traditional notions of school curriculum leadership in his case study. As he explains, the NZC challenges traditional understandings of both teachers and school leaders as knowers, teachers and leaders:

> There were some that, who were frustrated with the Ministry, and the sort of bureaucracy, and thought [what's the point] because they thought things would change again. Um, and there were others that, um, really didn't understand, have a deep understanding of the new ways, the new idea of what, um, of teaching. So they were still thinking very much in the old curriculum, and didn't realise that they weren't thinking in the new way ... mainly they've been teaching the curriculum in terms of, you know, in terms of subjects ... Um, the new curriculum looks much more holistically. Um, but it, you know, because people have worked that way for so long, they didn't realise that that was so sort of embedded in the system that they couldn't get out of that thinking. (Wayne, Case Study E)

These challenges meant that, especially initially, there was resistance from many of the school leaders to engage in moving beyond an instrumental understanding of curriculum (Pinar et al, 1995) to consider the ways in which curriculum leadership can be resignified in schools:

> While distributed leadership could bring about more cohesive and collaborative curriculum development, existing traditional and hierarchical modes of leadership (supported by accountability processes) create a strong constraint. In addition, teachers are often overloaded. Many resisted deeper, philosophical thinking in relation to the meaning of curriculum and its contested nature in schooling contexts (McGee, 1997 (Wayne, Case Study E).

The school leaders found it challenging to resignify curriculum in ways that moved beyond a straightforward technicist orientation of development and implementation (Pinar et al., 2005):

> I was very surprised with the outcomes of this exercise. Most leaders identified 'documentation' as their first priority. They wanted something 'practical' to do on the day that could make easier a task they were required to do. Many expected that I would tell them how to articulate what they were already doing in the school in the 'language' of the new curriculum. I did not feel I was being invited to challenge any thinking or practices. One leader expressed the opinion that they definitely did not want any more 'thinking' on that day as enough of it happened before. For this participant, it was time to 'do' something in relation to the NZC (thinking was not perceived as 'doing'). (Wayne, Case Study E)

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Despite these constraints, over the course of the project some school leaders' understandings of curriculum leadership had begun to be called into question. Wayne describes the ways in which these participants began to appreciate the process of co-constructing a school curriculum as an ongoing and sometimes uncertain school journey involving trial and error, rather than a taken-for-granted template that the school would have to implement (Pinar et al, 1995):

> Leaders were developing their understanding of the various components of the curriculum document but varied in their knowledge and confidence to see it holistically, and see ways of translating it into practice. They used metaphors such as "it's like building a plane as you are flying" and "its like doing a jigsaw puzzle with no idea of what (the picture) is." (Fieldnotes, May 2009). (Wayne, Case Study E)

> It is a bit like scaling a mountain. There is no set way and we head on our way and have to choose a route …. It might not lead to where we want to get and we may need to come back and try another path. (Wayne, Case Study E)

Jae's case study with student teachers also involved shifting conceptualisations of knowledge and learning; in her case, of inquiry based learning. She acknowledges that over the course of the case study both she and the students experienced challenges in shifting understandings of knowledge and learning away from realist towards performative, and more relativist ways of knowing:

> There is recognition here, of the uncertainty of knowledge, the notion of questioning and critique and interpretation that suggests multiple ways of knowing, with no single 'right' answer. And yet, there remained, for most of the students, a sense of tension in this uncertainty; this space between realism and relativism where the notion of 'knowledge as a verb' was interpreted as referring to skills that could be deployed to construct 'knowledge as a noun'. (Jae, Case Study G)

Despite these challenges, several students appeared to value the notion of inquiry as philosophy, and recognised that valuing multiple epistemologies called taken-for-granted knowledges into question in ways that provided a greater range of perspectives. As Peter suggested, "it enabled me to embrace much more about where people are coming from" (Jae, Case Study G).

Along with Jae herself, a number of students also recognised that authentic inquiry challenged traditional notions of the teacher as an authoritative expert knower. As John notes:

> '[In inquiry] … rather than being taught that the capital of Finland is Helsinki, you'd have to find that out yourself, and actually explore it. And that way you're actually questioning the knowledge that you get, as well, how reliable is it? Can I trust it? Whereas in the past, and even with my schooling, you trust everything the teacher tells you.' (Jae, Case Study G)

The students who were most open to reconceptualising inquiry based learning knowledge and learning (as with Helen and Kerri's case study teacher participants), already felt more comfortable with more relativist epistemologies.

Alison's case study focused on exploring what it might mean for student teachers to grapple with the epistemological tensions of working with the relativist 'front' and the realist 'back' knowledges present in the NZC document (Ministry of Education, 2007). Her approach was to enable student teachers to identify and understand their beliefs about knowledge, teaching and learning and to think about how these might influence their practice. Alison notes that a range of epistemological perspectives informed their thinking:

> All the student teachers who participated in the interview process had more of a realist way of thinking about content knowledge. This they saw as quite certain, independent of the knower and relatively unchanging. As they discussed their teaching, an understanding that there is basic or foundational knowledge that students need to have in different subjects emerged; also, that there are situations where teachers need to go to sources to get information. However, the students also describe a process whereby they engaged in designing and blending ideas in the creation of units of work, which is a more generative process. Jenny describes the process she went through when designing her poetry unit, Diane reflects on her painting unit and Megan talks about her speeches unit:

> 'I had sort of designed the unit … not really knowing their ability So, we did a lot of pre- sort of work, before we got into the art, I did a lot of, um, work trying to understand what they knew, their prior learning as far as the animals were concerned.' (Alison, Case Study A)

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Over the course of the case study several student teachers began to grapple with more relativist epistemological knowledge. Megan notes that different disciplines conceptualise what it means to know differently across differing contexts:

'Because sometimes the different, different context call[s] for different types of thinking about knowledge, doesn't it? Because, you know, my son's studying engineering, and, you can't have, there's a lot of right and wrong answers, you know! They're facts, in a way…That have to be adhered to.' (Alison, Case Study A)

' … with analysis of, um, literature, or music, everyone has a valued and shared viewpoint, you know, I'm very familiar with music, and I've found that interpretation is a very big part of, um, yeah, interpretation is important … does it matter if it is interpreted differently, [if] a piece of music, [is] played in a way that the composer didn't intend, does it make it wrong.' (Alison, Case Study A)

Over time Diane began to feel more comfortable with a relativist epistemological position. She explains how her initial realist perspective became more tentative:

'…some of them were really interesting colours, they wanted green horses and things, and I wanted to say "but a horse isn't green!", but they, as long as they could sort of justify it, which a lot of them could, you know. And I was surprised with some of their answers, because I probably had, you know, preconceived ideas about what I would do, and just because they'd done it differently didn't make it wrong, did it?' (Alison, Case Study A)

These shifts affected how Diane operated as a knower. Being able to step back from her authoritative knower role appeared to allow the children, as knowers, to come forward and demonstrate their considerable imaginative and technical skills:

'…they had a really good grasp of mixing colours, so that was, I didn't have to go over a lot of that, which I thought I may have to. And a lot of them were quite imaginative as far as the tools that they could use to get some, you know, that graffiti effect of splattering things.' (Alison, Case Study A)

A similar process, which disrupted traditional teacher and student knower hierarchies, was experienced by Megan:

'… the assessment I did with the children, using the video and the fact that they could immediately reflect on what they'd just done, and self-assess, with my assistance … And, I found that really gave them, um, a boost, and they could move on from that point. And, they were really good at being reflective.' (Alison, Case Study A)

Another student teacher, Jenny, disrupted traditional realist knowledge epistemologies by noting the recognised intersubjective nature of knowledge construction, and also the intertwined nature of epistemic and ontic knowing (Alsup, 2006; Millar, 2005; Skattebol, 2010):

'I've learnt to understand from being a student, and being in the classroom, and I guess as a Mum, is that, … your knowledge is richer from what other people… put into it. So, you're not gonna go just down one road and find knowledge, um, there will be rich other aspects that add to it.' (Alison, Case Study A)

Next I want to build on the insights of Alison's participants and move on to explore more fully the destabilising effects of calling into question realist epistemologies of knowing as rational, fixed, static and contained for many of the teacher participants, as they worked together in the case studies.

Resignifying shifts: The destabilising effects of engaging with complexity, uncertainty and 'becoming' as a teacher knower

'… that's the way I've been taught all my life, in many ways, through the schooling system. It's a matter of passive receiving … I can also see the value, very much now, in the process of, um, sharing the doings, to create the knowledge … It's quite hard to get my head around now, actually, because it's a whole new concept change, and we still cling on very much to what we've always been taught, and how we've been taught it.' (Megan, in Alison, Case Study A).

The connection between conceptualisations of knowledge and learning, and teacher identities and related values emerging from the data, suggests that reframing shifts in understanding is not an instrumental or linear process when interpreting official curriculum into practice. It may involve the discomfort of challenge to previously accepted or assumed practices, including those within one's professional community; living with ambiguity and uncertainty;

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the need for flexibility and for seeing differently. Making changes may result in a crisis when closely held values are challenged externally (Helen, Case Study H).

As Megan and Helen suggest, moving towards resignification can be an unsettling process, as it calls into question taken-for-granted assumptions of teachers as expert knowers, speaks to the deeply interwined nature of epistemic and ontic knowing, and can bring you into conflict with the professional communities that you operate within. As I will argue in the next section, moving towards shifting identities as a knower involves destabilising both one's professional and personal subjectivities (Britzman, 1991; Ellsworth, 2005), and this process can often characterised by high levels of embodied affect (Boler, 1999; Skattjebol, 2010).

Destabilising professional and personal subjectivities

Destabilising traditional conceptualisations of the teacher as an expert knower is challenging work, because it involves letting go of notions of authority that characterise the teacher knower. As Jae suggests, the student teachers she worked with (and she herself as a practitioner researcher) found it challenging to devolve power to students as knowers, as it upsets the traditional epistemological roles that characterise teacher and student knower roles:

> Moving towards a less teacher-directed pedagogy also meant that they, as teachers, would have to be prepared to share responsibility and 'let go'. This led to a sense of tension for some around the balance between teaching the skills necessary for successful inquiry, and the notion of learner choice" … There is a challenge here in moving from a teacher identity grounded in being a source of knowledge and the decision maker in the learning environment, towards an identity as co-constructor of knowledge and meaning, with some implied loss of authority. (Jae, Case Study G)

Jac, a teacher participant in the case study to explore the visual arts as embodied knowing, recognises the risky affective shift in teacher student power relations that accompanies working with children in ways that recognises their power as knowers, while she also acknowledges the lifelong benefits for learners that could result from more equitable learning partnerships:

> 'Like, sometimes I think we worry that we're not in control, whereas, yeah. We're actually in this together, and the children should have a say, and if we can get them saying "this is the learning path that I want to", at five, imagine what they'll be like at the end of their schooling? They'll have such a great knowledge of where they're going, and what they have to do to get there.' (Helen, Case Study H)

The process of participating in the case study which explored dance as a way of knowing significantly challenged Marcy's expertise because working as a spontaneous and creative dance facilitator destabilises traditional teacher student relationships, challenging her role as a 'controller' and as an expert 'knower'. Kerry explains the significant risks that face learning to know differently, and the courage and support that is required in learning new ways of knowing and being:

> A crisis occurred when Marcy felt confident enough to take the class on her own and requested that I "do an observation". Although the class started well she became uncertain where to take it and the students began to lose focus. I hesitated but then asked if I could: "… have a turn'?" (a kind of agreed code for handing over when either of us had a good lead on where to go next with the students' ideas) and she handed over with some relief. On reflection she was critical of herself and expressed a crisis of confidence. She identified how I could judge students' engagement and focus and could " … jump in incorporating student ideas so easily" (Marcy, 22/10/09). (Kerri, Case Study D)

As Helen points out, working with teachers involves engaging with their multiple subjectivities and not just their 'professional' teacher roles. Epistemological shifts reflect where the educators have come from as well as who they want to become, thus moving beyond instrumental understandings of shifts as cause and effect:

> Inhabiting the position of practitioner researcher, in relation to the teachers' data as well as my own, and being aware that we brought our prior selves to the project, opened up the possibility of acknowledging a process of becoming rather than a simple cause and effect story of shifting practice in the implementation of the NZC. (Helen, Case Study H)

The crises that can characterise the 'morphing' process as Alison describes it in her case study, are understandable when you consider that that teachers' and school leaders' professional and personal identities

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are deeply intertwined (Alsup, 2005; Bendixen, 2010; Britzman, 2009; Miller, 2010). It is not surprising then that destabilising notions of teachers and leaders as knowers and legitimating subjugated knowledges can induce both epistemic and ontic crises.

Participating in Wayne's case study, which explored the potential of distributed curriculum leadership, proved challenging because it called into question traditional hierarchies of curriculum leadership in schools, and raised issues concerning the extent to which curriculum leadership could be taken up and led from within the school as opposed to being imposed by the Ministry of Education:

> There were conflicting ideas and expectations about whose job it was to lead and develop the school curriculum. Some Principals were hoping HODs would lead the way through the professional development they were involved in at subject level, while HODs usually expected principals to do this part. Both groups were also hoping for leadership from outside the school, particularly from the MOE. As one teacher noted, Some were hoping that advisors like myself would show them what to do. Sometimes it felt to me as if, when they were asking for help with documentation, they were really asking me to do it for them, thinking that somehow I had the 'new' knowledge and would be able to 'do it'. (Wayne, Case Study E)

Participation proved challenging because it is in effect asking school leaders to become curriculum leaders, which would involve both changing epistemic and ontic subjectivities. Such shifts can sometimes conflict with expectations about leadership that emerge from Boards of Trustees, communities and government agencies.

Student teachers participating in Amosa and Vanessa's case study illustrate the extent to which engaging with subjugated knowledges called into question deeply held beliefs and shook their epistemic and ontic subjectivities. Students 2 and 5 experienced embodied feelings of confusion and anger at being presented with alternative perspectives which clashed with their own personal beliefs and values. They also felt ashamed at the extent to which they chose not to engage with issues of cultural normalcy and difference in New Zealand:

> 'Shouldn't these "institutional practices" that dominate have already been addressed, and why is it only the whites that have to look deeper into these ideas to eradicate problems? It feels like we are being treated as a collective group when we are all individuals and do not act in the same way and do not have the same views.' (Student 2 – week 3, in Amosa and Vanessa, Case Study E)

> 'I felt very confused after this lecture, I left still trying to process many ideas and realizing how ignorant I have been. I had always seen New Zealand as this perfect place, where we were all accepting, supportive and never judgmental, but during the lecture I began to open my eyes to the parallel side of our society. Perhaps we are just naïve, not willing to expose ourselves to the unknown, instead putting it in the too hard basket and pushing it to the back of our minds.' (Student 5 – week 3, in Amosa and Vanessa, Case Study E)

In a later journal entry Student 5 reflects on her/his earlier feelings identifying the extent to which her/his anger came from feeling overburdened and guilty. In retrospect s/he can see that earlier on s/he had felt a sense of hopelessness about carrying that responsibility as a teacher, and as a result went through a stage where s/he shut down and rejected both the subjugated knowledges they were presented with, and the course itself:

> 'I think that week three was my most distanced week. […] I think I felt like I was being picked on and blamed for all the problem[s] in the world and wondered how we are ever expected to carry that burden without it breaking us down. I remember I went right off the course at this stage because I thought it was just all too hard and didn't want to deal with it.' (Student 5 – week 9, in Amosa and Vanessa, Case Study E)

Experiencing, and acknowledging the affective intertwined epistemic and ontic crisis that the student teachers as knowers had undergone enabled them to understand their reactions as an integral part of an ongoing process. Attending to, and 'holding' the crisis state that was evoked for many of the students emerged as an important factor in understanding what it means for teachers to experience epistemic and ontic shifts.

Along with Amosa, both Jae and Alison, as practitioner researchers, made themselves as vulnerable as their students in being open to the discombobulating process of calling into question themselves as expert knowers. Alison describes the uncomfortable and confusing process of moving towards knowing differently for both her and her students over the duration of the project:

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I found myself personally struggling to negotiate the fog in the spaces between new conceptualisations and I also got a sense of confusion from the student teachers in the study. This confusion seems to be better represented in the idea of a "morph", rather than a "shift", in epistemological understanding. (Alison, Case Study E)

Her notion of conceptualising shifts as more of a 'wobblifying' morph, than a straightforward rational transition from 'a' to 'b' is echoed in the process that Megan, one of her students, describes as an emerging, embodied way of thinking and being that is hard to put into words:

'... it's finding the right words to match your thoughts, I find quite difficult at times; there's a little bubble up there, that's how I see something, and it's verbalising it in a way that others understand the way I'm thinking. And, that's a real challenge.' (Alison, Case Study E)

Over the course of the case study, Diane, another of Alison's student teacher participants, recognises the limitations of traditional conceptualisations of the authoritative teacher knower, but emphasises that it was only by calling the taken-for-granted understandings into question that she considered the possibility of knowing and learning differently:

'And now I know that you've got to make mistakes, you make mistakes as part of the learning, and that's ok ... I expected to be able to do it, straight away. That's part of that fixed mindset, I think, isn't it? Just, expected to know it, or to be told it and then to go off and do it … But it wasn't until I actually put it into practice and made that mistake that I actually go "hm, ok, I know for next time… That has been the essence, to me. The biggest, as I say, light bulb thing [understanding the growth mindset]. Because I think I was limiting, oh, I think before I thought that you either knew, or you didn't. That you were able, or you weren't.' (Diane, in Alison, Case Study E)

Beth, another student teacher participating in the inquiry based learning case study, also attended to the importance of going through the process of learning to conceptualise knowledge and learning beyond traditional conceptualisations of the teacher knower. She emphasises the embodied and affective nature of the process over time:

'The more classes I came to, and the more we did of it … it was actually near the end where I just sort of went "ohhh". You know, you don't suddenly click, you don't suddenly see it, but you almost feel it. The more you do of it, and you're surrounded by it, and learn through it, that's when you get a handle on it.' (Beth, in Jae, Case Study G)

Several of the participants noted that working towards resignifying understandings of knowing and learning is not a straightforward or linear cause and effect process. In some cases different and conflicting conceptualisations of knowing and learning can be held simultaneously. As Principal 3 in Wayne's case study suggests:

'The role of the principal is pivotal. As Viviene Robinson research suggests 'where the Principal takes and leads PD …. there is a big impact [Robinson, 2007]. The principal must be empowering and give opportunities to the middle leaders. Someone with no position of leadership can step up and take a role. The principal does not need to be the font of all knowledge but needs to be familiar enough to direct staff. The principal needs to ensure there is a strong evidence base to teacher's work and decision making. The principal has a role to stand on the balcony and to look further out (not as a superior) … to take time and reflect and look to the horizon while other teachers are busy with business as usual …. and see what is ahead …. what the next move is going to be.' (Principal 3, in Wayne, Case Study E)

For the teachers and students shifting could be better described as a 'morphing' process, as Alison, a practitioner researcher describes it, characterised by frustrating slippage and disjunctures. Student 4 in Amosa and Vanessa's case study notes slippages in relation to conceptualisations of knowledge:

'I am feeling a little muddled again. I am challenging my thought process again. Just when I thought I had understood and got my thoughts into the right space, they are all jumbled again. It amazes me how quickly we as humans can go from a thought provoking session and work through it in our minds, then without warning we can easily slip into old habits again without even noticing. Between the lecture and the reading I am being constantly reminded of this.' (Student 7 – week 4, in Amosa and Vanessa, Case Study C)

Megan, another student teacher participant notes disjunctures in terms of her emerging relativist conceptualisations of knowledge and her realist pedagogical practices:

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'I'm still at the point where I want to have everything set out and planned very much in advance. Rather than I'm going from the feedback of the children immediately. I haven't been able to structure the lessons such a way that the children are able to find their own success criteria.' (Alison, Case Study E)

Megan's slippages alert us to an important challenge facing teachers and school leaders alike when working towards resignifying understandings of knowledge and learning; that shifts towards relativist ways of knowing may sit uncomfortably with accepted and assumed practices in the professional communities that teachers and student teachers operate within. Student teachers are especially vulnerable in training and school contexts as Alison notes:

The student teachers were aspiring to be like, and to learn from, expert teachers, but were also learning that these experts may support views of knowledge and learning contrary to their own developing ideas. The students were going through complex processes of challenging ideas about knowledge, understanding how children learn, fitting into a classroom context and relating to Associate Teachers. At the same time they were negotiating their own identities as teachers and ideas about how they themselves learn to be teachers.

The responses of Megan and Diane in particular seem to show tensions between their developing conceptualisation of knowledge and their attempts to align their practice with this, and between what they were learning and what their associate teachers were espousing and modelling. (Alison, Case Study E)

In the following section I examine in more depth the tensions faced by the participants as they negotiate often-contested constructions of teacher knowing and being that are produced within the institutional and social contexts they are situated within and move between.

Negotiating the conflicting relationships, discourses and constraints of teachers' institutional and social contexts

In this section, I continue to interrogate instrumental and technicist understandings of teachers' shifts in conceptualisations of knowledge and learning. I suggest that the ways in which teachers and school leaders are situated within a range of institutional and social contexts often produce competing conceptualisations of knowledge and learning which clash with teachers' and school leaders' current or emerging epistemic and ontic subjectivities.

Studen teacher Jac noted the disjuncture between discourses of knowing and learning and teaching that dominated in her school, and her own epistemic understandings: "Well my perspective, you know, and [the] actual teaching environment are two completely different things" (Helen, Case Study H).

Findings from Juliet's case study suggest that the ongoing prevalence of traditional school subject hierarchies in secondary schools make it challenging for the more performative epistemologies underpinning parts of the New Zealand Curriculum document to fit with NCEA assessment requirements:

One thing that became evident from working with teachers was the tension between the NZC and NCEA, between the official national curriculum and the de facto curriculum of assessment requirements for qualifications. In theory, NCEA should be able to map with the curriculum. NCEA has the flexibility to do this. However, it appears that school structures and teachers' perspectives and expectations of curriculum are somehow operating together and in ways that mean that more flexible arrangements for teaching and possibilities for teaching (and learning) differently in ESOL are not fully captured, valued and supported. (Juliet, Case Study F)

One of the epistemological tensions affecting the participants was the extent to which the more relativist epistemologies underpinning at least the front of the NZC sat uncomfortably with the technicist and managerial orientations to knowledge as 'measurement' and evaluation (Biesta, 2010) which characterise the implementation of 'back to basics' literacy and numeracy approaches and National Standards. Several of the school leaders expressed political scepticism and confusion concerning mixed educational priorities emerging as a result of educational policy initiatives informed by differing epistemological orientations: "The National Standards seem to stand for different values than NZC …. One can't help feeling a bit schizophrenic" (Principal 3, in Wayne, Case Study E).

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Jac notes that the prevalence of predetermined assessment criteria and set steps for the inquiry learning model adopted by the school limited her ability to experiment with more performative approaches to knowledge and learning that characterise aspects of the NZC:

> Jac had mistakenly assumed that with younger children "you could have time to experiment… but you actually don't… they're [the Junior school] so driven by results… [whereas] I find to follow the curriculum … its all about play and being creative…". (Helen, Case Study H)

Chris suggests that the ongoing emphasis on numeracy and literacy in the school's curriculum, including continuing formal reporting to the community on these aspects, conflicts with the more performative and relativist orientations to knowledge that she sees as informing inquiry based learning:

> We have taught our children to… find their information and find their knowledge – what happens to that? Are we going to pull them [the children] back in to where we want them to be, sit them down and say you only need this information to survive in the world." (Helen, Case Study H)

Within a teacher education context, Jae, and the student teachers she worked with on the case study also found it challenging to reconcile similar tensions working with inquiry based learning approaches. In her case study Jae explains the tension she experienced reconciling her increasingly relativist ontology and the pull of a more realist epistemology (Schraw & Olafson, 2008) which required her to prepare students to teach in schools. She notes that some students felt that an approach to inquiry based learning informed by more relativist orientations would have enabled students to draw on their own knowledges, rather than have these prescribed:

> Several students mentioned that the inquiry provided them with an opportunity to utilise their prior knowledge and experiences as resources within their inquiry. Heather, however, expressed a desire for more explicitly sanctioned opportunities to draw on others' knowledge, rather than just using books and websites. (Jae, Case Study G)

Jae also identifies notes tensions between her desire to explore issues in depth, and students' orientations towards more realist and instrumental epistemologies:

> My journal notes at the time suggest anxiety about the variable depth with which students talked about the concepts they had been reading about and discussing. I felt there was a prevalent discourse that responding to diversity was 'a lot of work for teachers' and this concerned me. I also noted tensions between my desire to build deeper understandings of the issues inherent in culturally responsive teaching, and the students' desire for quick-fix solutions. (Jae, Case Study G)

> Some provided the rhetoric they thought was 'right' without believing it. (Jae, written reflection)

In the final part of the post-structural analysis (Part C) I consider the aspects of case studies that supported the re-signification of conceptualisations of knowledge and learning.

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C. Effective initiatives for shifting participants' conceptualisations of knowledge and learning

The interpretive reading in this section explores factors that are reported by practitioner researchers (teacher educators) to have been effective in shifting student teachers' and teachers' conceptualisations of knowledge, within particular ITE and TPL contexts. It also seeks to understand how teacher educators explain their successes, failures or difficulties in effecting changes or shifts in teachers' thinking and teaching practice. The post-structural reading explores the ways in which both the broader project and the case study operate as sites of validation and re-signification of conceptualisations of knowledge and learning for practitioner researchers, student teachers, teachers and school leaders.

Interpretive reading

A range of factors is reported by teacher educators to have helped them to effect shifts in student teachers' and teachers' conceptualisations of knowledge and learning. These factors are presented here as distinct and separate items in order to make sense of their variety, but they should be viewed as linked and overlapping influences. The contributing factors can be broadly categorised as:

- Pedagogical support
  - Intentional use of epistemological frameworks
  - Modelling new and different teaching and learning approaches
- Observing students' responses

Pedagogical support

Pedagogical support relates to strategies or approaches employed by teacher educators as part of their teaching practice and in their work with student teachers and teachers. These strategies are seen to positively support student teachers and teachers to engage with ideas about knowledge, teaching, learning and curriculum and to effect changes in student teachers' and teachers' practice in schools.

Intentional use of epistemological frameworks

The intentional use of epistemological frameworks is identified by a number of teacher educators as being central to the success of their initiatives to engage teachers and student new ways of thinking about teaching and learning in particular curriculum contexts. Epistemological frameworks comprise conceptual models, tools or maps for thinking about, and examining, beliefs and assumptions about education, knowledge, teaching, learning and curriculum. Although the teacher educators are critical of particular theoretical frameworks as being simplistic and deterministic, they nevertheless value them for providing simple, accessible frameworks for student teachers and teachers to think about complex and challenging ideas about knowledge, student learning and their own teaching practice.

Alison, Amosa and Vanessa attest to the efficacy of epistemological frameworks to support reflection and shifts in epistemological thinking. Amosa and Vanessa, for example, used Baxter Magolda's model of personal epistemological development in the course they co-taught. This model is considered by Vanessa to have been instrumental in supporting students to work through a period of crisis as they were challenged by ideas about whiteness and racism in education and personally confronted by their own potentially racist positions and how these may play out in their daily life and teaching practice.

> For most students, this period of crisis lasted from weeks 3 to 7 of the course. In week 7, they were introduced to Magolda's (1992) model of epistemic development and prompted to examine selected responses from the course, as well as their own responses and knowledge construction using the model. Despite our reservations towards the model itself, this seems to have equipped most students to safely turn the gaze towards themselves and to produce meaning beyond existing frameworks. (Vanessa, Case Study C)

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Alison partially attributes the effectiveness of her pedagogical initiative in a primary ITE Professional Studies course to "a cognitive coaching approach … where practice is directly explored and the interrogation of ideas during class with reference and conscious attention to mental models of knowledge, learning and minds" (Alison, Case Study A). She describes using a wall chart that compared twentieth and twenty-first century thinking, based on Gilbert's (2005) work, as a point of reference throughout the course. This epistemological framework was explicitly referred to in the first residential school and, along with other models, provided background for concept mapping activities through which student teachers explored their epistemological understandings.

It is the conscious and intentional use of epistemological frameworks as tools for learning that appears to have been effective in supporting student teachers and teachers to challenge their ideas about teaching and learning. Implied in teacher educators' reflections is the idea that epistemological frameworks provided a structure for student teachers and teachers to explore new ideas and different ways of teaching. This is not to say that particular models were universally well received or engaged with in the same ways or with the same depth of thinking by the student teachers and teachers with whom the teacher educators worked. The effective use of models appears to have involved intentional engagement with theoretical ideas and purposeful reflection that invited student teachers and teachers to consider the implications of theory for their personal understandings and practice.

Modelling new and different teaching and learning approaches

Another and allied pedagogical support is the process of modelling, in particular the modelling of pedagogical strategies that might be used by teachers in their classrooms. Juliet, Jae and Kerri, for example, employed modelling strategies in their initiatives with student teachers and teachers, Juliet in the form of modelled units of work, Jae through an inquiry process, and Kerri in the form of a particular approach to dance education. The success or positive influence of modelling appears to lie in the way that it helped student teachers and teachers to make sense of theory, by providing visions of how new or different ideas about teaching and learning in specific contexts might be given effect in practical ways.

Juliet describes using examples of specially developed unit plans with a group of ESOL secondary teachers. The unit plans were designed around rich concepts or big ideas and were intended to engage ESOL students with deeper understandings and to draw on their own prior knowledge. The Bananas unit, for example, was intended to encourage students to explore multiple perspectives on issues relating to resources and trade. The purpose in using the models was to support teachers to "see" what was possible. Juliet's judgment is that the use of these unit examples was important in supporting teachers to think about and to change their practice.

> Central to the initiative was the development and modelling of multi-level units of work which, on reflection, was a key driver in encouraging teachers to think about what and how they taught, and to effect change in their teaching …. By modelling the units rather than just talking about how to plan differently, teachers had an opportunity to engage with ideas in ways that were meaningful and connected with their teaching and particular classes and students. (Juliet, Case Study F)

She indicates that it is her impression that the level of uptake of these modelled units was higher than with previous initiatives she had tried.

> The kinds of things that were … most effective were the modelled units of work that I used, and the teachers trying those units out and adapting them to meet their needs of their students … it's the level of uptake and the level of adaptation that they reported that indicates the shifts that they made, because a lot of them hadn't done that kind of teaching before. (Juliet, interview 2)

While Juliet reports varied responses and 'shifts' in understandings and practice, from sensitisation to new ideas to changes in classroom practice, the use of modelled units is seen as important in supporting teachers to make these shifts. Part of the modelling process involved ESOL teachers adapting the units of work for use with classes and trying out the units with students, then reflecting on the success of units when they next met in a TPL workshop. This active engagement contributed to teachers seeing what was possible. Successful modelling to support students to think differently about teaching and learning in ESOL thus involved the integration of experiential and reflective components.

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The experiential and reflective aspects of modelling, where student teachers and teachers tried new ideas in practice and reflected on the efficacy of particular approaches, is also identified by other teacher educators as effective in helping to shift student teachers' and teachers' epistemological understandings. Kerri, for example, concludes that: "If teachers have a strong, lived experience of DiNE [dance education approach], they are more likely to shift their ideas about what dance actually is" (Kerri, Case Study D). The teachers with whom she worked learnt of, and embraced, new possibilities through the experience of 'doing' dance education in a different way, which involved being emerged in a creative process, co-teaching and reflecting on personal experience of teaching with the model. Kerri was working closely with two beginning primary teachers who were receptive to working in different ways, and in this context the modelling process appears to have been effective in shifting teachers' ideas about dance education.

In another example of modelling a particular approach to teaching and learning, Jae enacted an inquiry learning strategy with a large group of student teachers – with the intention of opening student teachers' horizons to inquiry approaches by having them experience an inquiry approach themselves, which they might then be able to adapt to use in classroom settings. The strategy included opportunities for student teachers to learn about particular issues relating to teaching culturally and linguistically diverse students and to discuss and reflect on the efficacy of an inquiry approach to support these students in schools. Although the responses of student teachers to their inquiry learning experiences varied, Jae reports that particular students felt that they had a better understanding of inquiry learning by engaging with the process themselves. She writes that, in general, "the freedom to choose the focus of their inquiry (within set options) and how to manage the process were viewed as beneficial, and the process itself helped affirm some students' commitment to constructivist approaches to teaching and learning" (Jae, Case Study G). She also acknowledges that adjustments to the inquiry learning framework that she adopted would be desirable to address the concerns of some students, such as of a student who sought deeper, challenging and robust discussion about issues. Implied herein is the idea that effective modelling involves opportunities for reflection and professional discussion and debate, that it is more than just the 'doing'.

Observing students' responses

Another factor that reportedly helped to shift student teachers' and teachers' ideas about knowledge, teaching and learning has been labelled here as observing. This factor relates to seeing or noticing the responses of school students to different ways of teaching, particularly the noticing of positive and unexpected results or responses. Teacher educators discern that school students' responses acted to validate and prove the worth for student teachers and teachers of engaging differently with the curriculum and employing different teaching approaches.

All of the teacher educators involved in TPL voluntarily noted the power of observing for student teachers and teachers. Helen, for example, remarked that:

> One of the teachers in the project … [there was] something quite transformative and really energetic happening with her kids, in a quite full-on class. So she was pretty amazed to see what they did with that [sustainability programme using the lens of the arts in a previous year]. (Helen, interview 2)

Kerri witnessed that:

> [the other teacher] could see their [the children's] creativity manifested through their bodies, and they had lots of difficulty with writing because they were little and some of them were [English as a second language] … Pasifika kids, they were just fantastic in their movement, just fantastic … so she expanded her idea about what learning and knowledge can be. (Kerri, interview 2)

Kerri concludes (in Case Study D) that when teachers can see positive effects of embodied teaching and learning they are most likely to shift or expand their ideas about knowledge and learning, and that this observation leads them in turn to view aspects of NZC differently and to a different and expanded consciousness about the purpose of education. Juliet likewise attests to the power of observation in validating new or different teaching and learning approaches. She uses the example of Jill, a teacher, to show how observations of changes in students' engagement can confirm for teachers the worth of adopting a new and different approach to ESOL teaching. Quoting Jill:

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I [Jill] walked past [other teacher's] room one day and you had all the students arguing over how much money each worker should get and that's quite extraordinary 'cause those students don't usually have opinions and the knowledge to argue over things that don't involve their own lives. (Juliet, Case Study F)

The observation of the positive responses of students to having opportunities to debate issues in ESOL appeared to confirm for Jill that there was value in understanding and 'doing' ESOL teaching differently. In another context, Wayne talks of his prior experience in working with teachers and school leaders and of his observations of the power for teachers of witnessing and learning something new about students. He describes a situation where he and a Deputy Principal were involved in interviews with students as a way of finding out what engaged students in learning. There was a student who was not really participating in the interview and who was seen by teachers to be unengaged in learning and school, but then the interview uncovered unexpected information from peers about the students' positive performance in a Biology test and voluntary pursuit of information about forensic science.

… this DP [Deputy Principal] just sort of bolts back in his seat … because we've got nothing from this kid, and then we said "well tell us about forensics" and this kid, the whole body started to change … within 10 minutes we were connecting with this kid. And this guy's saying 'I'm really sorry, we had no idea" (Wayne, interview 1)

For Wayne, this example illustrates the importance of teachers knowing their students and the power of opportunities provided for teachers to observe something unexpected and positive about students.

Witnesses to the power of observing were not confined to TPL contexts. In an ITE context, Alison tells how student teachers recalled the actions and responses of children who were in classes they worked with on teaching practice placements and what they thought about these actions. For example, she describes the observations of a student teacher, Jenny, about a boy who adapted and invented games and how Jenny developed a greater appreciation of student-centred and creative learning approaches as a result of these observations. In another instance, Alison describes how another student teacher, Diane, had her ideas about what children should do and be able to achieve in visual art challenged by observing the children. Diane came to a greater appreciation of the imaginative use of materials and creative representations that are made by children. She also became aware of her own assumptions; for example, her certain, unquestioned assumption that horses need to be realistically represented, rather than painted green. In Diane's words, "I probably had, you know, preconceived ideas about what I would do, and just because they'd done it differently didn't make it wrong, did it?" (Alison, Case Study A). Jae also perceives a desire by student teachers to connect with real situations, indicated by the observed positive responses of student teachers to the use in their ITE class of imagined, real-life scenarios that posed problems in school contexts, and of reservations held by some student teachers that these were not real enough.

[using scenarios] worked really well, but it wasn't necessarily real for them, it wasn't necessarily their issue … [or] a problem that they were inherently engaged with … [so this year I've asked them] when out on teaching practice to pay particular attention to things to do with cultural and linguistic diversity in their school … (Jae, interview 2)

The implication is that being able to observe what happens for school students in authentic situations is a powerful motivator for the student teachers, as it is for teachers in schools. Observing children's and young people's responses helps to confirm the worth of 'new' approaches to teaching and learning, supporting student teachers to act on their developing and changing understandings.

Within particular teacher education initiatives, particular approaches or activities are reported by teacher educators as being instrumental in supporting student teachers and teachers to develop and shift their conceptualisations of knowledge, teaching, learning and curriculum. For example, Amosa attests to the power of personal stories and reflection on personal life experiences to explorations of ideas about racism and hegemonic "whiteness" in education.

I think … one of the things that really helped during the course … to get this shift [in thinking about whiteness] was the way Vanessa and the rest of us used personal stories … Our own stories and our own families' stories. And how we personally felt about [our educational experiences]

….

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And then you see some of the students in their journals starting to reflect on grandmothers … this white supremacist guy… he owed up to the fact that he had a cousin who has been living in Japan and married to a Japanese woman. And he said, 'for the first time ever, I can talk about my half-kiwi, half-Japanese relations over there'. (Amosa, interview 2)

Particular factors and different combinations of factors were considered by teacher educators to be effective in effecting epistemological shifts for student teachers and teachers, within particular pedagogical initiatives and specific teacher education contexts. However, the intentional use of epistemological frameworks, modelling of new or different teaching strategies and approaches, and opportunities for student teachers and teachers to observe positive changes in the learning experiences of children and young people in classrooms are factors that are discernable across a range of the case studies as having had a positive influence on shifting student teachers' and teachers' ideas about teaching and learning and to support changes in their classroom practice.

Explaining successes, failures and difficulties

Having focused on factors that support shifts in epistemological understandings for student teachers and teachers, it is important to note that the teacher educators observed variation in the level and nature of shifts displayed by student teachers and teachers. These variations are explained by teacher educators in relation to factors specific to their pedagogical initiatives and also more broadly in relation to institutional influences and personal aspects. It is these broader narratives that are the focus of the following discussion. Successes, failures and difficulties are explained and narrated in relation to:

• Institutional constraints
  – Time
  – Institutional, curriculum and assessment pressures

• Personal aspects
  – Teacher identity negotiations
  – Personal crisis

Time constraints

The pedagogical initiatives and research undertaken by teacher educators into shifting conceptualisations of knowledge and learning in their curriculum domains, and in the context of their work in ITE and TPL was undertaken within a limited timeframe (one year for most research inquiries). Several teacher educators' engagements with particular groups of student teachers and teachers took place over shorter timeframes of a semester or several months. The limited timeframe of the engagements with student teachers and teachers is seen as a limitation in effecting significant or lasting change in the epistemological understandings and practice of student teachers and teachers – or in the ability of practitioner researchers to ascertain how significant or lasting the changes are for participating student teachers and teachers.

In response to a question about whether she observed any shifts in understandings of knowledge and learning for student teachers, Jae indicates that she observed "some, but only small – fairly insignificant really – not enough time; participants tended to align in thinking towards my ideas" (Jae, written reflection). In evaluating the effectiveness of her pedagogical initiative, Jae indicates that there was not as much time as she would have liked to engage students in debate and discussion after they had presented their inquiry findings, and that in future she would like to build in more time for debate and to frame this in a way that encourages students to lead the discussion, rather than have the teacher lead by providing comments on the presentations. She feels that engaging student teachers with the NZC and having conversations that explore and encourage deeper understanding of a range of perspectives on curriculum, teaching and learning take time.

Wayne, Juliet and Alison similarly and voluntarily attested that the limited time available to work with student teachers and teachers potentially limited the effectiveness of their pedagogical initiatives. This is explained not just in relation to time available to work with student teachers and teachers, but also in relation to conflicting demands on the student teachers' and teachers' time. Alison explains: "[Student teachers] have to do certain

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things on practice [teaching placement], you know, there are requirements for them … layering a new way of thinking about [what they are doing], it's sometimes too hard" (Alison, interview 2).

Wayne attested that time was an issue for school leaders and teachers and quoted a participant in his research as saying, "a major restraint is that we don't have time to sit and think without interruption to time constraints and competing priorities for the time" (Wayne, Case Study E). These competing demands on school leaders' and teachers' time are explained as the "tyranny of the urgent" (Wayne, Case Study E) and are seen to negatively impact on their engagement in TPL, especially TPL that involves time in discussion, reflection and exploration of ideas.

In relation to the timeframe of the research project, Alison explains that this limits her ability to draw conclusions about the longer-term effects of her pedagogical initiative.

> The timeframe of the study provided the opportunity to work with these student teachers over just eighteen months and the extent to which these changes [in epistemological thinking] are being implemented in their on-going practice is unknown. (Alison, Case Study A)

It is implied by Alison and other practitioner researchers that having more time and an extended (longitudinal) timeframe for working with, and researching alongside, student teachers and teachers would potentially achieve greater success in shifting student teachers' and teachers' epistemological understandings. If nothing else, it would enable the practitioner researchers to draw stronger conclusions about the nature of student teachers' and teachers' shifting epistemological understandings and the efficacy of particular initiatives in supporting these shifts.

Institutional, curriculum and assessment pressures

Institutional pressures in the form of Ministry of Education contractual arrangements for TPL, and pressures on teacher educators and teachers to comply with curriculum and assessment policies, were also identified as limiting factors in the research projects. These pressures appear to have been particularly potent for the teacher educators in the TLRI project who lead TPL for teachers in schools.

By way of illustration, Wayne describes pressures to comply with contractual obligations to deliver TPL outcomes to the ministry of Education as a constraint on TPL activities.

> [People in the Ministry [of Education], they've got a job to do. They give me this money and they try their best [in their roles] … and we do our best [to deliver on contract outcomes], and we write these milestones as a way of communication how we're getting on. So my thinking is, give them the truth, and then you can have a real conversation. And they can make some real decisions. [But] the guys in our institution, they will limit you … 'Oh no, no, no, you can't say that.' (Wayne, interview 2)

He expresses frustration with "distractions" that take away from what he believes is more constructive and ethically sound work in TPL relating to school leadership. He also talks about accountability pressures (or perceived pressures) on teachers in schools as negative influences that discourage teachers from engaging critically with curriculum and countenancing different ways of thinking about curriculum. Wayne observes that school leaders (Heads of Departments, Deputy Principals and Principals) see much of their role in compliance and administrative terms. He quotes a Deputy Principal who explained that a key part of a Head of Department's job is to make sure that the documentation is done, to ensure that the front sections of NZC are taken into account, and that the ultimate responsibility lies with the Principal to ensure that appropriate documentation is prepared. Wayne also perceives that there are strong pressures on schools and teachers to comply with assessment systems and structures, which is detrimental to attempts to conduct TPL that is not related to these immediate pressures.

> … like national standards now … [primary] Principals are dealing with that, [and] there's only so much energy you have to be thinking about new things, and so I doubt whether they've got as much time to be reading … or looking at thinking skills. (Wayne, interview 2)

The dominance of factors such as the recently introduced National Standards for achievement in literacy and numeracy in primary schools are seen to take away from other legitimate curriculum, teaching and learning,

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and leadership matters. Wayne feels that there is a general reluctance for principals to take risks. The result is that his efforts to address what he considered to be important leadership matters were in conflict with principals' expectations. He has learnt that "the reality of bringing those changes is very challenging" (Wayne, interview 2).

Wayne is not alone in his views. Based on their experience, other teacher educators also feel that curriculum and assessment compliance matters impact negatively on their capacity to effect shifts in teachers' ideas about knowledge, teaching and learning in specific curriculum contexts. Juliet, for instance, feels that curriculum and assessment compliance drives school-based approaches to curriculum and curriculum implementation in secondary schools, with the result that school-based approaches tend not to capture or create possibilities for doing things differently in relation to curriculum organisation and to teaching and learning approaches in ESOL classrooms.

Compliance pressures on schools are seen by some teacher educators to derive not just from the Ministry of Education, but also from school communities. Wayne, for example, attributes reluctance by teachers to engage with new ideas and approaches to curriculum leadership to the conservatism of teachers and parents. He argues that a perceived need for schools and their leaders to meet the expectations of communities for outputs creates reluctance on the part of school leaders to take risks.

For teacher educators in the project, the reality of effecting shifts in student teachers' and teachers' understandings of knowledge and teaching and learning is seen as very challenging, in part due to institutional pressures and constraints on teachers in schools and the inertia of schools, and also due to pressures on teacher education institutions to deliver on Ministry contracts. As an illustration of how teachers might feel that they were unable to change their practice, Helen recounts a response by a teacher she worked with that indicates that this teacher did not feel her school would necessarily condone her teaching differently:

> … and she was like 'I want to do all of these things, but I don't know if I can do them where I work' … And she had resolved it, not by resolving what was going on where she worked, but by deciding within herself 'I'm going to do what I want to do.' (Helen, interview 2)

The support and commitment of school leaders and teachers were considered by the teacher educators to be critical to the process of change, as articulated by Alison:

> I think it [implementation of the curriculum] is very much going to depend on individual teachers for a start, and what Principals understand about the front end of the curriculum, and how they then provide opportunity for their staff to have staff development. (Alison, interview 2)

The participation and engagement of school leaders and teachers with epistemological explorations is seen by teacher educators to be contingent on factors internal and external to schools, related to internal school politics and to external curriculum and assessment systems and the expectations of school communities. The capacity of teacher educators to work in new or different ways and to engage teachers and school leaders in an intentional manner with theory and ideas about epistemological understandings is also seen by some teacher educators to be contingent on the priorities adopted by teacher education organisations and institutionalised notions of how TPL should be conducted. By implication, success in effecting epistemological shifts is understood to depend on the nature and level of support given to both teachers and teacher educators to do things differently, and on the ability of teachers in schools and teacher educators in tertiary institutions to negotiate the barriers that they experience.

Teacher identity negotiations

Teacher educators also explain or narrate the successes and failures to effect shifts in student teachers' and teachers' epistemological understandings in terms of teacher identity negotiations. They relate it to student teachers' and teachers' beliefs about who they are and what they do. For example, Juliet recalls a situation where a secondary ESOL teacher resisted attempts to shift his understanding of what ESOL teaching is about, in the context of a pedagogical initiative that focused on supporting ESOL students to engage with science concepts and ideas, where he declared "I am not a science teacher" (Juliet, Case Study F). Her conclusion was

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that it takes time to shift deeply held beliefs about what ESOL teaching and learning entails and what ESOL teachers do.

In an ITE context, Alison describes a tension that was experienced by primary student teachers and which is related to their teacher identity negotiations:

> The student teachers were aspiring to be like, and to learn from, expert teachers, but were also learning that these experts may support views of knowledge and learning contrary to their own developing ideas. The students were going through complex processes of challenging ideas about knowledge, understanding how children learn, fitting into a classroom context and relating to associate teachers. At the same time they were negotiating their own identities as teachers and ideas about how they themselves learn to be teachers. (Alison, Case Study A)

The student teachers were negotiating their roles as students, which involved learning from experienced teachers, and their emerging sense of their autonomous teacher selves, who may not have thought the same way as their 'superiors'. These beginning or novice teachers were negotiating what it means to be a teacher. Jae similarly notes identity tensions experienced by student teachers:

> There was also strong engagement with the idea that inquiry was driven by learners' interests and needs. The student teachers were enthusiastic about the motivational power of giving learners choices, and they talked about the importance of 'buy-in' and student ownership …. However, it was acknowledged that moving towards a less teacher-directed pedagogy also meant that they, as teachers, would have to be prepared to share responsibility and 'let go'. This led to a sense of tension for some around the balance between teaching the skills necessary for successful inquiry and the notion of learner choice. (Jae, Case Study G)

and

> They [some student teachers] don't necessarily want to have to engage with the issues and think deeply about what that might mean, because it is challenging, and it can challenge your own sense of who you are, and what sort of a teacher you want to be, and what you thought teaching was about, even. (Jae, interview 2)

In these two excerpts, Jae recognises tensions for student teachers in their ideas about what teachers do and about how teachers exercise power and control in classrooms. This manifests in resistance by student teachers to engaging with ideas that challenge their assumptions about what teaching is about and what teachers do.

Personal crisis

Linked to the notion that personal identity negotiations influence student teachers' and teachers' receptiveness to ideas and their willingness to address their own assumptions about knowledge and learning, is the notion that shifts in conceptualisations of knowledge and learning involve some sort of personal crisis. The idea of crisis was a strong theme in Amosa's and Vanessa's case study analysis. They describe a situation of crisis for student teachers participating in a multicultural studies course, which they explain as being precipitated by student teachers being forced to engage with "information and strategies that were not congruent with their perceptions of themselves, of others and with their own experiences in the educational system" (Case Study C) and which manifested in student resistance and rebellion to the course in the first few weeks. However, personal crisis is construed by Amosa and Vanessa to be a positive and necessary condition of shifting epistemological understandings. In their words:

> In terms of pedagogy, one of the most important insights we draw from this case study is the acknowledgement that shifts in conceptualisations of knowledge, learning and identities involve crisis and costs …. We acknowledge that this movement was not an individual process, as the presentation of the data might suggest, but one that was conditioned by the relationships, discourses and constraints of the institutional and social contexts inhabited by the students. (Amosa and Vanessa, Case Study C)

Shifts in student teachers' epistemological understandings are conceptualised as taking place where and when the benefits of shifting outweigh the costs of not shifting, and the catalyst for shifts to be some sort of crisis.

Juliet similarly argues that to effect shifts in teachers' epistemological understandings and teaching practice, some sort of disharmony or dissatisfaction with the current state of teaching needs to be created.

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I suppose that I've [been] thinking about what makes for effective professional development, and doing reading around that, and trying to then use notions of that in my work, and so … [one idea is] about about creating some kind of dissonance, that until you get some kind of dissonance, is there actually any motivation to change? If you make it too, um, acceptable, if you make your professional development too unchallenging, then will it cause any change at all? Probably not. (Juliet, interview 2)

Juliet's experience in the project and more widely in her work has led her to the view that facilitating crisis, in the form of dissonance between what teachers already know and understand and other possibilities for understanding teaching and learning in ESOL, is important in effecting shifts in their epistemological understandings and teaching practice.

It is the experience of teacher educators that achieving shifts in student teachers' and teachers' epistemological understandings and classroom practice is difficult and challenging. It presents challenges for student teachers and teachers, but also for teacher educators who are likely to be confronted by teacher resistance. However, for teacher educators in the TLRI project, resistance to new ideas and ways of working is seen not so much as a mark of failure as an accepted part of the process of shifting epistemological understandings, which can be a painful thing for student teachers and teachers to do – notwithstanding the professional tensions that the teacher educators may experience between themselves and the student teachers', teachers' and school leaders with whom they work. Crisis is construed as having a positive role in the personal learning and development processes. Success in shifting student teachers' and teachers' ideas about teaching and learning thus comes to relate to success in creating some sort of dissonance for students teachers and teachers and in providing a supportive environment that helps student teachers and teachers to understand the source of dissonance and to recognise its value.

Post-structural reading

Features that characterise the broader project and the case studies as sites of re-signification of knowledge and learning

This post-structural reading maps features that characterise both the broader project and the specific case studies as sites of re-signification, and explores how they enabled the practitioner researchers, student teachers, teachers and school leaders to work towards resignifying their conceptualisations of knowledge and learning. While the teacher education and schooling contexts are characterised by both differing and similar epistemological and ontological demands as knowledge domains, I suggest that the broader project supported the case study participants to engage in re-signification within their case study contexts and negotiate contested institutional and national curriculum constraints. First I explore the ways in which the broader project operated as an educational site to re-signify shifts in understandings of knowledge and learning for the practitioner researchers. Secondly I map the features of the case studies that supported re-signification for the student teachers, teachers and school leaders.

The broader project as a site of re-signification

In this section I discuss features of the project which contributed to the practitioner researchers feeling able to validate and re-signify shifts in understandings of knowledge and learning. These include: building a partnership that disrupts the traditional theory/ practice dualism, mentoring partnerships that support re-signification, and building partnership processes that support re-signification.

Building a partnership that disrupts the traditional theory/ practice dualism

Any research partnership that brings together ITE and TPL teacher educators and academic researchers, engages with the differing exchange value of theory and practice knowledges and the epistemic and ontic implications for the research participants (Quinlivan, Boyask & Carswell, 2008). This was especially the case for the in-service teacher educators, some of whom felt undervalued and used by academic researchers in previous research projects. As Juliet notes:

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I was pretty wary, at the beginning …that we might be kind of used slightly, you know? Um, we were the, um, the actors, and they were the directors, and they … would be able to, and they still can, sort of pick up what we're doing and get PBRFs and, you know, kudos and all sorts of other things out of this project, while we're just the minions and doing [the work]. (Juliet, interview 2)

The low status that practice as opposed to research knowledges have in a university context was also painful for several of the in-service teacher educators to acknowledge because, in addition to their deep investment in their practitioner identities, the practitioner role forms an integral part of their professional work, and they receive no official credit or recognition for undertaking practitioner research. As Helen asserts:

I just find it quite frustrating to think about, the way the university will not acknowledge the way that we are practitioners in our work. … It's kind of demeaning. And it, I suppose it does hit a bit of a raw nerve with me, really. (Helen, interview 2)

Despite the initial qualms of some of the in-service teacher educators, they acknowledge that the differing exchange values of researcher and practitioner knowledges were to a great degree mitigated. The relationships that were built over the course of the project worked towards acknowledging the differing status of the knowledge domains while simultaneously valuing the strengths of bringing together researcher and practitioner knowledges: As both Wayne and Amosa suggest:

…it's been a really good cooperation of the … university professors and the teacher –educators … both groups have really enjoyed interacting and mutual respect, but I do remember the nervousness of some of my colleagues, you know, about feeling a bit inferior, about, you know, them being, you know, tolerant and out of touch, but I think it's been a good project, just bringing the skills from both groups together. (Wayne, interview 2)

I think you can get a lot more imaginative solutions if you have different people with different perspectives at the table. … . So, I don't normally talk about this, but, um, being told by different means, different ways, by your colleagues that you are a worthwhile person to have a chat with is quite rewarding, because it's confirmation that I am going down the right track, and that whatever I am thinking about seems to make sense to others. So, its confirmation that, "yes, we can see where you're going". Sometimes they disagree, but they still think it's a worthwhile path to take, so I've enjoyed that part from being with the group. (Amosa, interview 2)

In this way the project operated as a site which re-signified traditional theory practice knowledge binaries and explored the possibilities and complexities involved in blurring academic and researcher knowledges. Juliet acknowledged that her participation in the project allowed her to see the potential of academic and researcher partnerships for her own developing work as a researcher:

… actually I've enjoyed the relationships, and so I don't feel that way now, and it's quite an interesting think in terms of my, um, my Masters, there's kind of that, the, um, the relationship in an action-research kind of model that, um, that could go wrong, but it can also be really good (Juliet, interview 2)

Mentoring partnerships that support resignification

The forms of mentoring undertaken between the researchers and the practitioner researchers, and also amongst the practitioner researchers themselves, worked in ways that enabled a validation and resignification of epistemic and ontic shifts for the teacher educators.

For some practitioner researchers the project provided a site of validation within which they could legitimate subjugated knowledges, such as the arts, as ways of knowing and challenge traditional forms of leadership. As both Kerri and Wayne explain:

… because I found a group of like-minded people, especially in Kathleen and Vanessa. I was working in-depth with Helen, and she was also, because we worked closely together, the way we worked, um, you know you could feel like you're a bit of an island, unless you worked with other like-minded people. So, um, the conversations, and the challenging reading, especially from Vanessa and Kathleen has definitely confirmed, and made me feel like I'm not alone, and made me feel I'm not nuts with this sort of approach. (Kerri interview 2)

I was really struggling at the same time with my colleagues and the main thrust of what we were doing in leadership, I philosophically struggled with it. So, this was the sort of, this was a place where I could feel intellectually nurtured, and not quite so alone, yeah. (Wayne, interview 2)

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Working with academic mentors exposed several of the practitioner researchers to theoretical paradigms that they had not encountered before, and they were able to put the theories to work to explore the implications for their practices. As Alison suggests:

> … lots of the big ideas that Vanessa talked about like, um, North and South ideologies, colonisation, all of that stuff was things that I hadn't really encountered before. And, I don't know whether its because it's not my field, that I haven't really looked at cultural aspects, or sociological perspectives, I've been mostly in a psychological cognitive field. So, um, yeah, it really made me think quite different about, yeah. (Alison, interview 2)

The practitioner researchers valued professional conversations with the researchers in the project, and those who were brought in as speakers who were exploring differing models for understanding shifts, and having the opportunity to read, work with and alter these models as the project progressed. Discussions, and engaging with scenarios that prompted consideration of other theoretical perspectives that could inform their own thinking and their case studies were also helpful, as were hearing about the ways in which other practitioner researchers were interpreting and understanding their own case studies. As Judy suggests:

> We had workshops where we would, people would, yeah, share their own stories and journeys. The shifting ideas in the literature, and the concepts, and the tools, and things, were pretty generic, and so the usefulness was just in listening to others, and like you said earlier, in sharing ideas and hearing their ideas, and, it affirmed, perhaps, where I was at. Or, it would challenge me to consider, and, you know, differently it would challenge me to consider ways of thinking or perceiving that I hadn't actually thought about before. (Judy interview 2)

Individual relationships with mentors proved important to the practitioner researchers in supporting and also modelling ways of knowing that could support the epistemic and ontic shifting process. Judy and Wayne explain the role that Vanessa played for them was more akin that that of a provocative and encouraging fellow traveller, who could sit with their uncertainty at times, rather than take the role of the expert knower:

> The most significant enabler of change for me was the journey with my mentor, which was Vanessa. And, primarily because of the way that she journeyed with me. It was challenging, but not threatening…and that was really important in terms of, she could help me to consider other possibilities, but wasn't pushing, you know? I just felt, kind of encouraged, and also she was just completely understanding. (Judy, interview 2)

> And she, you know, took all the things away and reached across and touched my arm and said "that's good, Wayne", I said, "I don't get this stuff", and she said "that's good"! You know, and I haven't had many people, you know, like that, you know? I was telling her I wasn't getting it, I was confused, and she was telling me that's a good sign. (Wayne, interview 1)

Building partnership processes that support resignification

Partnership processes also formed an important role in enabling the practitioner researchers to validate and re-signify their understandings of knowledge and learning. Alison, Juliet and Judy valued the way in which both the academic researchers and the teacher educators were open and willing to make themselves vulnerable as they wrestled with thinking and feeling through the implications of the project, because it provided a supportive context for experiencing and making sense of their own epistemic and ontic shifts and those of the teachers and students they were working with in their case studies. "We kind of got the, um, the thing that we were all learning and challenging ourselves together, and, so we were all in it together, in a sense. Yeah, there was that quite good sense of it" (Juliet, interview 2).

> Yes, yeah it was. It was the, um, the days were good, you know, the days when we would come together and talk through ideas and write. And I, um, I think the talking through the ideas, and what people were working through, was helpful, because you could relate to that, and each time we went, I went to any of the sessions, I always came away with new ideas, not, different things to think about. Not new ideas, as such, but different things to think about. (Alison, interview 2)

> … myself situated within a team who were also experiencing some shifts, that helped because it was a collective journey … that people were vulnerable, and we knew we were all vulnerable, and so you were happy to, and felt comfortable to do that. (Judy, interview 2)

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The small cluster groups of practitioner researchers working separately with each mentor, often in informal ways, also provided an opportunity to talk over where their thinking was currently at and models and ways of working that would be helpful in understanding and interpreting the case studies that they were working on, and then later writing:

> … my conversations with my fellow advisors were really important as well. Because, so, there was a little group that I was working with with Jae and Jane and Alison, that was quite, um, quite good in terms of the writing, in particular. But, actually the conversations that I had with other advisors over a cup of coffee, and, you know, um, were really important as well. (Juliet, interview 2)

In closing, perhaps most significantly of all, the project spoke to issues that were important and meaningful to both the practitioner researchers' and the researchers' academic, personal and professional identities and values and beliefs (Alsup, 2004; Connelly et al., 1997). Alison sums that up well when she notes:

> It was the support from the group, really. They, um, the project, being part of a bigger project, and knowing that this is important work. I think I always knew that, that this was really important work to do, and it's, um, it was just all so new, you know, I thought "how did I get this far in my life and not been thinking about this before?" you know? (Alison, interview 2)

Features that characterised the case studies as spaces of re-signification

In this section I discuss features that characterised the case studies as sites of space of re-signification and their effects. Despite the relatively short duration of the case studies, the differing epistemological and ontological demands of the knowledge domains that they were situated within, and the institutional constraints that needed to be negotiated by the participants, there were a numbers of features of the case studies that supported the teachers and school leaders in moving towards re-signification. These features include: building mentoring partnerships that disrupt the traditional teacher/learner dualism, attending to crisis discomfort and uncertainty, exploring new conceptual tools and models, and modelling, developing and trialling new practices.

Building mentoring partnerships that disrupt the traditional teacher/ learner dualism

An important feature of almost all of the case studies centered around notions of partnership which worked towards disrupting traditional teacher and student knower relationships. The intentions of the wider project and the ways in which the practitioner researchers developed case studies in line with their own interests and intentions, meant that as mentors they were calling into question their own epistemic and ontic subjectivities along with the teacher participants. Over the course of the case studies, they made themselves as vulnerable as the teacher participants in many cases, and modelled their vulnerabilities and anxieties as emergent knowers to students over the course of the case studies. As Jae suggests:

> The reflexive work of inquiring into my own teaching and encouraging students to inquire into theirs has potential benefits in terms of shifts towards epistemological pluralism that I believe is necessary for teaching in the 21st century. Treating this process (and the accompanying uncertainty and complexity) as part of the work of a teacher and teacher educator is perhaps one of the more important shifts in understanding that I have experienced in this project: from a state of stable 'being' to a state of constant 'becoming'. (Jae, Case Study G)

Amosa notes that one of the key insights and changes that he has gained from participating as a practitioner researcher is that letting go of being the expert knower in the case studies enabled a different learning dynamic to emerge with students:

> The first significant shift is that the question of having to be a learner alongside other, younger learners no longer brings a feeling of whakama (shyness or shame). I am comfortable with having to learn alongside others who are just starting out on their new cultural discovery. (Amosa, Case Study G)

Helen suggests that this way of working with teachers, enables them to take what they will need from the professional learning process, and is especially important for taking the risks necessary to explore what it might mean to know differently together:

> A further dimension of my working theory of 'not knowing' relates to a desire and intention that teachers transform their professional learning in ways that they need for their practice. This trust that teachers have agency to make

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sense of the experience is necessary to sustaining the PLD learning longer term. I feel the responsibility to offer the possibilities of rich ideas and connections, while being aware that there might be something very unexpected that a teacher finds useful. In light of McGee's (2006) notion of curriculum working at different levels – official, interpreted, taught and learned - there is an element of acting as a go-between and border-crosser in the adviser role, creating a transitional space where we can take risks with creative processes together. (Helen, Case Study H)

The recognition that calling your intertwined epistemic and ontic subjectivities into question can cause discombobulation and crisis for teachers and practitioner researchers alike provided an impetus for many of the teacher participants to acknowledge their own risk-taking, and learn to sit with discomfort and crisis as an integral part of the 'morphing' process, as Alison describes it.

As Amosa, Vanessa and Helen suggest, holding crisis discomfort and uncertainty, and developing ways to understand and make sense of it, emerges as a way of modelling a re-signification process that engages with emergent intertwined epistemic and ontic subjectivities:

Understanding crisis as an essential part of this type of learning and developing a language to talk about it through the conceptual model (however partial and provisional) enabled the emergence of new strategies to support students to create resilience in inhabiting emotionally loaded spaces of complexity, uncertainty and multiplicity: to feel confident and engaged in the process of learning, despite the perceived difficulties. (Amosa & Vanessa Case Study C)

In retrospect I wonder whether the first interview may have created a space for Jac to be heard and to air what she described as a crisis of identity around her role. We had discussed the possibility of her sharing this with her principal and she had followed up on that. Thinking experimentally, there is the possibility that one story the data might be telling is how Jac was situated in a 'field of emergence' with her practice. In a kind of theory in the making, I considered that the workshop may have provided a transitional space which held potential for "acting in the world and being acted upon by it" as we shared together rather than reproducing knowledge from knower to novice. Pratt's work (1984) analysing when and why a teacher willingly undertakes change (cited by Boler, 1999, p.182). (Helen, Case Study H)

New conceptual tools and models

An important contributor to the re-signification process in the case studies was the provision of conceptual tools and models which enabled the participants to identify the limitations of their existing epistemologies and consider some new possibilities for conceptualising differently.

Wayne suggests that the school leaders in his case study benefited from being introduced to new conceptual tools by academics working in the curriculum field:

There was a lot of discussion in relation to this tool. The leaders were very engaged and clearly relished working with a framework which stimulated their thinking. Despite their earlier request for something practical, they were thankful for this intellectual stimulation and enjoyed it. They seldom had an opportunity to work with an academic, and a university-based researcher. The conceptual tools presented by Andreotti, and Hipkins had the desired effect. Many participants reported that their original expectations for the day, and questions about documentation, had shifted. They could see the limitations of existing conceptualisations and new possibilities. (Wayne, Case Study E).

Alison found the use of conceptual mapping and cognitive coaching enabled students to explore their epistemological understandings, and articulate changing epistemological conceptualisations:

Key features of the pedagogical initiative were the use of: 1) process-oriented strategies including the use and development of concept maps to explore how ideas and understandings changed and reflections on practice, which were facilitated through conversations and interviews; and 2) a cognitive coaching approach (Costa & Garmston, 1993), where practice is directly explored and the interrogation of ideas during class with reference and conscious attention to mental models of knowledge, learning and minds (Table 1). While there is no direct data from students on which aspects had the greater influences on their developing understandings of knowledge and learning, it is evident that in combination these strategies supported students to explore their epistemological understandings. The initiation of new or different understandings could have been as simple as the asking of a question that students may not have previously considered, which raised consciousness of their tacit beliefs and perspectives.

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Indirect evidence of the efficacy of the process-oriented and cognitive coaching approaches was apparent in the student teachers being able to articulate changing ideas about the nature of knowledge, in particular, and their shifts in conceptualisations regarding the certainty and source of knowledge. (Alison, Case Study A)

Modelling, developing and trialling new practices

Thinking through what new conceptual tools might mean in practice by developing and trialling new practices also proved an effective way to engage in the resignification process for participants in several of the case studies.

Juliet worked with a group of ESOL teachers to develop and model multi-level units of work. She explains the ways in which the development of units resignified traditional conceptualisations of ESOL by having an authentic cross-curricula focus:

> Working with colleagues and teachers in the development of the units that were used to model different teaching and learning approaches helped to give an authentic and cross-curricula focus. Language demands were contextualised in different curriculum learning areas. It was also possible to look at concepts within a unit of work in ways that would not have been envisaged without the input of advisors from the other areas. This wider expertise and input enabled teachers in the professional learning programme to plan for deeper conceptual understanding and related language learning – the language needed to be built in order to learn and understand the concepts, e.g. 'fairness', 'equity', 'sustainability', 'renewable and non renewable energy'. (Juliet, Case Study F)

She found that the development and modelling of the cross-curricula ESOL units enabled the teachers to engage meaningfully with both the conceptual and pedagogical implications of resignifying ESOL as a way of knowing, and to achieve this in line with the needs of the teacher's individual students:

> Central to the initiative was the development and modelling of multi-level units of work which, on reflection, was a key driver in encouraging teachers to think about what and how they taught, and to effect change in their teaching… By modelling the units rather than just talking about how to plan differently, teachers had an opportunity to engage with ideas in ways that were meaningful and connected with their teaching and particular classes and students. Opportunities were provided to process the ideas relating to what teaching and learning is about in ESOL. (Juliet, Case Study F)

Kerry's and Helen's case study findings speak to the importance of engaging with experiential, embodied learning in resignifying the subjugated knowledge of dance and the visual arts as ways of knowing. Kerry suggests that what enables teachers to resignify their understanding of dance is to experience the embodied and affective power of working with dance in this way with students and for themselves as teachers. She goes further in also suggesting that once teachers can see this potential it can powerfully reconfigure and expand their epistemic and ontic potential and provide them with broader educational insights into what it can mean to live and learn in the world:

1. If teachers have a strong, lived experience of DiNE, they are more likely to shift their ideas about what dance actually IS.

2. As they implement the process with their students and observe their students' responses, they are more likely to alter how they teach. They will be more open to question the traditional role of the teacher.

3. When they see the creative flow and the positive effects of embodied learning and teaching on their students, they are more likely to expand their ideas about knowledge and learning (Guskey, 2006).

4. Which in turn can lead to a new view of the 'front end' of the *NZC*.

5. And an expanded consciousness about the bigger purposes of education. (Kerri, Case Study D)

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CONCLUSION AND IMPLICATIONS

The conclusion draws together threads from across the interpretive and post-structural analyses that are the foundation of the meta-ethnography. These threads relate to themes that emerged across the eight case studies of the project, from the practitioner researchers' (teacher educators') inquiries and case study narratives.

Drawing threads together

Dual analysis: Complementary insights

The first of these threads relates to the unique vision and complementary insights (Green et al., 2006) that is provided through the use of a multi-perspective, dual-analytical approach in the meta-ethnography. This approach is consistent with the post-structural philosophy that underpins the project, which emphasises a relativist view of knowing in the social world and posits that understandings are socially constructed, subjective and multiple (Grbich, 2007; Lather, 2006; Preissle, 2006). Conducting dual analyses is a way of 'walking the talk' and recognising multiple ways of knowing, specifically of acknowledging and honouring interpretive and post-structural perspectives and ways of coming to understand educators' shifting conceptualisations of knowledge, learning and curriculum.

Within the meta-ethnography, the interpretive framework enabled an exploration of practitioner researchers' personal narratives of their shifting conceptualisations of knowledge, learning and the NZC – privileging the narratives of teacher educators' over the theoretical writings of others and endeavouring to understand the teacher educators' experiences from their own perspectives, while recognising that the interpretive reading is a re-interpretation of the teacher educators' narratives. The post-structural framework drew on post-structural theory relating to the 'discursive turn' and resignification (Popkewitz, 1997) to explore the politics of knowledge production (at a collective level) and the complex negotiations of epistemological (about knowledge) and ontological (about being) understandings that were experienced by the participants in the project. These two approaches present different, but complementary, insights into educators' shifting conceptualisations of knowledge, learning and curriculum through the course of the project.

An example of this complementarity is the way in which different insights are presented about tensions and challenges experienced by teacher educators as they engaged with different ways of thinking about teaching and learning in specific curriculum contexts and negotiated what these might mean for their practice as lecturers in ITE or facilitators of TPL. Both the interpretive and post-structural readings identify tensions as an important feature of teacher educators' experiences of engaging with ideas about teaching and learning, including tensions between intentional and operational practices, but the tensions are explained differently in the interpretive and post structural analyses. The interpretive analysis accounts for these in relation to the narratives constructed by the teacher educators themselves. These narratives represent the very idea of 'shifts' in understanding as problematic for teacher educators. The teacher educators are seen to make sense of the personal tensions, discomfort and dissonance that they experience as being necessary for personal learning and transformation, through the metaphor (interpretive repertoire) of a journey. In comparison, the tensions experienced by teacher educators are explained in the post-structural analysis in relation to the multiple, fluid and interwoven nature of teacher educators' knowing and being, the resignification of their roles as knowers, and the politics of knowledge. Together these explanations provide a deeper and more complex understanding of the tensions experienced by teacher educators than is provided by either one of the readings alone.

Complexities of 'shifting' understandings of knowledge and learning

A recurring theme, across the interpretive and post-structural readings, relates to the complex nature of epistemological understandings and epistemological shifts. These can be understood in a variety of ways, which are contingent on the conceptual frameworks utilised and on individuals' subjectivities and positionalities.

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'Shifts' in understandings of knowledge and learning were differently understood by the practitioner researchers in the project. For example, teacher educators variously conceptualised these in relation to: dual ideas of twentieth and twenty-first century knowing and learning, and of knowledge as a noun (fixed, universal and cumulative) and as a verb (fluid, contextual, generative and performative); personal epistemology models that describe dimensions of knowledge relating to the certainty and simplicity of knowledge, sources of knowledge, and justifications for ways of knowing; paradigms that emphasise cognitive, embodied or affective ways of knowing and approaches to teaching and learning; and epistemological and ontological realism and relativism as philosophical orientations.

Practitioner researchers in the project contested and challenged the very idea of 'shifts' in conceptualisations of knowledge, learning and curriculum. For example, the idea of a linear and developmental shift from twentieth to twenty-first century thinking was disputed. The idea of shifting primarily through thinking was also challenged and affective, embodied and performative dimensions of learning were emphasised in a number of case studies. Practitioner researchers recognised their own and student teachers' and teachers' shifts in understandings as problematic and as reflecting tensions between realist and relativist philosophical positions and between their shifting understandings and practice. Shifts in ways of knowing were experienced as complex, conflicting, and contingent by the participant researchers. They were explained as a continuing, unending and integral facet of personal and professional growth and transformation, rather than as an end that can be arrived at or achieved.

Understanding the NZC as a site of tension and contestation

Through their participation in the research project, teacher educators engaged strategically with aspects of the NZC document that were relevant for their work and which held some sort of meaning for them. This meaning derived from teacher educators' desires to do things differently in their teaching (for example, to support teacher inquiry in ITE courses), to validate curriculum areas that were understood to have been historically subjugated (such as dance and visual arts), and to support student teachers and teachers to do things differently in their teaching and interactions with young people and children.

The interpretive reading suggests that teacher educators understood the NZC to provide opportunities to do things differently in schools, especially through the exploration of the principles, values, key competencies and pedagogical approaches emphasised in the early sections of the curriculum document. For example, specific case studies focused on the potential of using interdisciplinary work, inquiry approaches, exploration of embodied and affective ways of knowing, and relating to cultural difference. The teacher educators understood the curriculum to provide opportunities to promote social justice and transformation, with multiple interpretations given of what social and educational transformation might mean and entail. The post-structural reading suggests that teacher educators were negotiating the curriculum in relation to 'knowledges worth knowing' (Pinar et al., 1995) and epistemic and ontic possibilities. They were resignifying the concept of 'curriculum.'

In respect of teachers' experiences and understandings of curriculum, both interpretive and post-structural readings highlight tensions experienced by teachers, student teachers and school leaders between their developing understandings of the NZC and pressures to conform with institutional structures and national assessment requirements – specifically from the national standards for literacy and numeracy in primary schools and national qualifications (NCEA) and associated achievement standards in secondary schools. Teachers and student teachers are revealed to hold complex and shifting understandings of curriculum. Individual teachers and student teachers variously understand curriculum as: constituting guidelines and requirements for teachers to perform; presenting opportunities to prepare students for life beyond and after school; supporting the personal development of students; supporting citizenship goals; a lever to effect greater inclusiveness and make community connections through education (with multiple understandings of the concepts of life preparation, personal development, citizenship, inclusiveness, and community connectedness); and as reflecting contested knowledges. Shifts in understandings tend to take the form of embracing more relativist ideas about knowledge, learning and curriculum and movement from understanding curriculum in instrumental terms (as prescription or guidelines) to understanding it as serving broader social functions.

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Across the different levels of the project and relating to teacher educators', student teachers' and teachers' understandings of the NZC, there was a move by participants from seeing the curriculum as an instrument that prescribes knowledge (content and skills) to be transmitted to learners, towards seeing the curriculum as a site of contested knowledges. Valuable knowledge came to be understood less as that which is 'owned' by the authorities (and specified in official curriculum documents) and more as knowledge that is held by communities and constructed by learners through social interactions. In this, the NZC can be seen to be a site of tension and contestation over knowledge that is worth knowing.

Challenging educators' personal and professional identities

Both the practitioner researchers, and the teacher and school leaders participating in the project strategically engaged in shifting their conceptualisations of knowledge and learning in line with their current and developing personal and professional identities and interests. The meta-ethnography findings show that shifting conceptualisations of knowledge and learning involves the calling into question of educators' personal and professional identities (Connelly et al, Zembylas, 2005). As Masschelein and Todd (2011) suggest, shifting epistemologies involves calling into question 'who', not 'what', educators are. Given the intertwined nature of ontic and epistemic shifts, understanding shifting conceptualisations of knowledge and learning needs to take into account the multiple personal and professional identities of educators (Alsup, 2004). Data from the project also challenges humanist notions of the rational, autonomous and fixed educator self. In accounting for these complexities, it may be helpful to draw upon post structural notions that explain how educators constitute their multiple, embodied and affective subjectivities through and within discursive practices and power relations as they intervene and engage with the social world (Davies, 2006; Weatherall, 2008; Zembylas, 2005). In this way, educators, as curriculum decision makers negotiate the contested ways in which their roles as knowers are constituted within micro institutional contexts and within macro policy contexts. Rather than heading towards and arriving at a fixed point, educators' multiple subjectivities are in a constant state of production, contestation and becoming (Deleuze & Guattari, 1987).

Engaging with dissonance, crisis and affect

The project findings show that, given the intertwined nature of ontic and epistemic shifts, shifting conceptualisations of knowledge and learning can involve unpredictability and crisis and can generate high levels of affect (Boler, 1999; Quinlivan, 2009; Zembylas, 2005). We suggest that teacher education sites need to engage more fully with the deep, affective, relational and performative transformations that shifting conceptualisations of knowledge and learning can induce. It also needs to be recognised that epistemic and ontic shifts, in many cases, may sit counter to dominant constructions of educator roles within institutional and policy contexts and produce challenges and crises for educators. We suggest that both pre-service and continuing teacher education needs to equip both beginning and continuing teachers with the aptitudes and critical dispositions to be able to critically negotiate these complexities. Gaining understandings of the essential role that productive crises and dissensus can play in teacher identity development and classroom learning, and engaging with critical curriculum studies may provide venues through which such understandings can develop.

Supporting epistemological thinking

Both the interpretivist and post-structural readings intimate that effecting meaningful and deep philosophical shifts in teacher educators', teachers' and student teachers' understandings of knowledge is a complex process and that it takes time – within and beyond the short timeframe of the project to which this meta-ethnography relates. It is not something that can be achieved quickly or for which there is a simple recipe. Nevertheless, some practices were found to be useful in supporting participants to engage deeply in conceptual learning, to explore ideas and assumptions about knowledge, learning and curriculum, and to relate their developing understandings to their personal teaching practice.

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Approaches that were found to support epistemological thinking and processes of resignification include: a) intentional engagement with conceptual tools that support processes of reflection on ideas about knowledge, learning and curriculum and which make connections with practice; b) learning theoretical languages that enable exploration of epistemological and ontological understandings and which open up new ways of thinking and provide words to articulate developing ideas; c) modelling teaching and learning strategies that explore new possibilities for practice and trialling these in practice; d) observing and reflecting on learner interactions and responses to different ways of teaching and learning; and e) creating spaces of resignification where participants have time and space to reconfigure their concepts and practices without pressure to arrive at specific, pre-defined, desirable outcomes. None of these represent magical or instantaneous ways of shifting thinking or practice. Rather, in combination, they support deep engagement with conceptualisations of knowledge, learning and curriculum and enable shifts in understandings and practices that, because they are deeply and philosophically grounded, reflect not just the implementation of different teaching strategies, but more profound and lasting shifts in teacher identities and ways of being and doing – for teacher educators, student teachers, teachers and school leaders.

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Appendix 1

Interview guide for pre- and post- interviews with practitioner researchers

Pre- (initial) interview	Post- (follow-up) interview
Professional work 1. What is your role? What is the nature of your work? 2. How did you come to be here (in this role)? 3. What is/are your subject area? [check cross-overs] 4. What is teaching and learning in this area/role about? 5. How is this different from other (subject) areas? 6. What have been the influences on your thinking or practices in these areas/roles?	
Curriculum 1. What does curriculum mean for you? [understanding concept of curriculum: broader/ connection to learning or what happens at school] 2. What do you think the new NZC is about and how is this different or not from what has come before? 3. What are the implications for teachers, learners and communities? 4. What has influenced your thinking about curriculum?	1. What does curriculum mean for you? [prompt re. ideas of official/formal, unofficial, de facto, hidden, intended, unintended, in-practice, classroom-based] 2. What do you think the new NZC is about and how is this different (or not) from what has come before?

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Shifts/Engagements	Shifting conceptualisations of knowledge – practitioner researchers

1. What has been your previous engagement with ideas about the knowledge society and education in the 21st century?
 	
2. What (if anything) has changed for you as a result of that?
 	
3. What have you been exposed to that has shifted your thinking and/or practice?
	1. At this point in your journey, what are your understandings about knowledge?
	
	2. Have these ideas shifted in 2009? What led them to shift [prompt for concrete events e.g. incidents, discussions, meetings – as part of the project and from outside the project]
	
	3. What are the implications of this for your understanding of the NZC?
	  – In general
	  – In relation to your curriculum area/field of work.
	
	4. What does this mean for your practice in relation to the implementation of NZC? [prompt for changes in already made, and changes in practice that are intended]
	
	5. How did this translate into your case study initiative/intervention?
	
	6. Have any of these ideas about knowledge influenced your thinking or practice? If so, how?
	
	7. Where do you see yourself going with this? What next for your practice?
	
	8. How have these ideas supported what you already thought or did? How have they made you think or do things differently? [prompt for examples, incidents, instances]
	
	9. What has it felt like to engage with these ideas/ shift your thinking? [prompt for emotional responses, shifting subjectivity, investment in roles, cost/price of shift]
	
	10. How does all this "sit" with you in your role as a teacher educator? And in other roles you have in your professional and personal life?
	
	Shifts for participants
	1. Did you observe any shifts in understanding in the teachers/student-teachers with whom you worked?
	
	2. What sorts of shifts were people making?
	
	3. What worked to produce shifts with your course participants? [prompt for general approach and specific actions]
	
	4. How do you think participants would interpret the NZC differently after your intervention? Why? What happened to make you think this?

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TLRI	TLRI
1. What is your initial thinking about your project? What would you like to do and why?	1. Did you get from the TLRI project what you wanted to get from it?
2. Why did you agree to participate in this project? What do you want to get out of it?	2. What were things in the project that a) worked well for you?, b) didn't work well for you?
	3. Were there any things that either helped or constrained you in engaging with the ideas about knowledge and your case study research? [prompt for things that are not just "time", e.g. expectations, resistance, relationships, specific activities]

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Appendix 2

Examples of pre- and post- questionnaires completed by student teachers and teachers

Pre- questionnaire for student teachers

Name:		Gender	
		Age	
How would you define your identity (ies)?	(e.g. ethnicity, nationality, religion, roles)		

Please complete the sentences below so that they reflect your perspective on the topics.

1. Schooling is about…

2. Teaching is about…

3. Learning is about…

4. The 'new' New Zealand Curriculum is about…

5. Educational success is about…

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6. The role of education in society is about…

7. The role of teachers is about…

8. Education in the '21st century' is about…

9. This course is about…

10. What I would like to get out of this course is…

Have you had any teaching experience?	YES NO
If you answered **YES**, for how long?	
In what position or role?	
What subject, level and programme?	
Additional information about the context:	

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Post- questionnaire for student teachers

Name:		Stream	
		Research Participant	

Use this space if you would like to redefine your background

Read your first response and complete the sentences below again if your definitions have changed at this point in time (e.g. add different aspects, change some of the words, completely re-write). If you do ot have your first responses just complete the sentences.

1. Schooling is about…
2. Teaching is about…
3. Learning is about…
4. The 'new' New Zealand Curriculum is about…
5. Educational success is about…

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6. The role of education in society is about…

7. The role of teachers is about…

8. Education in the '21st century' is about…

9. Success is about…

10. Knowledge is...

11. This course is about…

12. What I did not expect to learn in this course was…

Are you satisfied with your learning journey as a prospective primary teacher so far?	YES	NO
Comments		

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