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Studying the Effectiveness of Teacher Education

Early Career Teachers in Diverse Settings

Springer

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Diane Mayer
Faculty of Education and Social Work
University of Sydney
Sydney, NSW
Australia

Mary Dixon
Deakin University
Burwood, VIC
Australia

Jodie Kline
Deakin University
Waurn Ponds, VIC
Australia

Alex Kostogriz
Australian Catholic University
Fitzroy, VIC
Australia

Julianne Moss
Deakin University
Burwood, VIC
Australia

Leonie Rowan
Griffith University
Southport, QLD
Australia

Bernadette Walker-Gibbs
Deakin University
Burwood, VIC
Australia

Simone White
Monash University
Clayton, VIC
Australia

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Preface

Studying the Effectiveness of Teacher Education for Early Career Teachers in Diverse Settings provides an evidentiary basis for policy decisions regarding initial teacher education and beginning teaching, and also informs the design and delivery of teacher preparation programs.

Based upon rigorous analysis of international literature and the policy context for teacher education globally, and examination of data generated through a longitudinal study conducted in Australia, this book investigates the effectiveness of teacher education in preparing teachers for the variety of school settings in which they begin their teaching careers.

Over 4 years, the *Studying the Effectiveness of Teacher Education (SETE)* project tracked around 5,000 recently graduated teachers and 1,000 school principals in Australia to capture workforce data and gauge graduate teachers' and principals' perceptions of their initial teacher education programs. This book offers a synthesis of the research findings and uses the SETE work as a catalyst for innovative theorisation of the effectiveness of teacher education with regard to: graduate teachers' preparedness to meet the requirements of the diverse settings in which they are employed; the characteristics of teacher education programs that are most effective in preparing teachers to work in a variety of school settings; and the impact of the teacher education program attended on graduate employment destination, pathways and retention within the teaching profession.

The authorship comprises the researchers who were immersed in the SETE project, and who as a collective, were able to pool extensive experience in both schools and higher education institutions, and to offer unique perspectives on the status and future of teacher education. These perspectives are detailed to facilitate future-focused approaches to education reform; approaches that are informed by teacher education histories and reflect the complex associations between the education policy landscape, perceptions of teacher preparedness, teacher effectiveness and school contexts.

A strong partnership with two teacher regulation authorities and two state departments of education is at the heart of the SETE project resulting in a comprehensive and collaborative approach addressing important questions about preparing quality teachers, particularly for Australian schools.

The book provides teacher educators, regulators, education researchers and policymakers with a view into the complexity of teacher education and teacher workforce transitions. Grounded in national and international literature and communicated through expert commentary, the authors draw on graduate teacher voice and large-scale quantitative data sets to provide a full picture of Australian teacher education and to suggest how re-conceptualising teacher education as the collective responsibility of universities, schools, systems and communities within a newly created real or imagined third space has the potential to revolutionise schooling and learning teaching.

Sydney, Australia Diane Mayer
Burwood, Australia Mary Dixon
Waurn Ponds, Australia Jodie Kline
Fitzroy, Australia Alex Kostogriz
Burwood, Australia Julianne Moss
Southport, Australia Leonie Rowan
Burwood, Australia Bernadette Walker-Gibbs
Clayton, Australia Simone White

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The chief investigators included Diane Mayer, Andrea Allard, Richard Bates, Mary Dixon, Brenton Doecke, Alex Kostogriz, Leonie Rowan, Bernadette Walker-Gibbs and Simone White. We acknowledge with thanks the contributions also made by Jodie Kline, Philippa Hodder, Michelle Ludecke and Julianne Moss.

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Chapter 1
Introduction

This book discusses the findings from Australia's first large-scale, mixed-methods, longitudinal study designed to investigate the effectiveness of teacher education:[1] *Studying the Effectiveness of Teacher Education* (SETE). The authors conducted this study in the context of increasing scrutiny of teacher education fed by various narratives of failure and the neoliberal reform agendas being promoted and enacted as solutions for the perceived problems associated with teacher education (Furlong 2013). In Australia, for example, in the last decade alone there have been no fewer than forty reports on various aspects of teacher education, each making recommendations for improvement. Interestingly, this sustained 'improvement' agenda has produced relatively little in the way of fundamental change in teacher education (Bates 2007). Moreover, despite frequent criticism, teacher education—as a field—has not articulated a response that speaks to the effectiveness of teacher preparation programs with which governments are prepared to engage (Rowan et al. 2015). Therefore, we set out to provide a large-scale evidence base to inform teacher education policy and accountability mechanisms that regularly drive political agendas and anecdotal claims of teacher education's (in)effectiveness.

In designing the study, we sought to understand: first, how effective graduates and principals perceived their teacher education programs to be in preparing the graduates for the diverse settings in which they take up teaching employment; second, whether there were any aspects of the teacher education programs that seemed to be linked to their preparedness for teaching and their effectiveness as beginning teachers; and third, the career and employment pathways of the new teachers as well as retention and attrition. Within the growing global crisis discourse about the quality of teacher education, our goal was to speak to teacher education policy and practice with our research amidst a view that teacher education

[1]In this book, we use the term *teacher education* to mean *teacher preparation* or *initial teacher education*; that is, a program of pre-professional study qualifying graduates as eligible for teacher registration/credentialing and employment.

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research to date is not sufficiently rigorous to speak to policymakers and/or investigating questions policymakers consider worthwhile.

However, it is important to understand that teacher education research is a relatively new field of research. As Linda Darling-Hammond (2016) reminds us, it was only a half a century ago in the US that Nate Gage highlighted the need for *research on teacher education* to add to the emphasis at that time of *research on teaching*. *Research for teacher education* evolved somewhat naturally from research on teaching and more recently, *research on and about teacher education* has emerged. We briefly track this history as a reference point for the purpose of our study and its approach.

Research on Teaching: Research *for* Teacher Education

In the 1960s, 'process-product' research examined the relationships between measures of teacher behaviour (process) and measures of student learning (product) (Good and Brophy 1973) with teacher preparation involving training in acquiring specific skills that had been identified by this research as effective for teaching. The training focussed on the component sub-skills of teaching, learning about these sub-skills, observing them and then practicing them in demonstration schools or normal schools. Further, learning came from microteaching classes in teacher preparation institutions as videotaping technologies made it possible to capture teaching moments for close and collective interrogation post-lesson (Allen and Ryan 1969).

Subsequently, as 'teacher thinking' research came to prominence (Clark 1988), teacher education came to be conceptualised as professional learning, and research sought to distinguish what it was that expert teachers knew that differentiated them from novice teachers (Carter et al. 1987). However, critics argued that this research was little different from the earlier process-product research in that it focused on a few characteristics of teacher thinking and searched for predictors of teaching effectiveness (Shulman 1987). As a result, a new research trajectory emerged investigating teachers' knowledge and how it is acquired, held and used (Grossman 1994; Shulman 1987; Wilson et al. 1987). This work introduced the particularly influential notion of *pedagogical content knowledge* as a 'particular form of content knowledge that embodies the aspects of content most germane to its teachability' (Shulman 1986, p. 9). At about the same time, research on teachers' personal practical knowledge emerged, a kind of working knowledge permeated by the personal and professional experiences of teachers' lives (Clandinin and Connelly 1987). In addition, growing interest in, and attention to, the meaning and practice of teaching as a reflective activity (Schon 1983) resulted in reflective practice becoming a major focus in teacher education programs (Schon 1987; Zeichner and Liston 1987). During these years, teacher education governance was largely the province of the institutions that offered the programs, and accountability in teacher education primarily emphasised process: 'how prospective teachers learned to

teach, how their beliefs and attitudes changed over time, what kinds of pedagogical and other knowledge they needed, and what contexts supported their learning' (Cochran-Smith 2005, p. 10).

However, in the 1990s, countries across the world became increasingly anxious about their economic competitiveness fuelled by international comparators like the Programme for International Student Assessment (PISA) and other OECD country comparison reports, as well as multinational companies like McKinsey and Co. conducting cross-country analyses (Barber and Mourshed 2007). As a result, teacher quality moved into the spotlight and from there a link to questions about the quality and impact of teacher education was made. Teacher education accountability moved from a focus on process and content to a focus on outcomes, specifically evidence of the impact of teacher preparation on student learning.

A Growing Need for Research *On* and *About* Teacher Education

This growing attention to global economic competitiveness lead to international comparators like PISA being used to justify various government's large-scale reform agendas highlighting teacher quality (or the lack of) as a motivator for close scrutiny of teacher education, particularly as it happens in universities. In this way, teacher education came to be positioned as a 'policy problem' and when,

> teacher education is defined as a policy problem, the goal is to determine which of the broad parameters that can be controlled by policymakers (e.g. teacher testing, subject matter requirements, alternate entry pathways) is most likely to enhance teacher quality (Cochran-Smith 2008, p. 273).

A crisis discourse ensued, with the claims that teacher education was broken but could be fixed by government intervention and national solutions (Cochran-Smith et al. 2013). Accompanying arguments often invoke binary oppositions in relation to how teacher education is conceived: university-based or -led teacher preparation versus alternative and/or innovative pathways; theory versus practice and so on. These arguments served to position universities and teacher education in universities in oppositional location to school-led and school-based programs such as Teach for America, Teach for Australia, Teach First, School Direct, and so on. However, as Whitty, (British Educational Research Association 2014; Feiman-Nemser 1990) reminds us, these simplistic characterisations of teacher education confuse the 'structural' arrangements of teacher education programs with their 'conceptual orientations'. Of course, teacher education is inherently political (Bates 2005; Cochran-Smith et al. 2013) and given the (dis)connection between policy and research, teacher education researchers are often 'on the back foot', particularly as the binary arguments are usually ideologically driven rather than evidence-based. Wiseman (2012) argues that policy should 'emerge out of research results and findings' but that this is not what currently happens. Instead,

> policy is more likely to emerge from public perceptions, based on isolated anecdotes or support for recent educational fads or initiatives. In more cases than not, policy emerges quickly and without the benefit of research before or after mandated innovations are implemented (Wiseman 2012, p. 90).

Despite frequent criticism of initial teacher education, teacher education practitioners and researchers have not articulated a response that speaks to the effectiveness of their programs. As Grossman (2008) notes, 'to respond effectively to critics, university-based teacher educators must be able to provide credible evidence of the effectiveness of their practice in preparing teachers' (p. 14).

Reviews of teacher education research have concluded that the research base is characterised by isolated, often unrelated and small-scale investigations (Cochran-Smith and Villegas 2015; Cochran-Smith et al. 2015). In Australia, Murray et al. (2008) concluded that the relatively limited scope and scale of research that is currently undertaken:

> can be attributed to a variety of factors, including the relative newness of teacher education research as a legitimate field of empirical investigation, the relatively small-scale funding that teacher education research is able to attract, and a recognition within the field of the importance of investigating aspects of one's own practice in order to both understand and improve teacher education pedagogy (p. 235).

In the US, Sleeter's (2014) analysis of almost 200 articles published in 2012 in leading international teacher education journals 'did not see evidence of an emerging, shared research program designed to inform policy' (p. 151). She concludes that the problem

> is that the weight of the research, being fragmented, often narrowly focussed, and usually not directly connected to a shared research agenda on teacher education, does not position teacher educators strongly to craft an evidence-based narrative about teacher education that might counter policies and reports like the NCTQ's[2] (Sleeter 2014, p. 152).

It is important to acknowledge that the findings from the many small-scale studies of teacher education have informed local teacher education practice in useful ways. Nevertheless, these studies do not produce the data sets that policymakers generally appear to be seeking and the prevailing view is that this body of work has not systematically built a knowledge base for teacher education policy.

It is clear that researching teacher education, and particularly its effectiveness, is not straightforward. The emergence of a 'gold standard' for educational research—the 'scientific method'—and the associated 'what works' orientation preferred by many policymakers, often means ignoring the 'need for critical inquiry into the normative and political questions about what is educationally desirable' (Biesta 2007, p. 21). This is also highlighted in the AERA 2005 review of research and teacher education:

[2] A 2013 Report from the National Council on Teacher Quality concluding that pre-service ITE is mired in mediocrity and does not improve student learning.

> As we note throughout this report, education and teacher education pose many kinds of questions, including those that are grounded in moral, ethical, social, philosophical, and ideological concerns. Although questions like this can be shaped and understood more fully on the basis of evidence, they cannot be settled by empirical evidence alone (Cochran-Smith and Zeichner 2005, p. 31).

Moreover, the fact that teacher education programs and their practices are constantly changing and adapting means that researching such a dynamic system is difficult if we use what might be considered more traditional methods of research and analysis (Cochran-Smith et al. 2014; Gray and Colucci-Gray 2010).

It has been argued that the most appropriate policies and practices for teacher education should be decided according to empirical evidence about their value-addedness in relation to student achievement (Kennedy et al. 2008). In the US, this has developed into widespread value-added modelling approaches even though there are critiques suggesting that 'because of the effects of countless exogenous variables on student classroom achievement, value-added assessments do not now and may never be stable enough from class to class or year to year to be used in evaluating teachers' (Berliner 2013, p. 1). However, a number of researchers have set out to investigate the effectiveness of teacher preparation by following teacher education graduates into their early years of teaching. For example, the Teacher Pathways Project in New York City in the US (Centre for Education Policy and Analysis 2012) investigated different pathways into teaching, the characteristics of those programs and the impact of those characteristics on a range of factors, including student achievement in reading and mathematics (Boyd et al. 2006, 2009). In the Netherlands, Brouwer and Korthagen (2005) conducted a 4½ year longitudinal study using quantitative survey data as well as in-depth qualitative data designed to evaluate effects of a program intended to improve the integration of theoretical and practical learning. While they found that occupational socialisation in schools had a considerable influence on the development of graduates' in-service competence, they were also able to highlight the importance of integrating practical experience and theoretical study in teacher education programs.

In the UK, the 6-year longitudinal *Becoming a Teacher* (BaT) study set out to explore beginning teachers' experiences of initial teacher training (ITT), induction and early professional development in England, including: (i) the reasons that some did not complete their ITT, others completed but did not take up a teaching post, and others took up a teaching post but subsequently left the profession; and (ii) the extent to which beginning teachers' experiences of ITT, induction and early career progression, and their retention or attrition, were subject to variation relating to the ITT route that they followed. The final report of the BaT research outlined a number of implications for teacher educators, mentors of beginning teachers, head teachers and policymakers (Hobson et al. 2009). The high points experienced by the new teachers tended to be associated with: positive relationships with students and their

colleagues; their perceptions of professional autonomy; and/or their perceptions of achievement and change. The 'lows' were often related to the demands of the role and challenging relationships with students, their parents and/or with colleagues in their schools (Hobson et al. 2007). Work in the Australian context has been limited to one study (Louden et al. 2010) which, due to low response rates and consequent abandonment of the longitudinal data collection, was only able to identify that it is important to recruit well-qualified entrants to the teaching profession.

These studies highlight the complexity of SETE, which is contrary to the more simplistic linear, cause-and-effect framing of teacher education and beginning teacher effectiveness often sought by policymakers. This space is further complicated by the policy discourse around teacher quality. 'Teacher quality' is not a single concept with a single meaning. In addition to a concern for student learning, the term has come to encompass, in both policy and research, an array of complex and controversial issues, including teacher recruitment, teacher qualifications, preparation programs and pathways, induction programs for new teachers, professional development, teachers' working conditions, teacher assessment and effectiveness, practices regarding hiring and compensation, and the attrition and retention of the teacher workforce (Cochran-Smith and Power 2010).

In this context, and specifically in relation to the call for research of the size and scope required to speak to the concerns raised by critics of initial teacher education programs, the SETE project set out to provide a large-scale, longitudinal evidence base about the effectiveness of initial teacher education. It was designed and implemented by a team of teacher education researchers—the authors of this book. The political discourse and policy initiatives in many countries have redefined over time what it means to be a teacher educator. First, when teacher preparation moved into universities the challenge was for teacher educators to become researchers moving from their teaching-only positions in teacher training institutions into the university domain with its requirement for research and scholarship invoked as part of university reward systems involving promotions and the like (Hulme and Sangster 2013). More recently, as teacher education has moved back to being school-based and school-led in many countries, former expectations to carry out research have changed such that, for many teacher educators, 'relationship maintenance' has become a defining characteristic of their work (Ellis et al. 2013). As a group of teacher education researchers, we have attempted to bring our respective identities together to better inform our goal to investigate the effectiveness of teacher education and better understand its role in beginning teaching by working with employers and teacher regulatory authority partners. As such, the study makes a unique contribution to teacher education research and provokes a new kind of discussion about the character, impact and outcomes of teacher education. In particular it contributes to understandings of early career teachers' professional development and knowledge about the transition from teacher education into the teaching workforce.

Studying the Effectiveness of Teacher Education (SETE): Our Approach

The SETE project was a 4-year longitudinal study in Australia investigating newly graduated teachers' and principals' perceptions of the effectiveness of teacher education in preparing teachers for the variety of school settings in which they began their teaching careers. It tracked 2010 and 2011 graduate teachers across two Australian states—Victoria and Queensland—to capture workforce data and gauge their perceptions of their teacher education program. The project was enriched as a result of a strong partnership involving the Victorian Institute of Teaching (VIT), the Queensland College of Teachers (QCT) the Victorian Department of Education and Early Childhood Development (DEECD), the Queensland Department of Education, Training and Employment (QDETE) and was supported under the Australian Research Council's Linkage Projects grant funding scheme.

SETE set out to investigate the following research questions in relation to the effectiveness of teacher education:

1. How well equipped are graduates to meet the requirements of the diverse settings in which they are employed?
2. What characteristics of teacher education programs are most effective in preparing teachers to work in a variety of school settings?
3. How does the teacher education program attended impact on graduate employment destination, pathways and retention within the profession?

To address these questions, the research team employed a recursive strategy drawing on multiple sources of data including:

- A national mapping of teacher education programs (2011–2012) to identify the key features of the teacher education programs offered in Australia at the time of relevance to the cohort being followed;
- Surveys of graduates (2012, 2013 and 2014) which contained scaled questions and opportunities for open-ended responses focused on their perceptions about their preparedness and effectiveness in relation to key areas of teaching;
- Surveys of principals (2012–2013) which contained scaled questions and opportunities for open-ended responses focused on their perceptions about graduate teachers' preparedness and effectiveness in relation to the key areas of teaching; and,
- Case studies of schools capturing graduates' early career experiences as well as their evolving perceptions of their preparedness and effectiveness, conducted across the 4 years of the project (2011–2014).

This unique, longitudinal data set was generated in response to detailed analysis of national and international literature (and associated policy debates) which have highlighted the complexity associated with attempts to determine the effectiveness of teacher preparation and the multiple factors that need to be considered within any discussion regarding the relationships between graduating teacher effectiveness and

teacher preparation. We argue that there are multiple ways of thinking about and enacting teacher education that involve different, but related, spatial practices. In this way, teacher education is not a singular construct but a set of representations, practices and experiences that are socio-spatial and relational in their nature. We use the work of Lefebvre (1991) and Soja (1996) to think about the spaces where teacher education is understood differently: the conceived space; the perceived space; and the lived space—spaces that are both real and imagined. Consideration of the conceived, perceived and lived space of teacher education provided us with the opportunity to develop and respond to the various understandings of 'effectiveness' that permeate teacher education. It invited examination of the layers of factors that influence teachers' effectiveness and allowed us to be sensitive to the dynamics between the teacher education program, the individual, and the workplace.

The SETE findings inform questions of teacher preparedness and education within a wider discussion around being and becoming a teacher (Britzman 2003). The study indicates that beginning teachers feel that they are effective in influencing student learning and this is supported by assessments made by their principals. However, they feel unprepared in managing classroom behaviour and engaging with school communities in their beginning year of teaching. The challenge for beginning teachers is a relational one—relations with students and with the adult community with which they must engage. Initial teacher education is viewed by the participants as the first part of a professional continuum of doing and learning and growing expertise, rather than a distinct preparatory phase (Ward et al. 2013). SETE highlights learning teaching as:

- Not linear or stage-based.
- Mediated by the local context (universities and schools) as well as the broader political context and by local conditions of work.
- Building on pre-existing knowledge and develops as a result of accessing a knowledge base for teaching and practice-based inquiry.

Green (2009) has argued the need for 'a cumulative program of connected multi-disciplinary and multi-focused work in teacher education that concerns itself with issues of practice and policy, curriculum and pedagogy across the continuum of preparatory, transitional, and continuing teacher education, and involves both universities and the profession'. However, a lack of connection between teacher education in universities and teacher education and teaching practice in schools is highlighted by the SETE project and the current literature base, and is popularised as a theory-practice divide and a disconnect between learning teaching and doing teaching. These play out as dichotomies in the data and also in policy, for example: being prepared then being effective; learning teaching in a pre-service environment and then in-service; learning teaching in universities versus in schools; learning teaching then doing teaching; theory versus practice; and, university knowledge versus school knowledge.

We support the recent British inquiry into the role of research in teacher education that 'demands an end to the false dichotomy between higher education and school-based approaches to initial teacher education' (British Educational Research Association 2014) and the Donaldson report (2010) which recommended seeing teacher education as a continuum, spanning across a career and requiring much better alignment across and much closer working amongst schools, authorities, universities and national organisations. However, we argue that this is more than a new version of the clichéd 'partnerships', a term which like 'reflection', is used by everyone but rarely deeply interrogated and theorised. Zeichner et al. (2015) call for approaches to teacher preparation that value and promote interaction between practitioner, academic, and community-based knowledge, requiring the creation of new 'hybrid spaces' (p. 124) where these knowledges can come together to inform innovative approaches to teacher preparation. Our findings allow us to push this concept further.

- SETE suggests a transitional teacher education drawing on discourses of practice and methodological undertakings that reveal:
- Hybrid and collaborative spaces for teacher education, spaces involving universities, employers and schools which are physical as well as conceptual, and real as well as imagined;
- A bringing together of learning teaching and doing teaching in ways that sustain the practices of multiple actors in non-hierarchical relationships;
- Inquiry-centred teacher preparation which rejects the idea that there are universally appropriate 'best practices' for learning teaching; and,
- Pedagogies for learning teaching that help pre-service teachers and beginning teachers make sense across the spaces.

Overview of the Structure of the Book

This book provides an in-depth examination of the current research, analysis of the SETE findings and subsequent theorisation that supports the above contentions in relation to a transitional teacher education. Chapter 2 provides an examination of current notions of 'quality' and 'effectiveness' in relation to teacher education and beginning teaching including the political dimension of regulation and other measures. It also outlines a conceptual framing of teacher education in spaces as theorised by Lefebvre (1991) and Soja (1996) and details the research questions.

Chapter 3 explores the ways in which this project sought to make sense of the complexity of teacher education through its longitudinal, mixed methods, iterative research design involving: a mapping of initial teacher education programs; surveys of graduate teachers and their principals about the graduate teachers' preparedness to teach and their effectiveness in the early years of their teaching careers (four surveys over 3 years; over 5000 graduate teachers and 1000 principals); and, case studies of 197 beginning teachers in 29 diverse school settings. It details methods of data generation and analysis.

Chapters 4, 5 and 6 explore the findings in relation to each of the three research questions: Chap. 4 How well equipped are graduates to meet the requirements of the diverse settings in which they are employed?; Chap. 5 What characteristics of teacher education programs are most effective in preparing teachers to work in a variety of school settings?; and, Chap. 6 How does the teacher education program attended impact on graduate employment destination, pathways and retention within the profession?

Chapter 7 discusses implications for teacher education policy and practice. In summary, we argue that quality teaching requires a reconsideration of teacher education such that it is a collective responsibility between universities, schools, systems and communities requiring the fusion and synthesis of teacher education, schooling and the goals of education. This will require much working together to make it clear what each is uniquely positioned to offer teacher education and to learning teaching over time. Differing conceptions of teacher education have been articulated and championed, but if they are to be future-focused and meet changing community expectations of the university and schooling sectors, policy and practice changes will benefit from the evidence that this large-scale mixed methods project has generated. We also discuss possibilities and imperatives for future research drawing on the SETE research design.

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Chapter 2
Studying the Effectiveness of Teacher Education

Introduction

The previous chapter outlined the complicated political context of contemporary teacher education. Sustained international scrutiny has seen many influential stakeholders (including Government ministers and accreditation bodies) voice concerns about the outcomes that can be linked to teacher education and, more specifically, the extent to which various teacher education programs produce 'quality' teachers who are, in turn, defined by their ability to impact positively upon student achievement. As we acknowledged in Chap. 1, scrutiny of this kind is longstanding and increasingly fuelled by international comparators like the Programme for International Student Assessment (PISA) and other OECD country benchmarking reports, as well as cross-country analyses conducted by multinational companies such as McKinsey and Co. (Barber and Mourshed 2007) and domestic organisations such as the Australian Business Council whose publications illustrate the rhetoric of crisis that has come to typify debates about the links between education and economic competitiveness:

> The OECD estimates that 13 per cent of Australian 15-year-olds are performing below the OECD 'baseline' and are at risk of not having the basics required for work and productive citizenship as adults. Australia is not unusual in this regard (the OECD average is 19 per cent), but this remains a serious concern and challenge to Australian schools. Worryingly, the percentage of 'at risk' students is much higher for some sections of the Australian population. Approximately 40 per cent of Indigenous students, 27 per cent of students living in remote parts of Australia and 23 per cent of students from the lowest socioeconomic quartile are considered by the OECD to be 'at risk' (Dinham et al. 2008).

Today it is reasonable to suggest that passionate assertions regarding the inadequacies and failures of teacher preparation are a routine feature of the modern teaching landscape. One need look no further than the documents associated with Australian's Teacher Education Ministerial Advisory Group (TEMAG) which was established 2014 in order to provide advice to the federal government concerning

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the effectiveness of the pedagogy; subject content and professional experience offered by teacher education providers. According to TEMAG's own report the review itself grew out of 'two clear propositions: that improving the capability of teachers is crucial to lifting student outcomes; and that the Australian community does not have confidence in the quality and effectiveness of new teachers' (TEMAG 2015, p. 1).

Running alongside these constant assertions that teachers lack quality and the public has lost faith with teacher preparation are equally passionate, but often less public, counterclaims which question both the evidence that underpins claims of crisis and the representations of what 'quality teaching' actually looks like with much media discussion. Analysis of the related debates quickly identifies dramatically different perspectives on how 'quality' in teaching is best defined, and, by extension, how quality can, should, or should not be evidenced. Government ministers, for example, have an apparent preference for data collected within high stakes, 'benchmarking' tests referred to above, such as the international regimes of PISA or TIMMS and the Australian Literacy and Numeracy testing protocol (commonly referred to as NAPLAN). Critics of this position have attempted to demonstrate that conclusions such as these rest upon the problematic belief that there is a direct relationship between the quality of teacher education (including processes regarding selection and assessment of students and the nature of course content), the quality of teachers, the quality of their *teaching* and the assessed performance of their students *on these specific measures*. Thus, if student achievement (at the end of this chain) is regarded as problematic, then improvement needs to be achieved at the various stages further *up* the chain in order to improve the quality of teaching and the quality of teachers.

A similar kind of linear, and fragile logic underpins arguments that 'quality' teachers are 'classroom ready' upon graduation: ready in the sense that beginning teachers can meet the needs of any student, anywhere, and thus ensure they learn (and can identify) what is taught. Here, again, we have a contested term. The Australian TEMAG has repeatedly advocated the importance of 'classroom readiness'. At first reading this appears a difficult position to object to. Most of us expect our doctors to be patient ready and our plumbers to be pipe ready. Yet to take this analogy a little further, is it reasonable to suggest that a newly certified plumber would be suited to respond to every possible challenge that plumbers across the globe could potentially be asked to tackle?

Similarly, the concept of 'classroom readiness' can also be used (unhelpfully) to imply that teachers should enter the full-time work force completely ready to face whatever their school experience might involve. From this perspective the work of teacher preparation is to ensure that graduate teachers are ready for whatever their work will involve…and whereever this work will take place…and whoever this work might involve including very different students, colleagues, and parent/caregiver/community stakeholders.

This is an enormous claim. The workplaces of teachers vary massively. Teachers in Australia, for example, can be employed within cities, towns, or very small and isolated communities. They can work in schools with thousands of students and

have access to a hundred colleagues, or they can be the only teacher for an entire school. Their classrooms might hold students from dramatically different socio-economic, cultural, linguistic and religious backgrounds. Their students will almost certainly vary in academic ability, physical ability, and in social confidence. It is therefore not difficult to imagine that one particular teaching graduate might thrive when introduced to Classroom A (and report confidently that their students have all performed well) but feel completely overwhelmed and inadequate to deal with what 'school' looks like in Classroom B. In other words, teachers make countless complex decisions each day, in often very different contexts, with wildly variable supports for their work with increasingly diverse students. Berry et al. (2010) thus caution policymakers to not be seduced by the prospects of relying solely on standardised test results as a means of determining who teaches effectively but to search for more nuanced, and careful readings of data.

The key points to be made here, as Loughran and Hamilton (2016) have demonstrated, is that 'learning' does not exist in a linear relationship to 'teaching' (p. 3) and that many different factors impact upon how and what students learn and how and when this knowledge is performed. These factors include the diversity of the student population and the diversity of school contexts, a point made by researchers across the globe. Wink (2011), for example, describes demographic changes which are 'evident worldwide' and makes the important point that 'nowhere are those changes experienced more profoundly than in today's classrooms' (p. 435). Australian educational settings reflect these changes and the resultant diversity. There are just short of 9500 schools Australia-wide, nearly half of which are located in Queensland and Victoria. Australian schools cater for 3,750,973 students, a total enrolment which is predicted to continue to rise until 2020 (ABS 2016). There are three school sectors; government, Catholic and independent, with the non-government sector accounting for up to one-third of all schools (ABS 2016) and accommodating 35% of all students (ABS 2016). Australian schools are staffed by over 380,000 full-time equivalent in-school personnel, 70% of whom are teachers. The 2014–2015 students to teacher ratio was 13.9. In 2015, the Australian Bureau of Statistics reported that Aboriginal and Torres Strait Islander students made up 5.3% of all student enrolments (30% were enrolled in Queensland schools, and make up 8% of all enrolments in this state). Students from language background other than English accounted for 14% of all Queensland students (2013) (Queensland Teachers' Union 2013) and 27% of the student population in Victoria (Victoria State Government: Department of Education and Training 2014). The average number of students enrolled in primary schools was 283 and 584 for secondary schools. There were also 448 special schools in 2015.

An understanding of just how complex 'real' classrooms actually can be produces an argument that concepts such as 'quality' and 'readiness' are terms that need to be used in a careful way. Research has shown that just as 'quality' is a contested term, so, too, are concepts of preparedness, capability and 'effectiveness'; all of which can develop and change over time. From this perspective, 'teacher education' continues well after students graduate from university and questions

about the 'quality' and 'outcomes' from teacher preparation must therefore be addressed from multiple standpoints, including stakeholders in universities, schools and the wider educational community. Thus, universities are a major, but nevertheless only one part of a massive, complex educational superstructure within which there are very few 'absolutes' or certainties able to be found.

Questions about the quality of teachers and teacher education are therefore met at every turn with evidence of complexity: teaching is complex. Students are complex. Education is complex. Thus, as Cochran-Smith (2003) argues, while there is 'little debate in the education community about the assertion that quality of teaching and teacher preparation ought to be defined (at least in part) in terms of student learning' (p. 3), it is important to also acknowledge that teaching is '*unforgivingly complex*' (p. 4, emphasis in original).

Insisting on the recognition of complexity, however, does not mean that there is nothing that can be learnt about the relationship between teacher education (in universities and in schools) and teachers' preparedness to recognise and respond to this complexity and, as well, teachers' actual effectiveness in regards to various aspects of their undeniably complex work. Few are likely to suggest that teacher education does not have a responsibility to ensure that graduates enter a teaching position feeling as prepared and capable *as possible*.

This brings us to an important point.

Without wishing to endorse any simplistic, linear or 'value adding' approach to teacher quality we recognise that teachers *do matter*. Educators and commentators from vastly different ideological backgrounds agree that teachers have a real and significant impact upon the educational (and social) experiences of their students and also directly influence the achievements of students in schools (Day et al. 2007; Organization for Economic Cooperation & Development (OECD) 2005). This point has been evidenced over and over again within fine-grained research projects and case studies relating to schools, teachers and students showing how powerfully teachers impact upon students' educational experiences and outcomes and, of course, both academic and social success.

In the context of ongoing scrutiny of teacher education, and with a recognition that teachers have a significant and ongoing impact on the experiences and outcomes of students, the question that emerges is: what is it that teacher educators now need to know?

An Emerging Agenda for Teacher Education

As outlined in the previous chapter, Sleeter's analysis of almost 200 articles published in 2014 in leading international teacher education journals, for example, 'did not see evidence of an emerging, shared research program designed to inform policy' (2014, p. 151). Further to this point, the members of the SETE team have argued that questions about the knowledge base necessary to inform teacher education are important not only (or even primarily) because of a growing need for

teacher educators to speak back to ongoing representations of the profession as broken, inadequate or failing. It is important because the work of helping to prepare teachers for their careers and their classrooms is complicated and high stakes and needs ongoing analysis.

The SETE project therefore reflected the belief that regardless of how teacher education is positioned in public discourses and despite the complex range of factors that shape teachers' work, teacher education can *always* benefit from further analysis of the relationship between teacher education and the preparedness and effectiveness of teachers. We argue, moreover, that research into teacher education can usefully be shaped by a commitment to problematising the questions that have (and have not) commonly been asked about teacher quality and exploring with a genuinely open agenda issues regarding effectiveness and preparation.

In addition to this, we believe there is value to be had from research that is able to simultaneously speak back to policy, teachers and teacher educators with new forms of evidence about the quality of teacher education. These data, we suggest, will not only allow us to get beyond the tradition of 'quick fix' policy-driven 'solutions' to fundamentally complex problems, but also allow teacher educators to play an active, outward facing, powerful role in shaping teacher education for a changing world, extending our understanding of what teacher education actually is, and where teacher education takes place, and 'reforming' teacher education where reform is shown to be required.

From this basis the rest of the chapter has three interrelated aims.

First, we outline the potential for a spatial conceptualisation of teacher education to facilitate research that addresses the full range of factors that impact upon teacher preparation and teacher effectiveness; second, we explore the different ways in which both preparedness and effectiveness can be understood within three different spaces of teacher education; and, finally, we outline the specific ways in which our reading of this spatial approach underpinned the conceptualisation of a research project explicitly focused on questions relating to teacher education and its effectiveness that recognises and responds to the current political, policy and social context.

Changing Lenses: A Spatial Approach to Research in Teacher Education

As outlined in the previous chapter, the SETE research project was specifically and carefully designed to investigate questions relating to the effectiveness of teacher preparation for early career teachers who would be employed in diverse settings across Australia. In order to pursue this research agenda the research team first needed to embrace the complexity outlined above, and to acknowledge the multiple stakeholders involved.

Recognising the many contested claims made about what counts as evidence of 'teacher quality' and 'student achievement' we proceeded from the position that 'teacher education' is not a singular construct but a set of representations, practices and experiences that are socio-spatial and relational in their nature. From this basis, we drew upon the work of authors such as (Lefebre 1991) and Soja (1996) to think about the spaces where teacher education is understood differently by different stakeholders: the conceived space; the perceived space; and, the lived space—spaces that are both real and imagined. In each space, 'teacher education' and 'teacher effectiveness' can have different meanings and each of these meanings raise different questions for the design and conduct of research.

The Conceived Space

The conceived space of teacher education is where policy is articulated and where politically motivated ideas about desirable and 'effective' teacher education are constructed. Notions about quality teaching and preparation for teaching are debated, desired standards set, and teachers' and teacher education's performance is monitored. This space is commonly characterised by a focus on global economic competiveness and the imagined necessary neoliberal policies and responses. It is also characterised by accountability rhetoric and surveillance (Soja 1996), including the setting and monitoring of standards with success indicators often including results on standardised tests. Moreover, in recent times, this has involved a 'new professionalism' with notions of teacher professionalism being reconstructed to be more closely aligned with governments' reform agendas. It is important to note that in 2011, the Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEECDYA) endorsed new national professional standards [Australian Institute for Teaching and School Leadership (AITSL) 2011a] and new processes for accrediting initial teacher education programs (AITSL 2011b). Both moves were accompanied by claims that these reforms would improve the quality of teaching.

The conceived space, therefore, is the home of policy and regulations such as those associated with TEMAG and AITSL. It is where teachers and teacher education are officially defined and where indicators of outcomes and 'quality control' are developed. It is where the work of teachers and educators is evaluated. This is the space where questions are asked about program accreditation; entry standards; teacher performance standards; performance reviews. This is also the space that wants to know what we can conclude about the relationship between various aspects of teacher education and various educational outcomes. It is the space that seeks answers to complex question such as the following:

- What features of teacher education programs (length, design, delivery mode):
  - Produce graduates who can meet AITSL professional standards?
  - Produce graduates who will impact upon student achievement in benchmarking tests?
- What features of pre-service teachers (at the point of entry) impact upon their quality as teachers? What is the impact of:
  - Ability to meet changing entry and selection criteria?
  - Previous study?
  - Demographics including age, gender, cultural background, first language?

These are the questions that are regularly found within public debates about teacher education, and which underpin routine calls for teachers to be 'trained' in ways that ensure they 'add value' to their students (for discussion of this concept see Floden 2012). They are questions that many members of the public also have a clear interest in pursuing and they raise issues about which more needs to be known.

A different set of questions is more commonly found within the perceived space: the space of teacher educators themselves.

Perceived Space

The perceived space of teacher education is the space of professional knowledge and its production. It is where teacher educators 'make judgments about the knowledge, skills and dispositions required of future teachers' (Rowan et al. 2015, p. 9). What is valued in this space is, of course, never static, but rather shaped by understandings of what constitutes competent practice and core knowledge in a particular period. These practices and linked understandings (including detailed and growing knowledge about factors that impact upon students' sense of self and academic and social performances) are in turn embedded in teacher education programs, informing what students are asked to study, how they are assessed, how they interact with debates and literature relating to 'quality' in education and 'complexity' in classrooms and, of course, where and when they undertake practical experiences in schools.

The perceived space is informed by a large body of research and relies less on single, 'blunt instrument' measures of student performance, to look at multiple factors that shape outcomes and pathways. Cochran-Smith et al. (2015) suggest that teacher education researchers who are also teacher educators are primarily focused on research that generates knowledge about how to improve the contexts where pre-service teachers learn to teach and, in addition, their 'readiness' and 'suitability' to teach. This includes research that investigates factors that enable or constrain students' ability to engage with essential knowledge; pedagogies associated with teacher education and the identities and needs of teacher educators themselves. The perceived space has provided detailed pictures of the complexity of schooling and

of teaching and learning about teaching and has informed the work of teacher educators who seek to prepare students for this complexity, not by giving checklists and high-stakes testing packages but rather the kinds of critical and reflective mindsets that allow for careful analysis of *what is actually happening* within various teaching contexts and *how they can choose to act in response*.

Like the conceived space, of course, the perceived space is also a politicized, contentious and changing space that reflects various shifts over time with regards to what is considered core professional knowledge and how this knowledge is best 'packaged' and communicated to an increasingly diverse cohort of learners. This is illustrated, for example, by changing emphasis on the extent to which a program should directly address factors such as gender, or disability or cultural diversity, and similarly different emphases on stand-alone, or integrated discipline courses.

Those working within the perceived space are generally keen to identify

- The knowledge, dispositions and skills that graduate teachers need to possess, and the extent to which these are adequately reflected in various professional standard frameworks.
- The way research focused on such areas as curriculum, pedagogy, assessment and the social context of schooling can inform the design, development and delivery of teacher preparation.
- The need to ensure that students are understood as diverse, and to resist and reject any attempt to homogenise or stereotype students.
- The political context within which all teaching, teacher education and teacher education research takes place.
- The ongoing challenge of helping teachers navigates or negotiates between the priorities of conceived, perceived and, finally, the lived spaces of teacher education.

Research about relationships between professional learning and teachers' lives and exploration of theory–practice interactions occur in this space (Rowan et al. 2015).

The Lived Space

The lived space of teacher education is where knowledge is acquired and developed in the diverse contexts of schools and related educational settings. It is also where knowledge or perspectives developed or experienced in the perceived and conceived spaces may be revisited, validated, re-interpreted or rejected: and where teachers transition from pre-service to in-service educators. In this space, teachers' perceptions of teacher education both before and after graduation are the foci. The enactment of academic or 'theoretical' knowledge occurs in the lived space (Rowan et al. 2015) as does the oft-cited experience of a disconnect between the 'ideal' world of teaching advocated in the conceived and perceived spaces, and the 'realities' of classrooms.

The lived space frames 'quality' and 'readiness' as contested concepts and recognises that professional identity is fluid as teachers are constantly in a state of development: teacher education does not finish when graduates are employed. This space attends to action and reflection, and is concerned with the influence of emotions and relationality on practice.

As noted above, understandings of the theory–practice divide are also interrogated in this space (Rowan et al. 2015).

> … although people perceive, conceive and live in all three spaces simultaneously—they are not discrete, separate 'realities'—the tactical differentiation of spaces enables us to distinguish dominant and more specific ways of graduates' engagement with teacher education across time and across space (Rowan et al. 2015, p. 286).

The lived space of teacher education has been the site of an enormous amount of research. What factors influence teachers' transition into the workforce? What influences teachers to stay or leave the profession? What issues do teachers find challenging? What pedagogical innovations impact upon student learning? How is student diversity shaping/re-shaping teachers? How does teachers' sense of self or self-efficacy influence their decision to teach various subjects or concepts? What forms of professional learning support the transition from beginning to accomplished teacher? These are just a sample of the many questions that are investigated by those working in the lived space of teacher education. While enormously varied in topic and methodology, research in this field is organised around a focus on 'what is happening' in 'real world' schools, and how teacher education is connected to, or disconnected from, these developments.

It is the lived space that reveals the complexity of teaching, the power (and powerlessness) of teachers and the complex interplay of factors that shape who teachers 'are' and what teachers become within, through, during and beyond their university-based education.

The resultant research explores questions such as

- Who are teachers? Why do they teach? Why do they stay/leave?
- How effective do teachers believe they are? What influences this belief?
- How does induction/transition impact upon teacher practice, teacher identity and teacher effectiveness?
- How has teacher education shaped effectiveness in regards to the multiple dimensions of education?
- What is the impact of context: school, administration, students and colleagues, on effectiveness?
- What enables or constrains a transition into teaching, and a growing sense of confidence and effectiveness?
- How do teachers and principals view graduates' preparedness and effectiveness?
- What is the 'real world' of teaching like for graduate teachers?

When brought together consideration of the conceived, perceived and lived spaces of teacher education provides opportunities for researchers to develop and respond to the various understandings of 'effectiveness' that permeate teacher

education. It invites examination of the layers of factors that influence teachers' effectiveness and is sensitive to dynamics between the teacher education program, the individual, and the workplace.

The question that emerges, then, is how does the spatial approach inform the conceptualisation of a research agenda that is relevant to all those working across the three spaces, and which has potential to improve the work of all educators. In the final section of this chapter, we outline some research 'touchstones' that informed the design of the SETE project.

A Spatial Approach to Research Design: Touchstones for Researchers

We have argued throughout the book so far a need for teacher educators to be at the forefront of research into this relatively new discipline area, and further, have argued for a direct response to public anxiety about the quality of teaching and the resultant questions that may be directed at our work, rather than attempting to avoid these concerns. Drawing upon the spatial metaphors introduced above enabled the research team to think differently about what research into the effectiveness of teacher education could look like into the future, and to ask questions about who it could/should involve and what data it would need to collect in order to have maximum credibility. While the following chapter, Chap. 3, will provide specific detail about the design and operation of the project, our goal in this conclusion to Chap. 2 is to indicate the way the spatial approach to teacher education provided guidance for—or touchstones to evaluate—each stage of our decision-making.

First, it was clear that our research questions (introduced in Chap. 1) needed to reflect the specific and particular concerns of people working within all three spaces and allow teacher education to speak directly to the construction of teacher education as both failing and complex. Thus the project was organised around three main questions:

1. How well-equipped are graduates to meet the requirements of the diverse settings in which they are employed?
2. What characteristics of teacher education programs are most effective in preparing teachers to work in a variety of school settings?
3. How does the teacher education course attended impact on graduate employment destination, pathways and retention within the profession?

Second, a spatial approach to research demands that these questions are investigated using techniques that allow the voices of those working in the conceived, perceived and lived spaces to be heard. In other words, all research questions need to be considered from the representations and meanings offered by each of the three spaces. This is illustrated in Fig. 2.1.

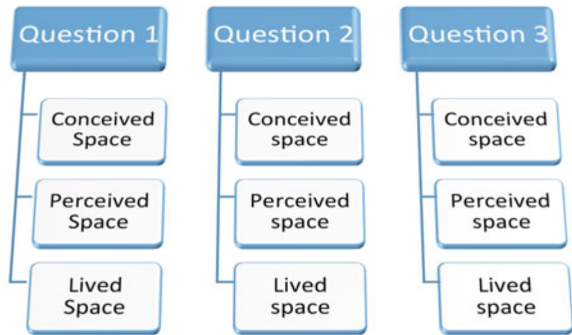

Fig. 2.1 Spatial representation for each research question

Third, the research needed to involve creation of data sets that would be valued and seen as credible by those in diverse spaces. These would include, ideally, large-scale quantitative data sets tracking graduates over time, as well as rich, and detailed case studies providing texture and nuance to representations of teachers as 'prepared' and 'effective' or otherwise. These data sets would also need to provide different stakeholders with opportunities to reflect upon what preparedness and effectiveness would look like at different times. In addition to this, the data needed to recognise that diverse school contexts are a feature of Australia's vibrant school sector and as such graduate teachers' experiences and perceptions are embedded within a range of school settings. Mapping school characteristics against teachers' perceptions about preparedness and effectiveness is necessary to enable meaningful exploration of the impact of context on teaching knowledge and practice, and attitudes towards the profession and initial teacher education.

Fourth, in recognition of the complexity of teacher preparation and the spatial approach to mapping this complexity, the research clearly needed to involve stakeholders from the various spaces and to allow different opportunities (at different times) for their input to be received. This is reflected in the composition of the research team, and the data collection opportunities that were provided. Our goal was to ensure that the loudest voices in teacher education—those in the perceived and conceived spaces—were joined with those of teachers within the lived space. This was made possible thanks to a strong partnership involving the Victorian Institute of Teaching (VIT), the Queensland College of Teachers (QCT) the Victorian Department of Education and Early Childhood Development (DEECD), the Queensland Department of Education Training and Employment (QDETE), and the relevant universities of each of the Chief Investigators (Deakin University, Griffith University, Victoria University and Monash University). This combination of partners has allowed the team—at all stages of the research—to reflect upon the extent to which the project is recognising and responding to current debates and concerns across the three spaces. It also facilitated the selection of research questions that were sufficiently open to the voices associated with these sites of analysis. It is therefore important to acknowledge that all of the members of

the research team had an impact upon the research questions, and the research design and data analysis.

Fifth, to adequately investigate the complexity of the various spaces (and the ways they do and do not interact) data collection logically extended over time, and made connections with multiple spaces. This commitment recognised that the lived space of teacher education relates directly to graduates' career destinations and pathways. This, in turn, necessitated a focus on the retention or attrition of graduate teachers, as well as their geographic and school sector mobility within the profession. To be valued by all three spaces of teacher education, data generated in this study provided a complex picture of the various ways in which graduate teachers negotiated the career pathways available to them within the education sector.

Finally, a spatial framing reminds us that research must look beyond representations of teacher education that depend primarily on the voices of teacher educators or policy makers, and to attend closely to the voices of the graduates themselves and the principals who employ them. Thus it is essential that questions about the effectiveness of teacher education are directed specifically to graduates and principals and not confined to analysis of student outcomes or other 'neutral' indicators. In other words, we seek to emphasise participants' perceptions of effectiveness, as opposed to statewide data systems linking teachers, students and preparation (as recognised by Edwards 2010). We therefore think of effectiveness in terms of teachers' attitudes and beliefs (Klieme and Vieluf 2009; Löfström and Poom-Valickis 2013) about their own effectiveness in relation to their context (Alton-Lee 2003), a perspective which allows teachers to also acknowledge their personal qualities and takes into consideration contextual factors, which include the system, school, teacher and students. Effectiveness in this research therefore differs from the understanding of the term used in improvement frameworks. Effectiveness here is determined through the graduates' and principals' perceptions of the relational (Day et al. 2006) coupled with the notion that ITE is 'initial' and that learning about teaching is ongoing and is continued in schools (Mockler 2013).

Conclusion

Florio-Ruane (2002) reminds us that studies of teaching and teacher education are

> responsive to problems of practice. However, when these problems are framed rhetorically as crises, we are apt to respond to their urgency by seeking simplicity, authority, and order in our research. … We should resist (a) pitting approaches to research against one another, (b) privileging approaches merely because they are compatible with the language of policy, (c) accepting uncritically any approach to research, and (d) disregarding research emphasising local knowledge (p. 205)

It is possible to argue that there is a significant gap within the teacher education research regarding the kind of large-scale research into teacher education and its effectiveness (for example Cochran-Smith et al. 2012; Cochran-Smith and

Zeichner 2005) that might allow us to make an active contribution to public and highly political debates about the extent to which teacher education—as a vast field of activity—can, or cannot, be considered 'effective'. Recognition that 'teacher education' and 'teacher preparation' mean different things to different people depending upon the spaces they interact within necessitates an approach to researching teacher effectiveness that examines notions of preparedness and effectiveness in different spaces and at different terms, and from different points of view.

Consideration of the conceived, perceived and lived space of teacher education provided us with the opportunity to develop and respond to the various understandings of 'effectiveness' that permeate teacher education. It invites examination of the layers of factors that influence teachers' effectiveness and allows us to be sensitive to the dynamics between the teacher education program, the individual, and the workplace. The touchstones used to guide the development of the SETE research also work to problematize the 'crisis' discourse noted in Chap. 1 as well as challenge the notion that there are essential 'truths' or best practice models suitable for every circumstance. They provide a basis for decision-making regarding the specific methodologies and methods embraced by the team and, as well, a platform for conceptualising and enacting data analysis. The details of these decisions are outlined in Chap. 3.

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Chapter 3
Research Approach

This chapter presents a detailed account of the research design of The Studying the Effectiveness of Teacher Education (SETE) project, a 4-year longitudinal study investigating newly graduated teachers' and principals' perceptions of the effectiveness of teacher education in preparing teachers for the variety of Australian school settings in which they begin their teaching careers. The project aimed to provide an evidentiary basis for policy decisions regarding teacher education and beginning teaching, and to inform state-based professional regulatory authorities in their role of accrediting teacher education programs and universities in the design and delivery of teacher education programs.

SETE tracked 2010 and 2011 graduate teachers over 3 years from two large states in Australia—Victoria and Queensland. In addition, it investigated principals' perceptions of graduates' effectiveness as beginning teachers. It is the first large-scale study of its kind completed in Australia, involving around 5000 early career teachers and 1000 principals. In Australia, as elsewhere, teacher educators are increasingly being asked to defend the quality and impact of their work—specifically, their ability to prepare effective teachers (see Chi-Kin Lee and Day 2016; Menter et al. 2010). However, as argued in previous chapters, the kind of large-scale data sets that policymakers and other stakeholders seek to inform questions about the value-add of teacher education are not readily available. Menter et al. (2010), drawing on the work of Cochran-Smith (2006), affirm the struggles that have endured for research on teacher preparation, claiming that 'most of the broad policy aspects of teacher preparation have little or no conclusive empirical evidence' (p. 118). There are a number of reasons for this.

First, research on teacher preparation has been 'marginalized and underfunded'. Second, very little of the research undertaken 'was designed to establish empirical linkages to pupils' learning, partly because teachers' knowledge, learning and beliefs were assumed to be important outcomes of teacher preparation in and of themselves and partly because it was considered self-evident that teachers who knew more, taught better (ibid) (Menter et al. 2010, p. 64).

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The large-scale and longitudinal ‘Studying the Effectiveness of Teacher Education’ (SETE) project set out to respond to these issues, albeit within the restriction of the size of the project and the nature of the research funding scheme. The study therefore makes a unique contribution to teacher education research in Australia and adds to the international literature a perspective that grapples with the quality and effectiveness debate in teacher education.

SETE employed a mixed methods approach to collect, record and analyse data sets over time. A recursive strategy combining online surveys, database analysis/contextual mapping and case studies was used. Each of the methods produced stand-alone as well as mutually informing longitudinal findings. The research design employed in the project is a significant contribution to teacher education research and teacher knowledge. This chapter explains methodologically how a response to the complexity of learning teaching for early career teachers is constructed and responds to the demands of the contemporary Australian policy setting and the demands of large-scale research highlighted in the previous chapters.

The first section of this chapter provides an explanation of the research design based on understanding teacher education through complexity theory (Cochran-Smith et al. 2014; Doll 2012; Gough 2012). Optimistically, teacher education systems are adaptive and can be thought of as sites of learning which emerge from experiences that trigger transformations in learners and in teacher education (Davis and Sumara 2006). This understanding grew over the project life and resulted from the lived experience that engaged a team of 14 researchers in a large-scale mixed methods design. The SETE project was committed to responding to the methodological and theoretical challenges that have been identified in the recent literature and the paucity of large-scale studies in Australia. Relative to the scale of teacher education research in Australia, which tends to be small scale and completed by single or local researchers from one institution, the team’s adoption of a theoretical framework that was enabling of transformative and agential outcomes across states was an ambitious, but necessary undertaking.

The choice of a mixed methods approach (Torrance 2012) to frame the research design is then argued, and the structure of data collection and analysis is outlined. Here the significance and the workings of an iterative longitudinal study are introduced. The chapter does not include all the data generated nor the details of analysis and findings. This chapter focuses on the productive and innovative complexity of the research design that is nested in a research partnership that unfolded in a particular social and political context.

Complexity and Teacher Education Research Design

Complexity theory has been used extensively in education and educational research (Cochran-Smith et al. 2014; Davis and Sumara 2006; Hetherington 2013), however, the usage more commonly occurs in curriculum studies (Doll 2012; Gough 2012). Complexity theory has been described as a change theory attentive to evolution and

adaptation that takes place through cooperation and competition (Battram 1999; Morrison 2002). It enables us to simultaneously grasp 'the many layers of dynamic nested activity that are constantly at play' (Davis and Sumara 2006, p. 28). Unlike scientific theories, and like some other social theories, complexity theory explains relations and interconnections as the site of interest rather than cause and effect and linear predictability (Youngblood 1997; Cilliers 1998). Renowned curriculum theorist William Doll (2012) has been influential in the adoption of complexity theory in education. He draws upon Prigogine's (1984) work on dissipative structures in far-from-equilibrium thermodynamic systems which stress the formation of complex, sometimes chaotic structures. Complex organisms are defined by their systems and by the nature of their parts. Their systems are adaptive, fluid, goal-seeking, learning, hierarchical, self-organising, open, emergent, and marked by disequilibrium. The parts in a complex organism are described as being 'autocatalytic', 'entangled', 'inseparable' and 'non-reversible' (Morrison 2006). The qualities of complex systems and complex parts are reflected in both the design of this project and in the subject of the research.

Mixed Methods

The SETE project is part of a new wave approach of social science policy research. As Tashakkori and Teddlie (2010) point out, 'mixing methods in research design encompasses a wide range of approaches to and interpretations of mixed methods work (cited in Torrance 2012, p. 111)' but:

> it does seem that MMR is being presented as something new and distinct, a new and better form of science, and a more complex approach to research designed to address the more complex problems that social research now faces (Caracelli 2006; Creswell et al. 2011). However, a major debate is emerging within this "third community" with respect to whether or not MMR is "just" a new form of science, a better technical fix for getting a purchase on social policy issues, or a new form of science with an explicit orientation toward valuing complexity and diversity, including critical engagement with policy and the pursuit of social justice. (Torrance 2012, p. 112)

The selection of a mixed methods design for the project, which was endorsed by the award of large funding support from Australian government national and state sources, hints at some of what Torrance has raised above—that is, the selection of method alone could be conceived as just that: 'a better technical fix for getting a purchase on social policy issues, or a new form of science with an explicit orientation towards valuing complexity and diversity, including critical engagement with policy and the pursuit of social justice'. The methodological caveat that teacher education research 'is not simply a matter of assessing its methodological and conceptual outputs, but of interpreting larger political controversies and competing policy agendas' (Cochran-Smith et al. 2012, p. 9) became central to this study and the framing of the findings and circulation or not of the research outcomes.

A Longitudinal Recursive Design for a Complex Problem

The research design for the study included three main data sets—a desktop mapping of teacher education programs, surveys of graduate teachers and principals and qualitative case studies. There were four rounds of surveys of 2010 and 2011 graduate teachers, three rounds of surveys of these graduate teachers' school principals, and up to five case study visits to 30 strategically selected schools in Victoria and Queensland, two states that sit to the south and north respectively of mainland Australia. Case studies were conducted throughout the duration of the study. Alongside this data collection was a national mapping of initial teacher education programs. The design was built on a recursive strategy, combining the on-line surveys, database/contextual mapping and case studies. Initial survey findings informed second year case study foci. Ongoing case study findings informed survey modifications. This pattern continued over the 4-year data collection period. The collected data increasingly reflected a greater depth with each step of data collection and analysis informing and contributing to the construction of the next step. This process had autocatalytic and entangled qualities and the process was not reversible. Unlike a complex organism, the parts of this data collection can be separated. Each data set has produced stand-alone findings, however, the depth and impact of these are significant when read together.

The longitudinal nature of learning to teach and of recognition of learning shaped the longitudinal aspect of the design. The case study method is responsive to the demands of a longitudinal study such as this. The surveys of teachers and principals provided particular challenges in addressing longitudinal constraints. To address this, the overall structure of surveys included point—in-time surveys with a nested set of longitudinal surveys.

The primary target population for the SETE study was Queensland and Victorian teacher education graduates in 2010 and 2011 registered with the Victorian Institute of Teaching (VIT) or Queensland College of Teachers (QCT) between October 2010 and February 2012. Employer and regulatory authority databases were accessed with the support of the state-based research industry partners to select case study schools and to inform surveys. These data included information on over 4200 schools in Queensland and Victoria, including general location, staffing profile and student population data and de-identified graduate teacher registration records (gender, age and teacher education information only). In total 4907 graduate teachers contributed to the survey data. This equated to about one third of the target population of graduate teachers. These teachers contributed a total of 8460 responses, with about half of the respondents participating in two or more survey rounds. Responses from principals totalled 1001 across the three rounds. Twenty-nine government schools from across Queensland and Victoria constituted the cases in design case studies. The cases involved 197 graduate teachers and 52 principals and school leaders.

A Focus on Perceptions

SETE set out to backward map teachers' perceptions of effectiveness in their school context to their preparation for teaching. Our focus has been on how the graduate teachers perceived their teacher preparation as effective in relation to preparing them for the context in which they are working (Berry et al. 2010; Creemers and Kyriakidēs 2008), and to identify characteristics of various programs that are deemed effective for teachers in diverse school contexts within the broader social, political, historical and economic contexts within which initial teacher education is developed and regulated (Cochran-Smith and Power 2010). The effectiveness of graduates in their specific school contexts also takes into consideration the graduates' practical consciousness—their identity, pedagogical preferences, professional experiences and intended/actual lived space in the context of educational reform in Australia. Effectiveness in this research differs from the understanding of the term used in improvement frameworks. Effectiveness here is determined through the graduates' and principals' perceptions of the relational (Day et al. 2006) aspects of preparation with a focus on the outcomes of initial teacher education (McConney Price and Woods-McConney 2012) coupled with the notion that initial teacher education is indeed 'initial' and that learning teaching is ongoing and continues in schools (Berry et al. 2010; Mockler 2013).

The SETE project focussed on perceptions:

- graduate teachers' perceptions of their preparedness for teaching;
- graduate teachers' perceptions of their own effectiveness as beginning teachers; and,
- principals' perceptions of the graduate teacher's effectiveness.

We think of perceptions in terms of teachers' attitudes and beliefs (Klieme and Vieluf 2009; Löfström and Poom-Valickis 2013) about their own preparedness and effectiveness in relation to context (Alton-Lee 2003) and personal qualities and variables (Beijaard et al. 2000). These contexts comprise the broader social, political, historical and economical contexts of schools in Australia, as well as the specific contextual factors of the schools such as school philosophy, location, and student population, to name a few. Personal qualities and variables included notions of the self, interactions and experiences in relation to the context. Ingvarson, Beavis and Kleinhenz (2004) note that characteristics such as previous experiences, the processes associated with learning to teach, and the quality of the professional community in the school influence a person's perceptions of effectiveness.

Perceptions are formed by organising, identifying and interpreting sensory information in order to represent and understand the impact teachers have on student learning in specific contexts. Perception is not the passive receipt of information, but can be shaped by learning, memory, and expectation. Perception involves 'top-down' effects such as a person's knowledge, motivations and expectations that influence perception, as well as the 'bottom-up' processing of low-level information taken in through the senses that are used to build up higher

level thinking. Perceptions can be viewed as schemas, created by experiences, which can create a perceptual set—a readiness to perceive something with a certain bias.

Perceptions of effectiveness can be mediated by who the perceiver is talking to, who else is present, or who will see the results (to name a few that are relevant to this project). These could be seen as factors that impact on the 'validity' of the results, yet these are the very factors at work every day in teachers' lives. In a profession that is predominantly about interacting with other people (some of whom do not belong to that profession, such as students and parents), every day and every situation is different. Small events can have a large impact on everyone's ability to perceive and even recall that particular day or event from the viewpoint of the context of the particular day of the survey or interview. In a move to go beyond self-reporting but maintaining the values of teacher perceptions, the project also included the principals of the schools in which the survey graduates were employed. These principals were asked through survey for their perceptions of the effectiveness and the preparedness of their graduate teachers.

Mapping Initial Teacher Education

At the commencement of the project in 2010, a national point-in-time review of 551 programs relevant for the 2010–2011 graduate teacher cohort was conducted. This mapping provided a record of the length, structure and delivery of the programs; professional experiences; program content and approaches; the integration of theory and practice; and, measures of entry into the programs. The identification of publicly available online information about teacher education programs accredited by all Australia teacher regulatory authorities, was coupled with a verification process that involved interviews with provider representatives at most of the institutions. The review of the teacher education programs was conducted from October 2011 to February 2012, by SETE researchers.

The primary research goal of the mapping project was to investigate and capture a point in time review of the key dimensions and characteristics of teacher education programs in Australia. The mapping provides an understanding about the structures, approaches and delivery of teacher education programs in the timeframe most relevant to the graduate teachers being surveyed. Key data from the mapping were used to cross-tabulate with survey data. These data included length of program, the number of practicum days in each program, the distinguishing features of programs and whether preparation in key areas of teaching was undertaken as stand-alone or embedded units in the teacher education program. The teacher education program mapping process, for example, showed considerable variation in professional experience processes and structures across the country. In almost all case studies, professional experience was identified as the core of learning teaching.

The national mapping of teacher education programs provided a point-in-time review of preparation programs across Australia between late 2011 and early 2012,

these being the programs of relevance for the graduate teachers being followed for SETE. Three aspects of the teacher education programs were analysed:

1. Teacher education structures.
2. Teacher education approaches.
3. Measures of entry into teacher education programs.

All accredited teacher education programs across Australia, not just those offered in Victoria and Queensland, were examined in recognition that teachers do not necessarily work in the jurisdiction in which they complete their teacher preparation. Data were collected by desktop analysis and a total of 551 programs from 47 providers across Australia were reviewed. Telephone interviews were conducted with personnel from each provider to verify the data. The mapping data were used in the analysis of the teacher and principal survey responses.

Development of the SETE Survey Datasets

The recursive nature of the research design is most strongly exemplified in the development of the survey data sets as illustrated in Fig. 3.1. Each survey was subsequently informed by emerging point-in-time readings of the case studies. Each stage of the case studies was informed by survey readings. Teachers who completed surveys plus their matched principal surveys were merged with ITE mapping and school characteristics. Initial survey findings informed second year case study foci

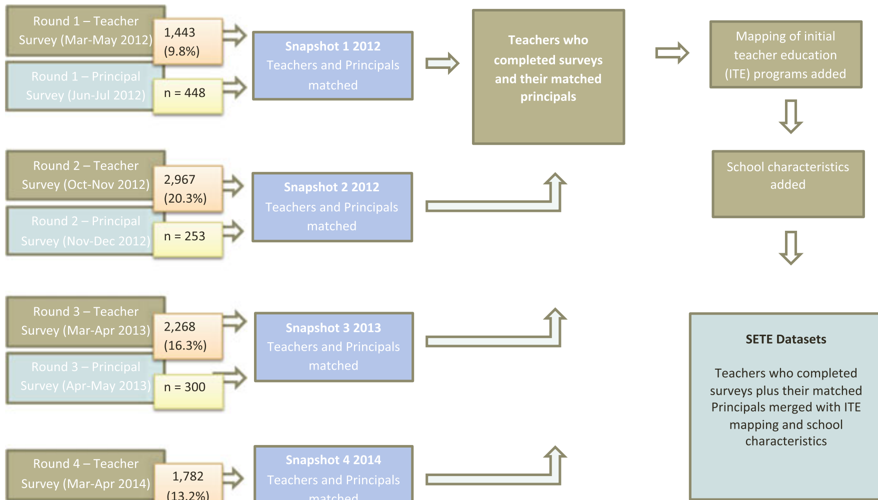

Fig. 3.1 Development of the SETE survey datasets

and ongoing case study findings informed survey modifications. This pattern continued over the 4-year data collection period. In this mixed methods study, the data parts had autocatalytic and entangled qualities.

Complex organisms involve autocatalytic parts (Morrison 2006): those in which the reactants are also the products. All chemical reactions involve both reactants and products. Reactants are substances that start a chemical reaction, while products are substances that are produced in the reaction. Parts do not simply interact, they change each other. Morrison (2006) argues that in complexity theory an organism, however, defined, senses and responds to its environment, thereby changing its environment, which changes the organism again, so that the organism reacts to, and thereby—proactively—changes, its environment; the process, in iterating itself, produces dynamic and continuous change recursively (p. 2).

This productive relationship is somewhat evidenced in the relationship between each survey point, each case study encounter and the use of desktop mapping data. While there are similarities between process of chemical reactions and the development of the SETE study, there are also differences; one being that each data point can be separated. Each data set has produced stand-alone findings. The depth and impact of these entangled data sets are significant and grow in significance as they are read together and across each other, affirming the methodological stance that was central to this study. Like learning to teach, the research design and the research team worked continuously at adhering to the beliefs and values embedded in understanding and honouring the longitudinal and overtime nature of learning to teach. Given the longitudinal design, the surveys of teachers and principals provided particular challenges. To ameliorate these challenges, the overall structure of surveys included point-in-time surveys with a nested set of longitudinal surveys. In the section that follows each data part is described.

Surveys

There were four rounds of surveys of teachers who graduated in 2010 and 2011, and three rounds of surveys of these graduate teachers' school principals over the years 2012, 2013. Each step of data collection and analysis informed and contributed to the construction of the next step. The sequence of surveys was as follows:

- *Piloting of surveys*
  - October 2011: User testing of the Teacher and Principal Surveys (Round 1)
  - December 2011: Pilot Teacher Survey (Round 1) statewide pilot in Queensland
  - March–April 2012: Pilot Principal Survey (Round 1) selected Principals in Queensland.

- *Round 1 Teachers*
  - March–April 2012: Teacher Survey (Round 1) all 2010/2011 graduate teachers registered in Victoria and Queensland.
- *Round 1 Principals*
  - May 2012: Principal Survey (Round 1) all principals of schools located in Victoria and Queensland.
- *Round 2 Teachers*
  - October 2012: Teacher Survey (Round 2).
- *Round 2 Principals*
  - November-December 2012: Principal Survey (Round 2) all principals of 2010/2011 teacher education graduates who responded to the October survey.
- *Round 3 Teachers*
  - March-April 2013: Teacher Survey (Round 3).
- *Round 3 Principals*
  - April-May 2013: Principal Survey (Round 3) all principals of 2010/2011 teacher education graduates who responded to the March 2013 survey.
- *Round 4 Teachers*
  - March-April 2014: Teacher Survey (Round 4).

Surveys of Graduate Teachers and Their Principals

The main target population for the large-scale quantitative component of the research was new teachers: (a) who were registered with their local registration body, either the Victorian Institute of Teaching (VIT) or the Queensland College of Teachers (QCT); and (b) who graduated from a teacher education program in either 2010 or 2011. The size of the cohort was 15,034, with the VIT having registered 9181 newly qualified teachers in the period October 2010—February 2012 inclusive, and QCT having registered 5853 teachers. The secondary target population was the school principals in those schools where the graduate teachers were employed. The point-in-time teacher surveys were accompanied by a subset of longitudinal surveys. The longitudinal sample was comprised of 619 unique cases. Each of these graduate teachers completed the Rounds 2, 3 and 4 SETE Graduate Teacher Surveys (responses across three calendar years 2012, 2013 and 2014).

Point-in-Time Graduate Teacher Surveys

The Graduate Teacher Surveys collected data on graduate teachers' perceptions of how well their teacher education program prepared them for teacher employment in schools and how effective they felt as beginning teachers. The graduate teachers were surveyed four times over 3 years. In total, 4907 graduate teachers contributed to the SETE survey data. This represented one third of the target population. Six per cent of respondents participated in all four rounds and 20% in at least three rounds. Over 50% of respondents completed only one of the four surveys. Analyses were conducted at each survey time point. Copies of the Graduate Teacher Surveys are available at http://www.setearc.com.au/data-collection/surveys/. The surveys included categorical, scaled and open-ended questions, including a group of core questions that remained identical for each of the four surveys.

Graduate Teacher Survey Content

Question construction was based upon a review of the relevant literature, discussions with experts in the field, and previous research and surveys used to investigate graduate teachers' early career experiences as well as their perceptions of their teacher education programs, including:

- Staff in Australia's Schools teacher questionnaire 2007 and 2010 (McKenzie et al. 2008, 2011);
- Australian Education Union new educators survey 2008 (Australian Education Union 2009).
- VIT Future Teachers Project (Survey instrument) (Ingvarson et al. 2004).
- Australia Government, Department of Education, Science and Training (DEST) survey of final year teacher education students, 2006 (DEST 2006).
- Australian Graduate Survey (Graduate Careers Australia 2011).
- Teaching Australia—Study of the effectiveness of teacher education: 2008–2010 (Louden et al. 2010); and,
- Teacher Pathways Project (Survey instruments) (Boyd et al. 2006).

Surveys collected teacher demographic information (such as age, gender, country of birth, teacher education program completed, university location, school location, and responsibilities within the school), reasons for selecting teaching as a career, and any prior occupation. Questions about early career teacher perceptions of their preparedness to teach were initially presented to graduate teachers in the form of 46 statements to which they could agree or disagree. To reduce the number of items for the subsequent rounds, sub-scales with subsets of indicator variables were created for nine areas of teaching. The sub-scales were informed by the literature (e.g. Alton-Lee 2003), previous surveys (e.g. McKenzie et al. 2011), and the Australian Professional Standards for Teachers (Australian Institute of Teaching

and School Leadership 2011). In Rounds 2, 3 and 4, only statements about the teaching areas reflected in the sub-scales were included. In these subsequent rounds, graduate teachers were asked not only about their preparation for teaching, but also about their effectiveness as early career teachers.

Survey Sub-scales

The nine sub-scales of the graduate teacher surveys were:

- Teaching culturally, linguistically and socio-economically diverse learners.
- Design and implementation of curriculum.
- Assessment and the provision of feedback and reporting on student learning.
- Pedagogy.
- Classroom management.
- Professional engagement with parents/carers and the community.
- Collegiality.
- Professional ethics.
- Engagement with ongoing professional learning.

These sub-scales were coupled with a series of open-ended questions that examined graduate teachers' relationships with students and statements linked to the seven Professional Standards for Teachers (Australian institute for Teaching and School Leadership (AITSL) 2011).

In each survey round graduate teachers were presented with an opportunity to respond to open-ended questions asking how teacher education programs could be strengthened and the existing strengths of program. The final school characteristic examined was the induction and support for new teachers. Nine items were included in the survey as examples of induction and support (drawn from Ingvarson et al. 2004) and a tenth item was added in Round 2 to capture the involvement of registration authorities in the support of graduate teachers. In each of these areas the graduate teachers were asked for their level of agreement on the effectiveness of the support item.

- Induction program.
- Formal mentor arrangement.
- Informal mentor arrangement.
- Ongoing network with other beginning teachers.
- Guidance on curriculum and classroom planning.
- Ongoing professional development opportunities.
- List of informative websites.
- Information on pay and conditions.
- Regular debriefing opportunities.
- Assistance from Teacher Registration Authorities (added in Round 2).

Survey Participant Profiles

Each survey set sought profile details of graduates and of schools in which they were located. This level of complexity is critical in understanding the responses.

The graduate teacher sample demographics—across Rounds 1, 2, 3, 4—were as follows.

Personal Characteristics

- 66% were under 30 years of age.
- 78% were female.
- 94% reported English as their only language.
- 1% identified as Aboriginal or Torres Strait Islander.
- 43% identified as the first in their immediate family to gain a tertiary qualification.
- 68–84% of graduate teachers had other academic or trade qualifications in addition to their teaching qualifications. Many had previously worked in the education, retail trade and health or community services sectors.

The Graduate Teacher Survey also asked graduate teachers how their teacher education professional experience was organised. In the main, teacher education programs offered supervised practicum in the form of a block practicum (five days a week over one or more weeks), a distributed practicum (1–2 days a week over a period of time) and/or an internship. Of all respondents to the Graduate Teacher Survey:

- 95% of graduate teachers had completed a block practicum.
- 29% of graduate teachers had completed a distributed practicum.
- 28% of graduate teachers had completed an internship (the duration and supervision arrangements of which varied considerably across programs).

The professional experience components of the graduate teachers' programs were combined in a variety of ways. Of the 3480 respondents who provided information about this structure:

- 55% had experienced a block practicum only.
- 15% had experienced a block practicum and a distributed practicum.
- 15% had experiences a block practicum and an internship.
- 11% had experienced a block practicum, a distributed practicum and an internship.
- 3% had experienced a distributed practicum only.
- 1.4% reported experiencing only an internship.
- 0.5% had experienced a distributed practicum and an internship.

There were notable differences in the professional experience arrangements experienced by program type:

- 65% of Master's graduates experienced a distributed practicum, 34% of Bachelor's graduates and 17% of graduate teachers with a Graduate Diploma.
- 96% of graduates with a Graduate Diploma experienced a block practicum, 95% of Bachelor's graduates and 86% of graduate teachers with Master's qualifications.
- 39% of graduate teachers with Bachelor's degrees experienced an internship, 27% of graduates with Master's qualifications and 17% of graduate teachers with a Graduate Diploma.

Information about the duration of the internship was requested in the Round 2 Graduate Teacher Survey. This new question was introduced to assist with understanding the various ways institutions define internships. A total of 274 Round 2 respondents provided information about the duration of their internships, which ranged from 2 to 15 weeks. Sixty-nine per cent of those who said they completed an internship stated it was six weeks or shorter in length, and of the 86 respondents who had an internship longer than six weeks, 48% were 10–12 weeks. The average length was 6.6 weeks.

The program characteristics of the graduate teachers were:

- 39% 2010 graduates; 50% 2011 graduates.
- 53% completed a graduate entry teacher education qualification (including 9% Master's programs).
- 47% had a 4-year undergraduate Bachelor's qualification.
- 85% completed their teacher education in full time study mode.
- 67% completed their teacher education at a metropolitan campus.
- 96% were enrolled as domestic students.
- Majority completed their studies with a secondary (44%) or primary school (36%) teaching qualification.
- 95% of graduate teachers had completed a block practicum.
- 29% of graduate teachers had completed a distributed practicum.
- 28% of graduate teachers had completed an internship (the duration and supervision arrangements varied considerably across programs).

Longitudinal Sample of Graduate Teachers

The longitudinal sample was defined by participation in at least Round 2, 3 and 4 of the graduate teacher survey. This collection was selected as it captured responses across three calendar years (2012, 2013 and 2014), was of appropriate size to enable the type and range of data analyses required to address the research questions, and provided a robust sample of the graduate teacher population under investigation.

The longitudinal sample comprised 619 cases, each case representing a graduate teacher who had completed at least three of the Graduate Teacher Surveys. Where possible, principal responses were matched to the case, as were data about the teacher education program completed by the graduate teacher and information about the school/s in which they were employed as teachers.

When compared to the point-in-time samples the longitudinal sample contained: a smaller proportion of respondents aged 20–24 and a greater proportion of those aged 25 and above; and a smaller proportion of respondents who were first in family to receive a tertiary qualification. The samples were similar in all other areas.

Principal Survey

The target population for the Principal Survey was principals of schools who employed 2010 and/or 2011 graduate teachers who had responded to the Graduate Teacher Survey. Therefore, the total number of principals asked to participate in the Principal Survey was dependent on the number of responses to the Graduate Teacher Survey. There was a general media advertisement sent out through Principal Associations and during Round 1 an invitation was sent to all schools, but generally only the principals of the graduate teachers participated in the survey. A total of 1001 Principal surveys were completed across three survey rounds (Round 1, 2 and 3). Principal responses were gathered for matching with survey responses from graduate teachers and as such no attempt was made to secure a representative sample from principals. In some instances, principals opted to delegate completion of the survey to another school leader (10.9% of responses).

The response rate for Round 1 was 11% of invited principals (448 responses), Round 2 was 16% (253 responses) and Round 3 was 25% (300 responses). The Principal responses could be matched to 115 individual teachers in Round 1, 227 in Round 2 and 242 individual teachers in Round 3.

Principal Survey Content

The principal survey data included:

- **School demographic data**: state/territory, sector, name, geographic location, number of full time equivalent teachers, graduate teacher number, number of students, proportion of students with a disability, proportion of students from Indigenous backgrounds, proportion of students from language background other than English;
- **Individual graduate teachers**: effectiveness in key teaching areas, responsibilities within schools, success in influencing student learning; and

- **Graduate teachers in general**: areas of greatest success, areas of greatest challenge, programs and program elements that better prepare graduates for teaching, school support for graduate teachers, university-school transitions, professional learning opportunities, recruitment, retention.

In the Principal Survey, the questions about the effectiveness of teachers in key areas was followed by questions on whether the principal agreed or disagreed that this teacher had been successful in influencing student learning. In Round 3 a new question was introduced to ascertain if principal and teacher agreement about graduate teachers' influence on student learning differs for particular areas. The open-ended question was: 'What elements of teacher education programs do you find better prepare graduates for your school context?' Open-ended questions about the key successes and challenges experienced by graduate teachers in their initial years of teaching were included in both the Graduate Teacher and Principal Surveys.

The demographics of the schools in which principal respondents were located are presented in Table 3.1.

Survey Analysis

Analysis of the point-in-time data was undertaken to examine possible differences in perceptions of preparedness and effectiveness according to a selection of graduate teacher respondent characteristics: gender, prior industry experience, qualification to teach in a specialist area and whether they were the first in their family to complete a tertiary qualification. Comprehensive exploration of the associations between perceptions of preparedness and teacher characteristics, and perceptions of effectiveness and teacher characteristics was reserved for analysis of the longitudinal sample. Unlike the point-in-time samples the longitudinal sample enables exploration of changes in perceptions over time.

Independent sample t-tests were also conducted to consider overall perceptions of preparedness for teaching and perceptions of effectiveness by: (1) first in family to complete a tertiary qualification, (2) qualified to teach in a specialist area, and (3) prior industry experience. Information about first in family to complete a tertiary qualification was not collected in Round 1 or 4 and information about specialisations and prior industry experience was not collected in Round 4. Preparedness data were available for Rounds 1–3 and effectiveness data for Rounds 2 and 3.

Associations between school location and perceptions of preparedness and perceptions of effectiveness were examined using independent samples t-tests. Standard multiple regression was used to assess the ability of school and program characteristics to predict graduate teachers' perceptions of their (1) preparedness for teaching and (2) effectiveness as teachers. Preliminary analyses were conducted to ensure no violation of the assumptions of multicollinearity, normality, linearity and homoscedasticity

Table 3.1 School demographics

School characteristics	%
Location of school	
Victoria	55
Queensland	45
Rurality indicator	
Capital city	42
City with more than 15,000 people	23
City between 3000 and 15,000 people	13
Town with 500–3000 people	14
Town with less than 500 people	8
School sector	
Government	78
Catholic	13
Independent	9
School type	
Primary	51
Secondary	29
K-12	15
Other	6
Number of full time equivalent teachers	
1–10%	17
11–20%	17
21–50%	37
More than 50%	29
Number of students	
Less than 50	6
50–199	20
200–449	26
450–699	19
More than 700	29
Proportion of students of Aboriginal or Torres Strait Islander descent	
None	19
1–5%	61
6–10%	11
More than 10% of students	8
Proportion of student who have a disability	
None	4
1–5%	69
6–10%	16
More than 10% of students	10

Cross-Survey Analysis

- **teacher surveys**: teaching successes and challenges, recommendation of program and satisfaction with employment overtime, employment type and career

intentions overtime, teaching specialisations and areas taught overtime, influence on student learning overtime, and leadership overtime; and

- **teacher and principal surveys**: effectiveness in key teaching areas (principal and teacher perceptions) overtime, support in schools (teacher and principal perceptions) with effectiveness in key teaching areas (principal and teacher perceptions) point-in-time, support in schools (teacher and principal perceptions) with satisfaction with current situation and working conditions.

Longitudinal Analysis

The areas that were examined longitudinally through the surveys are shown below:

- Teacher Regulatory Authority registration—movement over 3 calendar years;
- Current employment as a teacher—movement over 3 calendar years;
- Currently seeking employment as a teacher—movement over 3 calendar years;
- Employment in April 2012 compared to employment situation March 2014;
- Employment type prior to 2013 compared with employment type in March 2014;
- Currently working in another industry sector—movement over 3 calendar years
  - employment type in another sector
  - industry sector working in;
- Intent to seek teaching position in the future—movement over 3 calendar years;
- Teacher employment by school—movement over three calendar years;
- Current teaching employment type—changes over 3 calendar years;
- Type of school employed in—movement over three calendar years;
- Specialist area of teaching
  - currently teaching in specialist area—movement over three calendar years
  - specialist areas taught—movement over 3 calendar years;
- Key challenges as an early career teacher—movement over 3 calendar years; and
- Areas of success as an early career teacher—movement over 3 calendar years.

In each survey round graduate teachers and principals were presented with an opportunity to respond to open-ended questions asking how teacher education programs could be strengthened and the existing strengths of program. Inductive analysis, informed by grounded theory, was used to analyse these responses.

The findings from each teacher survey round were examined alongside the case study data and surveys with principals in the teacher survey participants' schools. Each subsequent survey had the advantage of being informed by the data from the immediately preceding surveys of teachers and principals, and from the case studies. These data were used to refine survey questions and to develop new ones that enabled the exploration of beginning teacher experiences identified as their time in the workforce progressed. Although there was some variation in the

questions asked in each survey, a number of key questions were constant to enable quantitative analysis of trends across the years.

Qualitative Case Studies

Recruitment of Participants

During late 2011 and early 2012 a total of 110 graduate teachers from the 11 Queensland sites were recruited and interviewed—65 teachers who graduated in 2010 and 45 who graduated in 2011. In Victoria, interviews were undertaken with 61 graduate teachers from 18 schools—36 teachers who graduated in 2010 and 25 who graduated in 2011. Interviews also took place with school leaders and principals at most sites, as well as one additional site in Victoria. Twenty-six of the schools were visited at least twice and 12 schools were visited 4–5 times. The majority of graduate teachers employed at the school were interviewed during each visit (noting that some graduates left their school after the first or second interviews). By the end of the project, interviews had been conducted with 197 graduate teachers across 29 schools and 52 school leaders across 30 schools. The movement of new graduates into and out of the schools was closely monitored, with graduate teachers who left being invited to share their experiences of transitioning to new schools and, as applicable, their reasons for leaving the teaching profession. Graduate teachers new to the case study schools were recruited throughout the project, resulting in growth of the sample size over time. This movement is reflected in the tally of graduate teachers reported in early publications and preliminary reports. Visits to three schools discontinued in 2013, one due to school closure, one because the school ceased to employ a graduate teacher, and one where due to staffing demands, school leaders were unable to make graduate teachers available for interviews.

The Participants

Initial approaches to schools that fitted the SETE case study selection criteria (geographical location, size, SES and sociocultural make up of students, type of school), took place through the principal, where the project's aims and processes were explained and cooperation was sought for appropriate (i.e. graduates from 2011 or 2012) early career teachers to participate in the case study. In most instances, the principal, or their designated nominee, replied to the SETE Research Assistant with their agreement to be interviewed and with names of early career teachers who were potential participants. The teachers then were either contacted directly by the researcher(s) and invited to be part of the project, or were asked to

nominate themselves as a participant by the principal/nominee. At the first interview, participants were provided with a written statement detailing the aims and purposes of the project and what would be involved if they chose to participate, and an Informed Consent to be signed when/if they volunteered. Issues of confidentiality and anonymity were explained and discussed. Additionally, a written form, with the participant's email address, date and place of graduation, qualifications (including discipline areas for those who taught at the secondary level) and what subjects and levels they were currently teaching, was completed. This form provided the requisite baseline information concerning individual participants and enabled direct contact between researcher and early career teacher to occur to set up subsequent interviews.

The Early Career Teachers

Thus, the 197 early career teachers who participated in the case studies were a self-selecting group: that is, they volunteered, knowing what would be involved. This is not a representative group of all those early career teachers who graduated in 2011 or 2012, but rather all those who had taken up their first teaching positions in case study schools in the early stages of the project and who were prepared to be interviewed. As such, they might be understood as a highly motivated sample, perhaps exceptional in their professional commitment to research and to furthering understandings of new teachers' experiences.

While there were a few new participants who joined during the second round of interviews, for the most part, the numbers of participants decreased over the duration of the project because some of the participating teachers who were initially on contract did not have these renewed, or teachers left jobs at the selected case study school and moved interstate. With some individuals, it was possible to re-establish contact. In one instance, the school itself closed and neither of the participating teachers could be contacted. The vast majority of the 197 teachers were interviewed at least three times, and almost half were interviewed at least four times. The interviews have therefore generated an unprecedented body of data regarding the experiences of early career teachers in two states in Australia.

School Leaders

Interviews with senior administrators, in most cases principals or deputy principals, occurred up to three times per site over the longitudinal study. The chance for researchers to speak with senior administrators added depth and personal perspectives to the written responses completed anonymously by principals in the large-scale surveys. Additionally, in the first year of the study, in a number of cases, interviews with senior teachers involved in school-based mentoring and/or

supervising early career teachers were often undertaken. These interviews provided an added dimension to understanding the context and culture of the specific case study.

Interview Structure

Interviews with graduate teachers were often an hour in duration, and the number of participants in any one interview group could vary widely, depending on who was available on the particular day, who was away on camps, excursions or ill, and who was still working at the school that particular year. In the first round of interviews, in schools with high numbers of early career teachers, sometimes the interview group was as large as 12; in later interviews, whenever possible, and in order to explore perceptions and experiences in more detail, the preferred size was either pairs or trios; sometimes single individuals spoke with the researcher(s).

Interview Questions

Questions for case study participants were determined by the research team following analysis of all data collections on-hand. Themes identified in the surveys were examined and extended through the case studies. The interview questions explored various aspects of teaching. On the initial school visit the broad foci were:

- Students and contexts.
- Teacher practice.
- Teacher knowledge.

Subsequent visits focused on:

- Students and contexts.
- Efficacy.
- Lived experiences.
- Teacher preparation.
- Popular culture and images of teachers.
- Teacher practice—artefact analysis.
- Career trajectory.

Over the course of developing the interview protocols, along with the types of questions and topics to be covered, a number of stimuli were used as a means to generate different kinds of responses from the participants. For example, in the second year of the case studies, participants were provided with a range of media headlines that had been in the news over the previous six months, all of which concerned the status of teachers and/or national curriculum development. The

participants were asked to comment on the significance (or lack of) these national stories in relation to their lived experiences of teaching in their particular schools. The purpose in using this was not to check or compare the veracity of the responses, but to consider how the personal and professional dimensions of their lives were/were not impacted by the larger events within education. Did such mainstream critiques impact on their individual sense of effectiveness, for example? During another round of interviews, participants were invited to bring to the discussion an example of their own planning and teaching and to share and discuss how they felt about the lesson, with the researchers and their peers. These stimuli were intended as means to explore aspects of 'preparedness' and 'effectiveness' in less direct ways than straightforward questions, alone.

Reflexive Interviewing

During the course of the research, a number of participants mentioned that the interviews per se provided them with the means to speak their way into better, clearer understandings regarding what was occurring in their professional lives. That is, the act of telling the researchers about an event, for example, helped them make sense of it. For a number of the participants, the chance to share these stories with their peers in a confidential setting was also viewed as very worthwhile. Comments made by participants in response to open-ended questions ('Is there anything else you'd like say before we finish?') often suggested that the actual process of participating in the research was itself a form of professional learning for many of them, providing an opportunity to reflect with informed outsiders as well as their peers, not only in response to the research probes but also more generally about what was on their minds. This meant that for a number of the participants, the research provided unique opportunities to develop their own reflexivity, opportunities that seemed all too rare for the time-poor graduate teacher whose day is regulated by highly demanding schedules.

In keeping with standard interview protocols, the interview transcript of the specific interview was provided to each of the participants before subsequent interviews and each teacher was asked to amend the transcript as they saw fit. Almost without exception, the transcripts remained unchanged by participants. Occasionally, clarification about confidentiality issues was sought (e.g., who would see the interview transcripts), and the researchers provided clarification.

Cross-Case Study Analysis

A systematic thematic analysis was carried out by the research team in two stages. Each CI analysed their developing school case data. A cross case analysis was then

carried out to determine themes and recognisable patterns related to each of the research questions. These analyses were responsive to the following categories:

- Perceptions of Preparedness
- Perceptions of Effectiveness.
- The importance of employment practices, school context and culture.
- The political context.
- Changing sense of professional identity.
- The community context.

Surveys and interviews of graduate teachers enabled the researchers to investigate their perceptions of how well their teacher education program prepared them for beginning teaching, to understand the experiences of their early years of teaching and to monitor their career progression. Emphasis was on perceptions in terms of teachers' attitudes and beliefs (Klieme and Vieluf 2009; Löfström and Poom-Valickis 2013) about their own preparedness and effectiveness in relation to context (Alton-Lee 2003) and personal qualities and variables (Beijaard et al. 2000). For more information about the use of perceptions in this research refer to Mayer et al. (2014).

Complexity Theory as an Analytical Frame for Mixed Methods Teacher Education Research

The research design of the SETE project speaks strongly to the major tenets of complexity theory. SETE is a longitudinal design addressing the emergent nature of the process of learning to teach. It works at and across all the levels of learnings—from policy, to teacher education programs, and principals' and teachers' perceptions. It is responsive to the nature of each of these agents and in turn to the new learning that unfolded at each phase of the research design. These dynamic interactions were captured in recursive encounters between the participants and the researchers. Through these dynamic interactions between the researchers and the graduate teacher participants, their contexts, and the attentive listening to principals, the complexity of graduate learning systems was evident— not in a linear way but as a recursive, open, and dynamic system.

One of the powers of this large-scale project is the affordance of time and point-in-time analysis. The generation of the understanding of teacher education as an open system which generates energy and interacts with its environment and particularly the policy context progressively grew as the research team finalised project milestones and developed conference and stakeholder presentations. Complex organisms have open systems. Cunningham (2001) makes use of two very clear examples to distinguish open and closed systems. Open systems, he suggests, are those 'which interact with their surroundings and in which there is likely to be an interchange of energy' (p. 7). The solar system is an example of such an open

system. Closed systems are predictable and linear. The pendulum is an example of a closed system: after the initial push to set it in motion, all the forces damp its motion. This movement and these interactions are linear with predictable outcomes.

It is also argued here that teacher education is a self-organising system that comes about through the actions of parts/members who come to be interlinked and then transform themselves. The self-organising system does not become less complex if analysed at a smaller scale or lower level (Cilliers 1998). The level of complexity of learning teaching is constant at all levels of organisation and all stages of learning. It is not simplified through focus on an individual nor through focus on a point-in-time.

Doll (2012) argues the importance of emergence in complex organisms for its relationship to the nonlinear, unpredictable and generative characteristics of educational processes and practices. The research design developed for this large-scale study, progressively explained throughout this book, argues that learning to teach is not linear and the outcome of teacher education cannot be easily or certainly predicted. This position, likewise, is affirmed in the literature on complexity theory. Complexity theorists assert that the behaviour and the outcomes of each of the parts cannot be predicted from the initial roles (Hetherington 2013). The role of school experience, for example, cannot predict the influence of that experience on subsequent teaching. Complex systems are not stable and are marked by disequilibrium. They are always dynamic with other systems. Teacher education is always in a dynamic, mutually constitutive relations with school systems, governance systems and higher education systems.

Finally, attention to emergence rather than to linear movement towards stable finite outcomes offers opportunities to engage the unpredictable and the generative within educational processes. Gough (2012) argues that it is important to consider the differing potential of weak and of strong emergence. Strong emergence offers novel properties that transcend the constituent parts and weak emergence is characterised by determinants that reference the prior state. The recursive, longitudinal, mixed methods research design for the SETE project provided the platform for strong emergence of knowledge of the effectiveness of teacher education.

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Chapter 4
How Well Equipped are Graduates to Meet the Requirements of the Diverse Settings in Which They are Employed?

Introduction

While there is a well-rehearsed international literature that points to the difficulties, many graduates face upon entering the profession (Lasky 2005; Tang 2011; Craig 2013), and the impact of external forces such as stakeholders' perceptions of the role of teachers in the context of education reform (Lasky 2005), the SETE project uniquely frames an Australian evidence base of perceptions of the effectiveness and preparedness of graduate teachers. The evidence that was gathered for the first key research question affirms that teacher education is a complex and multifaceted endeavour. In this book teacher education is thought of as a professional rather than technical practice that draws from a dynamic body of professional knowledge that grows and changes over time. How the elements of the early career trajectory, the initial course of study and the first employment experiences interact and are interpreted through complexity theory provide fresh ways of examining many of the well-worn issues of teacher education. This chapter helps illustrate how well-equipped graduates are to meet the requirements of the diverse settings in which they are employed.

As the literatures of the past decade or so have affirmed, the impact of external forces such as stakeholders' perceptions of the role of teachers in the context of education reform (Lasky 2005); how teachers position themselves in relation to others—micropolitical induction (Sparkes et al. 1993); and the changing nature of education are all known factors which impact on teacher identity (Grimmett et al. 2008) and workforce practises. In Chap. 3, the potential for deepening the knowledge and practices of teacher education through the take up of complexity theory was described. Complexity theory, as we have stated, is a change theory attentive to the evolution and adaptation that takes place through cooperation and competition (Stewart 2001; Battram 1999; Morrison 2002), and enables us to simultaneously grasp 'the many layers of dynamic nested activity that are constantly at play' (Davis and Sumara 2006, p. 28). In this chapter, the layers of the

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dynamic nested activity that are necessary and constantly at play in surfacing new knowledge about teacher education in Australia are developed by asking.

How well equipped are graduates to meet the requirements of the diverse settings in which they are employed? To further unpack this question, other questions are also addressed:

- What models and attributes of teacher education are most effective in preparing teachers for working in schools and for advancing in the teaching profession?
- What is the relationship between student learning outcomes, and models and attributes of teacher education programs?
- What is the relationship between student achievement and teachers' own reports of their teacher education experiences?

New Tools for Investigating a Complex and Diverse System of Teacher Education

The SETE project was a complex and ambitious project. The emergence of a reading of the data through a complex system (see Fig. 4.1) supported by complexity theory (Stewart 2001; Battram 1999; Morrison 2002; Cochran-Smith et al. 2014) and augmented by the use of spatial metaphors (the conceived, perceived and lived spaces), emerged as a way of making sense of the policy setting and practises at a time when the Australian Commonwealth government and (then) education minister Christopher Pyne were placing university-based teacher education providers under ever-increasing scrutiny. At the end of the first decade of the twenty first century, the investment in teacher education, which in Australia remains part of the higher education system, was being argued as part of the macro-economic reforms and global competitiveness agendas, as outlined in Chap. 1. These reforms and agendas continue to hover over western countries such as Australia and are fuelled by international comparators such as the Programme for International Student Assessment (PISA) and other OECD country comparison reports. In the SETE study, graduate teachers' perceptions of their own preparedness were analysed in

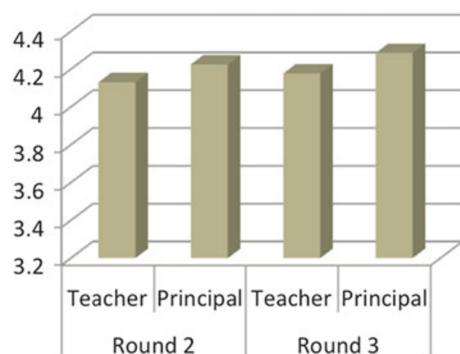

Fig. 4.1 Matched graduate teacher and principal means for overall effectiveness, Rounds 2 and 3

association with the characteristics of the schools in which they were employed, paying special attention to the diversity of settings that encompasses. This was an important aspect of the study and given the us of mixed methods and iterative design of the research this chapter, along with chapters five and six, progressively add to and further explain the interaction of preparedness and effectiveness within diverse contexts over time.

As is detailed later in this chapter, the qualitative case studies rendered rich understandings of the ways in which the Australian policy context and school cultures interact and differ significantly between schools and across states. These variations were captured in some ways in the quantitative data, with the richness of qualitative data adding nuanced understandings including bringing to the fore the emotional intensity of the graduate teacher experience. Some recapping of SETE research methodology is also provided in this chapter to assist readers in gauging the significance of this first question to the overall outcomes of the SETE research findings.

The Target Population of the SETE Study

As discussed in Chap. 3, the main target population for the large-scale quantitative component of the research was new teachers who were registered with either the Victorian Institute of Teaching (VIT) or Queensland College of Teachers (QCT); and those who graduated from a teacher education program in either 2010 or 2011. The size of the cohort was 15,034, with VIT having registered 9181 newly qualified teacher education graduates from October 2010 to February 2012 inclusive and QCT 5853 teachers. The secondary target population was the school principals in those schools where the graduate teachers were employed. One of the challenges in addressing the key research question that frames this chapter (how well equipped are graduates to meet the requirements of the diverse settings in which they are employed?) is that it cuts across all of the nine sub-scales, the case study and free-text qualitative data generated in the free-text responses from both principals and graduate teachers (see Chap. 3 for a more complete outline of these data sets).

As outlined in Chap. 3, the complexity, depth and breadth of the contexts in which graduates find themselves is significant. The case study sites consisted of thirty government schools in Victoria and Queensland and were selected on a desire to secure maximum variation in relation to

- Index of Community Socio-Educational Advantage (ICSEA) value.
- Percentage of students with language backgrounds other than English.
- Percentage of students of Aboriginal or Torres Strait Islander origin.
- Number of first year teachers employed.
- School location (Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEECDYA) Remoteness Indicator).
- Schooling level (primary, secondary, P-12).

The above data alone suggest that the complexity of the knowledge and skill base needed by graduates is substantial. As discussed in previous chapters, the overall findings from SETE suggest that graduate teachers feel prepared by their teacher education program and effective as beginning teachers across nine key areas of teaching:

- Teaching culturally, linguistically and socio-economically diverse learners.
- Design and implementation of the curriculum.
- Pedagogy.
- Assessment and the provision of feedback and reporting on student learning.
- Classroom management.
- Collegiality.
- Professional engagement with parents/carers and the community.
- Professional ethics.
- Engagement with ongoing professional learning.

Analysis of the point-in-time responses revealed graduate teachers perceived themselves to be both prepared for teaching and effective, although they saw themselves as more effective than prepared. Their sense of effectiveness increased slightly over time. As has been outlined in Chap. 2 perceptions of preparedness and perceptions of effectiveness are highly correlated.

Principal Survey

Significantly, SETE also surveyed principals. As has already been discussed, this school component of the SETE project was to ask principals to comment on the preparedness and effectiveness of graduate teachers, the types of support offered to them in schools and the challenges the teachers faced. The demographics of the schools in which principal respondents were located are presented in Table 4.1 in order to reiterate the diversity of the school contexts in which graduate teachers are employed.

The demographic data were calculated using a combination of publically available school data and data made available by the Industry Partners involved in the project. When data from the ABS Schools Australia 2011 census were considered for comparisons between school sectors and the proportions of school types in the SETE survey, it showed an over-representation of secondary schools compared to their proportion of the total number of schools: 16% of all schools across Australia. Primary schools are under-represented in the survey compared to their proportion of total schools: 70% of all Australian schools. The location of schools where respondents were employed showed the majority (65%) were in capital cities or other large cities. Eight per cent of respondents' schools were in towns with a population of less than 500.

Table 4.1 School demographics

School Characteristic	%
Location of school	
Victoria	55
Queensland	45
Full-time (equiv) teachers	
1–10%	17
11–20%	17
21–50%	37
More than 50%	29
Student numbers	
<50	6
50–199	20
200–449	26
450–699	19
>700	29
Proportion of students of Aboriginal and/or Torres Strait Islander descent	
None	19
1–5%	61
6–10%	11
>10%	8
Proportion of students who have a language background other than English	
None	13
1–10%	55
11–20%	11
21–40%	12
>40%	9
School sector	
Government	78
Catholic	13
Independent	9
Rurality indicator	
Capital city	42
City >15,000 people	23
City 3000–15,000 people	13
Town 500–3000 people	14
Town <500 people	8
School type	
Primary	51
Secondary	29
K-12	15
Other	6

(continued)

Table 4.1 (continued)

School Characteristic	%
Proportion of students who have a disability	
None	4
1–5%	69
6–10%	16
>10%	10

Demographic Data

Records show that in Victoria and Queensland approximately 25% of government schools have ten or fewer teachers (Wildy and Clarke 2005). This number ranged from 9 to 29% across the three survey rounds and across all school types. Based on principal reports, three to ten per cent of the schools had student enrolments of 50 or less, and 21–36% had enrolments of more than 700. There were a higher proportion of respondents from secondary schools than was in the school population overall, so the high proportion of schools with large student numbers fits with this finding.

Sixty-one per cent of respondents' schools had between one and five per cent of their students identifying as Aboriginal or Torres Strait Islander. The proportion of Indigenous students in the whole school population (as reported in ABS Schools Australia, 4221.0) was 4.8% (ABS 2011). Eight per cent of respondents' schools had more than ten per cent of the student population from an Aboriginal and/or Torres Strait Islander background. Seventeen to twenty-five per cent of schools in the survey population had no Aboriginal or Torres Strait Islander students.

Across the three survey rounds, sixty-nine per cent of respondents' schools reported that between 1 and 5% of the student population had a disability. Sixteen per cent of respondents' schools had between 6 and 10% of their students with a disability. Four per cent reported that there were no students with a disability enrolled in a school in the survey. More than half the schools had less than 10% of their students from a language background other than English. Figures on national data show approximately ten per cent of students spoke a language other than English in their homes (Ainley et al. 2000).

Diversity in Australian School Contexts and Its Impact on Beginning Teachers

The diversity of schools and school sectors highlight how the geography of Australian education is a major variable in understanding the experiences of graduate teachers. The contextual variability is further illustrated in how initial workforce appraisals and performance management of graduate teachers take place. It is likely that lay perceptions are that it is the school principal as the school leader

Table 4.2 School position of person/team who conducts graduate teacher performance appraisal

School-based position	Round 1		Round 2		Round 3	
	n	%	*n*	%	*n*	%
The principal	33	29.2	74	37.4	55	23.3
School leadership team member	51	45.1	75	37.9	108	45.8
HR coordinator	1	0.9	0	0	1	0.4
Mentor of the graduate teacher	17	15.0	26	13.1	34	14.4
Other	11	9.7	23	11.6	38	16.1
TOTAL	113	100.0	198	100.0	236	100.0

who has the closest and key role in the performance appraisal of graduate teachers. The data however show that this role can be conducted both by the principal and a school leadership team member, again pointing to the contextual variation that occurs in the entity that is named a school, but can have widely diverging practices when schools across differing geographical areas are compared. Table 4.2 details the position of the person in the school who conducted the performance appraisal of graduate teachers.

As Table 4.2 indicates, in the schools that were part of the SETE survey graduate teacher performance is more likely to be devolved to the school leadership team. This factor is an example of a workforce practice that needs to be kept in mind as considerations are given to how graduate teachers are supported in their early years of teaching. This is an important theme emerging from the SETE study.

Graduate Teacher and Principal Means for Overall Effectiveness

In the following figures and tables the graduate teacher and principal means for overall effectiveness are compared. Figure 4.1 shows the matched graduate teacher and principal means for overall effectiveness.

These responses show that principals, on the whole, perceive graduate teachers as being effective. In general, principals tended to report higher agreement in relation to graduate teacher effectiveness than did the teachers. It is important to note, however, that the scale used in the figure above exaggerates small differences.

Table 4.3 presents teacher and principal means for each of the nine areas of effective teaching of particular relevance to the SETE project:

- Collegiality.
- Design and implementation of curriculum.
- Professional ethics.
- Engagement with ongoing professional learning.
- Assessment and the provision of feedback and reporting on student learning.
- Classroom management.

Table 4.3 Matched graduate teacher and principal means for the effectiveness sub-scales

	Round 1	Round 2		Round 3	
	Principal (n = 115)	Teacher (n = 217)	Principal (n = 227)	Teacher (n = 234)	Principal (n = 243)
Collegiality	4.29	4.28	4.45	4.27	4.55
Design and implementation of curriculum	4.01	4.08	4.14	4.16	4.13
Professional ethics	4.35	4.32	4.53	4.35	4.61
Engagement with ongoing professional learning	4.46	4.35	4.52	4.33	4.52
Assessment and the provision of feedback and reporting on student learning	4.09	4.07	4.14	4.16	4.18
Classroom management	4.05	4.11	4.04	4.19	4.23
Professional engagement with parents/carers and the community	3.95	4.09	4.16	4.16	4.33
Teaching culturally, linguistically and socio-economically diverse learners	3.99	3.77	3.81	3.84	3.89
Pedagogy	4.11	4.02	4.07	3.99	4.11

- Professional engagement with parents/carers and the community.
- Teaching culturally, linguistically and socio-economically diverse learners.
- Pedagogy.

It is clear from these data that principals' perceptions of effectiveness across the key areas highlighted in the sub-scales were similar but generally slightly higher than the graduate teachers' self-rating. The exceptions were slight differences in 'Classroom management' in Round 2 and 'Curriculum' in Round 3.

The areas with the greatest percentage of agreement on graduate teacher effectiveness were 'Collegiality', 'Engaging in professional learning' and 'Professional ethics'. The areas where agreement was lower were 'Teaching culturally, linguistically and socio-economically diverse learners' and 'Classroom management'.

Graduate Teachers and Principal Perceptions of Effectiveness and Preparedness in Diverse Settings

Overall in the SETE study, graduate teachers argued that the preparation provided by their teacher education programs could have been enhanced by more time spent in schools, more time on strategies for teaching and less theory. Principals

supported this thinking. The two dynamic factors found to have the greatest bearing upon perceptions of preparedness and perceptions of effectiveness were employment and workplace context: those who were employed on an ongoing, permanent basis felt that they were better prepared and more effective in comparison to those in casual/contract positions, and graduate teacher perceptions were mediated by the workplace context. From the surveys, and supported by the case study data, graduate teachers felt less well prepared in the areas of (i) classroom management, (ii) professional engagement with parents/carers and the community, (iii) assessment and the provision of feedback and reporting on student learning and (iv) teaching culturally, linguistically and socio-economically diverse learners. These perceptions were mediated by the workplace context (see Chap. 6 for a more detailed discussion on this issue). The analysis of principals' additional comments about the preparedness of graduate teachers reflected three major themes:

- Their emphasis on schools as sites of further professional learning to increase teachers' preparedness;
- Their views of teacher education providers as solely accountable for teacher preparedness; and
- Their emphasis on the personal qualities, characteristics and attributes of graduate teachers as central to one's preparedness for work.

This diversity of perceptions was related to how the principals perceived the term 'preparedness' and what they considered to be the most important factors in this regard. The majority of the principals perceived 'preparedness' as an ongoing process and as something that continued well into the first two years of initial employment. The following quote captures this general perception:

> I don't think any graduate teacher is truly ready for the rigor of teaching for the first time. Much of this is based around learning over the first two years of their work life and it is a maturing process for most graduates. Provided there is good support from the school in a leadership capacity and a collegiality perspective, graduate teachers become better equipped for the needs of the first couple of years of school. (Principal, Round 2)

Many principals had put support and mentorship structures in place to make the transition process as productive as possible. The first two years were seen as an extension opportunity for beginning teachers to learn the 'craft' through their immersion into the 'real' world of teaching. In this regard, most of the principals perceived their beginning teachers as generally prepared for work and assessed their general preparedness as a foundation on which teachers can build their professionalism.

Those principals who perceived 'preparedness' as workplace readiness, developed a more critical perspective on what beginning teachers should be able to do after graduation. These perceptions were situated within particular contexts of schools and hence reflected more specific rather than general concerns. The most frequently mentioned improvement areas identified by principals were classroom management, pedagogical content knowledge particularly in the areas of literacy and numeracy education, teachers' ability to respond to the needs of the English as

an Additional Language (EAL) students and students with disabilities. Other areas that principals identified as requiring a better initial preparation were the development of teacher capacity to engage with parents and community, working collegially with others, building awareness of the broad role of the teacher, raising graduate teachers' sense of increasing accountability and its effects on how schools operate and a better understanding of school organisation.

A significant number of principals provided more general comments on how the preparedness of beginning teachers could be improved. In particular, they put emphasis on increasing the quality and length of school practicum, incorporating selection interviews or aptitude testing into the admission process in addition to raising ATAR scores for entry in university and familiarising pre-service teachers with federal and state government initiatives and policies in their final year of preparation. These comments signified the key areas for improving the quality of beginning teachers from the point of view of principals. In particular, this reflected their views about the importance of the personal characteristics, attitudes and experiences of students who apply to teacher education programs, linking this to the performance and professionalism of beginning teachers in their first years of teaching. Indeed, as one principal argued, 'their preparedness to work professionally and with professionals is a key indicator for me of their likely suitability for our school and their future effectiveness as a teacher' (Principal, Round 2). The principals argued that, in the currently perceived context of teacher oversupply, they have opportunities to be more selective and 'choosy', thereby employing higher quality and more prepared graduates.

Influence on Student Learning and Perceptions of Preparedness and Effectiveness

In the Principal Survey, the questions about the effectiveness of teachers in key areas were followed by questions on whether the principal agreed or disagreed that the teacher had been successful in influencing student learning. The graphs in Fig. 4.2 compare what principals said in relation to graduate teachers' success in

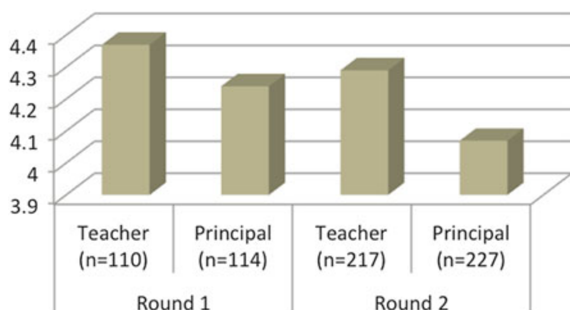

Fig. 4.2 Matched graduate teacher and principal mean scores for graduate teachers' successes influencing student learning, Rounds 1 and 2

influencing student learning to the graduate teachers' responses to the same questions. The question asked in Rounds 1 and 2 was altered in Round 3 to enable collection of additional information about the area of influence.

Comparison of responses showed that while a clear majority of teachers and principals either agreed or strongly agreed that the teachers had been successful in influencing student learning, teachers' responses were spread evenly across 'agree' and 'strongly agree', while principals were more likely to select 'agree'. Principals were also more likely to select 'disagree' or 'strongly disagree' than the teachers, resulting in lower mean scores being provided by principals in Rounds 1 and 2. This was the first question for which principal reports were on the whole less positive than the self-report of the individual graduate teachers.

In Round 3 a new question was introduced to ascertain if principal and teacher agreement about graduate teachers' influence on student learning differs for particular areas. Comparisons of teacher and principal responses revealed higher mean scores provided by principals for each area of student learning (Fig. 4.3).

The majority of principal comments about graduate teachers' influence on student learning related to overall effectiveness, quality and improvement that occurred as graduates moved from their first year into their second year. Interestingly, many of the comments that principals made about the nature of this improvement related to the key areas of teaching identified through analysis of the literature and professional standards, including

- General improvement due to experience and the passage of time.
- Improvements in relation to curriculum: teachers in their second year of teaching have a better idea of how a school works and of how to engage their students. In addition, they know more about curriculum and how to plan for diverse learners.

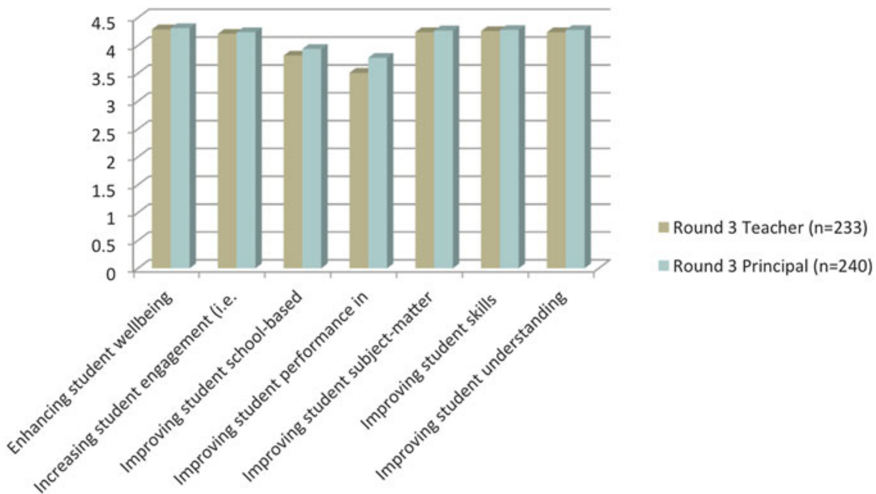

Fig. 4.3 Matched graduate teacher and principal mean scores by areas of student learning, Round 3

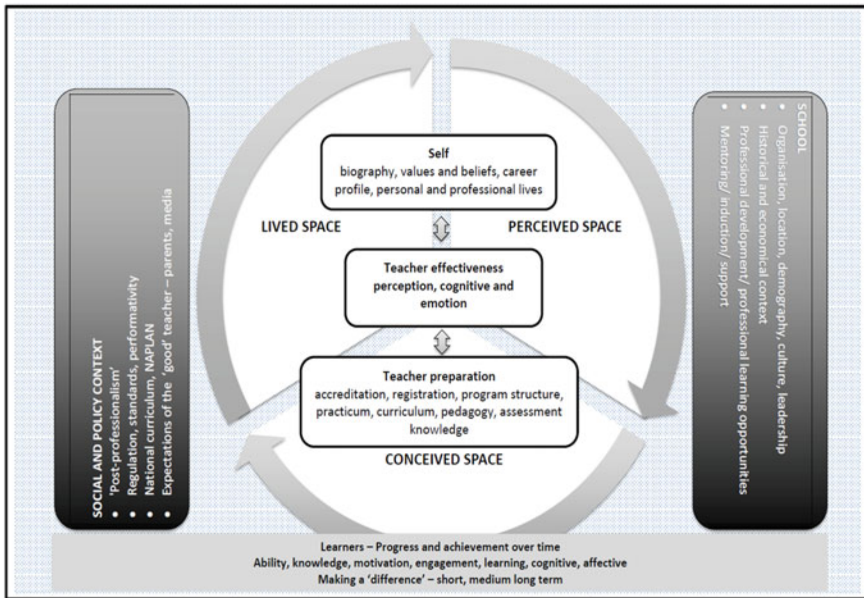

Fig. 4.4 Factors contributing to perceptions of effectiveness—the complex system of teacher education

- Improvement in classroom management.
- Improvement in influencing student learning.
- Improvement in focusing on needs of diverse learners.
- Relationships with students.

Less strongly but illustrative of general perceptions of teachers that are reflective in graduate teacher discourse more broadly are observations that graduate teachers are still learning, still needing support, partially inadequate and poorly prepared by university (Fig. 4.4).

Changes Over Time in Graduate Teachers and Their Knowledge Base for Diverse Settings

In Round 2, there was a statistically significant difference for perceptions of preparedness associated with school location (based on the MCEECDYA Remoteness Indicator), with graduate teachers working in remote and very remote schools reporting the lowest means for preparedness and those working in major cities and outer regional locations reporting a higher mean score. There was also a significant difference in the perceptions of preparedness and effectiveness scores between males and females, with females consistently reporting higher scores for both

scales. This trend also applied to 'recommendation of program' and 'perceptions of student outcomes'.

Languages spoken at home emerged in some rounds as having an association with perceptions of preparedness and effectiveness; graduate teachers who spoke languages other than English at home had higher preparedness scores (Round 2) and lower effectiveness scores (Rounds 3 and 4). A higher than expected number of respondents in the longitudinal sample who spoke languages other than English at home were represented in the top 25% for preparedness and a lower than expected number of respondents who spoke languages other than English at home were represented in the top 25% for effectiveness. This trend was not statistically significant.

In Round 2, respondents in the longitudinal sample employed in government schools had lower mean scores for recommendation of program to others than their colleagues employed in non-government schools. More graduates than expected who were employed at the same school across at least two rounds were represented in the top 25% for effectiveness and less than expected in the bottom 25%.[1]

The Relationship Between Student Learning Outcomes, and Models and Attributes of Teacher Education Programs

The relationship between graduate teacher preparedness and effectiveness, and student learning outcomes was investigated as a sub-research question. Models were developed to explore associations between graduate teachers' perceptions of student outcomes, the teacher education program completed and the characteristics of the schools the teachers worked in. Correlation analysis for the preparedness and effectiveness scales, and for recommendation of program to others and influence on student learning (or the student outcomes scale in Round 3 and Round 4), suggest that all items are related, with strength in one area of teaching associated with strength in others. All items examined were correlated at the $p \leq 0.01$ level of significance. Standard multiple regression found that 24.6% of variance in teachers' influence on student learning could be predicted by looking at graduate teachers' scores on the items that made up the SETE effectiveness scale (Round 2, point-in-time data) ($r^2 = 0.246$, $p < 0.001$). Beta values above 1 were found for 'Classroom management', 'Professional engagement with parents and the community' and 'Pedagogy'. The greatest per cent of unique variance in recommendation of teacher education program was found for 'Classroom management' (1.4%).

[1]Chi square tests for independence (with Yates Continuity Correction) examined the relationship between graduate teachers in the top and bottom 25% for effectiveness and teachers' school mobility. The relationship between the top and bottom 25% for effectiveness and school mobility from Round 2 to 3 was significant (x^2 (1, n = 168) = 10.67, p = 0.001, π = 0.269). The relationship between the top and bottom 25% for effectiveness and school mobility from Round 3 to 4 was near significant (x^2 (1, n = 165) = 3.04, p = 0.081, π = 0.152).

When the graduate teachers with the highest and lowest scores for perceptions of student outcomes *over time* were compared, a number of patterns emerged. Although these results were interesting, they were not statistically significant. However, the difference between the top and bottom 25% for those who completed a distributed practicum was significant. Those who completed a distributed practicum were less likely to be represented as highly as expected in the top 25% and were more represented than expected in the bottom 25% for student outcomes. A lower than expected number of respondents who spoke languages other than English at home were represented in the top 25% for student outcomes. A slightly higher than expected number of female respondents were represented in the top 25% for student outcomes. A higher than expected number of respondents who were born in countries other than Australia were represented in the top 25% for preparedness and less than expected in the top 25% for effectiveness.

In Round 4, respondents in the longitudinal sample who had completed a distributed practicum reported a statistically significant lower mean score for student outcomes than peers who did not complete a distributed practicum.

Characteristics of Teacher Education Programs Which Are Most Effective in Preparing Teachers to Work in a Variety of School Settings

Key characteristics of teacher education programs were identified through a national mapping of teacher education programs. All Australian programs accredited by state registry authorities were considered. Additional program characteristics were provided by graduate teachers who completed the surveys. Associations between these characteristics of teacher education and teachers' preparedness and effectiveness in diverse school contexts were considered. The relationship between effectiveness and employment type in Rounds 2, 3 and 4 was significant. Graduate teachers with permanent full-time positions were consistently more highly represented than expected in the top 25% for perceptions of effectiveness and less represented in the bottom 25%. The reverse was true of graduate teachers with casual employment and part-time contracts. The results for graduate teachers with full-time contract positions varied between rounds. There was a higher than expected representation of those who completed a distributed practicum in the top 25% for preparedness and less than expected in the top 25% for effectiveness.

The quantitative data however yielded a number of findings that were **not** statistically significant. For example,

- In Round 2 there were slightly more graduate teachers than expected working in single-gender schools in the top 25% for effectiveness, and in Rounds 2 and 3 fewer graduate teachers than expected working in inner regional Australia in the top 25% for effectiveness.

- Respondents who were the first in their family to complete a tertiary qualification were represented less than expected in the top 25% for preparedness and more than expected in the bottom 25%. For effectiveness, they were more highly represented in the top 25% and less than expected in the bottom 25%.
- Graduate teachers who completed their programs on an outer-metro campus or off-campus had higher than expected representation in the bottom 25% and lower than expected in the top 25% for preparedness. Those who completed on a metropolitan campus were more highly represented than expected in the top 25%.
- There was higher than expected representation of those who completed an internship in the top 25% for preparedness and less than expected in the top 25% for effectiveness.
- There was no significant interaction between teacher education program type (Master's, Bachelor's or Graduate Diplomas), mode of study (full-time, part-time or combination of both), campus location (metropolitan, outer-metropolitan, regional, off-campus) and *time* for perceptions of preparedness.
- There are statistically significant changes in effectiveness scores for each time point and the main effect for program type is significant—graduates with Master's and Bachelor's qualifications perceive themselves as more effective than those with Graduate Diploma qualifications. The effect size for program type is small.

Outer-metropolitan and off-campus completion of teacher education was much higher than expected in the bottom 25% for effectiveness. In the top 25% for effectiveness (Rounds 2, 3 and 4 combined) there was a nearly significant higher than expected representation of graduate teachers who completed Master's and Bachelor's level teacher education programs. Graduates of Graduate Diplomas were over represented in the bottom 25%. Investigation of the impact of mode of study and campus location, in combination with time, on effectiveness scores revealed that there was no significant interaction between the program characteristics and time, but there was a substantial main effect for time. Effectiveness scores increased slightly in each round.

22.1% of the variance in recommendation of program, which could be considered a proxy for program satisfaction, was associated with the SETE preparedness sub-scales (Round 2, point-in-time). The independent variables with the largest Beta values are 'Classroom management', 'Design and implementation of curriculum', 'Teaching culturally, linguistically and socio-economically diverse learners' and 'Engagement with ongoing professional learning'.

The Relationship Between Perceptions of Preparedness and Selected Teacher Characteristics, School Characteristics and Perceptions of Preparedness and Program Characteristics

Exploration of the relationship between perceptions of preparedness and selected teacher characteristics, school characteristics and perceptions of preparedness and program characteristics using standard multiple regression did not reveal characteristics that could account for significant amounts of variance in preparedness. However, these analyses suggest that graduate teachers' gender (male/female), prior industry experience (yes/no), language spoken at home (English only/languages other than English) and proportion of Aboriginal or Torres Strait Islander students enrolled in the schools in which graduate teachers work have a statistically significant association with perceptions of preparedness. The effect size and the magnitude in the differences in the means are generally small to very small. Being female, speaking a language other than English and having previous industry experience were associated with higher scores for perceptions of preparedness (Round 2, longitudinal data). Further explorations into what this might mean for teacher education could be explored in future research.

Graduate Teachers and Their Knowledge Base for Diverse Settings

The final part of this chapter is a synthesis of the questions and sub-questions that relate to how well-equipped graduates are to meet the requirements of the diverse settings in which they are employed. In SETE, 'well-equipped' means how well the beginning teachers perceived they were prepared by their teacher preparation program for work in the school context in which they were employed, and includes perceptions of their effectiveness as beginning teachers. As has been foregrounded in the previous chapters the research design for SETE understands teacher education as a complex system that benefits from the adaptive use of spatial metaphors: the conceived, perceived and lived spaces. These spaces are both real and imagined and can be thought of as sites of learning which emerge from experiences that trigger transformations in learners and in teacher education (Davis and Sumara 2006). Rowan et al. (2015) have stated that 'in each space, "teacher education" and "teacher effectiveness" can have different meanings and each of these meanings raises different questions for the design and conduct of research' (p. 281)

We examined these notions of 'preparedness' and 'effectiveness' from the perspectives of the graduates and also from their principals' perspectives. 'Diverse settings' represented the broad range of socio-economic, geographic, culturally and

linguistically diverse school communities in which teachers might be employed. Part of this was employment conditions as well as the particular employer jurisdictions.

Recurring discourses in the literature and practice of teacher education often accept the notions of what it means to be prepared for teaching and to be an effective beginning teacher as universally understood and unproblematic. The terms are rarely questioned or problematized. The rhetoric suggests that a teacher is either (i) effective and therefore well prepared, or (ii) not effective and therefore not prepared. In the latter situation, the task then becomes about finding out exactly what it is they are not prepared in, or for, and making recommendations that these areas be included in the teacher education program as another unit of study in the program or as another topic to be addressed in program documentation submitted for accreditation purposes. Issues of context are rarely considered. Moreover, a linear connotation is often implicit—one is prepared first and then one can be effective. However, the SETE study highlights the messy, non-linear and sometimes unexpected ways of learning teaching that problematise these generally accepted ways of thinking about graduates' preparedness for teaching by their teacher education programs and their effectiveness as beginning teachers.

Worldwide, one of the key concepts in relation to thinking about the quality of teacher education currently in focus is the effectiveness of the teachers being 'produced' by those programs. There are currently many ways in which teacher effectiveness is determined, sometimes dominated, particularly in the US (e.g. Gansle et al. 2012), by a focus on value-added approaches and students' standardised test scores. However, teacher effectiveness is not a single concept with a single meaning (Cochran-Smith and Power 2010). Teachers make countless complex decisions each day, in often very different contexts, with wildly variable supports for their work and with increasingly diverse students. Therefore, gaining an understanding of teacher effectiveness must take into consideration a number of dynamics.

Understanding teacher education as a complex phenomenon and utilising the trialectics of the spaces of teacher education helps researchers to move beyond what are often crudely managerialist and politically detached understandings of teacher quality or teacher effectiveness. It enables us to focus on the lived space of graduate teachers' experiences that capture both real and imagined understandings of their effectiveness in particular contexts. This, in turn, draws attention to the possibility that teachers' sense of effectiveness and preparedness may change over time rather than simply 'being a fixed outcome of teacher education' (Rowan et al. 2015 p. 294). Investigating how teachers manage and negotiate these factors and their expectations for being classroom ready and ready to teach provides an understanding of how they see their effectiveness in terms of a professional knowledge base that they are equipped with (or not) and how key stakeholders such as principals understand this knowledge and its interaction with the local school context.

Professional Knowledge

Classroom management is an area that has long been identified as a key challenge by all teachers (both novice and experienced alike) and indeed the twenty first century proves that Australian teachers are faced with an ever growing diverse student population as well as the expectation to be 'all things to all students across all key learning areas'. Further examination of the open-ended responses to survey questions and case study data revealed that graduates explained that they knew the importance of building and maintaining supportive relationships with their students. They highlighted the need to build rapport and they knew how to develop a safe and supportive learning environment. It is important to note that beginning teachers are more likely to be in contract positions making these key areas difficult to develop and maintain. In the case studies, good relationships with students were identified as a sign of effectiveness. The case study data also highlighted that beginning teachers sometimes found themselves placed in the most challenging situations/classrooms. However, by the second year, graduate teachers tended to indicate that they were able to focus their energies more on curriculum and differentiating instruction rather than on classroom management issues. Establishing a relationship of trust with their students was seen as central to this and staying at the same school was deemed an important contributor towards this type of relationship, especially in schools where teacher turnover was high.

Professional engagement with parents and communities is one area where graduate teachers identified themselves as less well prepared. Given the relatively narrow 'classroom' focus of most professional experiences this is perhaps not surprising. It is likely that ongoing learning teaching is particularly relevant for the areas of classroom management and engaging with parents and the community. Analysis of the case study data over time supports a notion that only 'some' of the learning in these areas can be developed during teacher education and that learning and growing expertise only develops in the specific setting of an individual teacher's workplace. The workplace setting and the learning support available during induction are particularly influential on how knowledge and skills in these areas develop.

The school culture, and how the community and the role of teachers are constructed within it, influences how early career teachers are able to teach and to build rapport with parents and students. Many of the participants commented that they felt obligated to reproduce the teaching practices they saw around them, even when they regarded them as problematic. This was particularly true of graduate teachers on contract. This process of institutionalisation was often noticeable in the later visits when, as 3- or 4-year experienced teachers, participants stopped critiquing the practices they initially identified as questionable.

Some settings failed to recognise the different expectations and skills that graduate teachers bring to the school, and teachers believed that the schools therefore did not take advantage of what they had to offer. In some instances, even when they had permanent positions, early career teachers (a number of whom came

to teaching from other successful careers) opted out of the school because they believed it did not support their teaching approaches or did not value their knowledge and expertise.

By the third year, many graduate teachers had only distant recollections of their teacher education and were less able to comment or reflect on their teacher education programs in any detail. Many claimed they could no longer recall what was covered.

These findings suggest that teacher education can do more to improve in these areas and there is much to be learnt from those working in teacher education. However, the longitudinal nature of the SETE study demonstrates how learning in these areas develops over time. Some foundational knowledge and skills are developed in initial teacher education and then expertise is further developed over time as a result of practice and learning in the workplace. As earlier research has demonstrated, this can also include revisiting and growing in expertise as a teacher moves into another school workplace (e.g. Berliner 1987, 1988; Day 1999; Day et al. 2000). The question then becomes what is possible and desirable to expect during and by the end of teacher preparation? The case study data suggest that graduate teachers often attributed their effectiveness to their own hard work and assistance from mentors; successful mentoring was characterised by shared responsibility for planning and willingness to discuss teaching and learning openly. Case study participants indicated that they learnt through shared planning. Their teacher preparation program was credited with giving them 'the tools' to work with and that the journey to effectiveness built on this foundation, but that this came as a result of their own hard work.

This is not to suggest that initial teacher education was not significant in their development but that it is more complex than this. Factors beyond the teacher education program were also influential in how graduates responded to the question of how prepared and effective they felt. Overall, correlations between personal and school characteristics and perceptions of preparedness and personal and school characteristics and perceptions of effectiveness were weak. The two variables found to have the greatest bearing on perceptions of preparedness and effectiveness (as measured in the surveys) were employment and gender, with the findings from the case study data adding support to the quantitative findings. In this study, graduates were employed in casual, contract and permanent positions. Only about one-third started their teaching careers in permanent positions while almost 60% commenced teaching in a contract position and 11% had casual positions. Those who were employed on an ongoing, permanent basis felt that they were better prepared and more effective in comparison to those in casual/contract positions. Many of the case study teachers were on contract or working in casual/supply roles in their first two years. These early career teachers in short-term or contract positions often indicated a reluctance to seek assistance from leadership and colleagues for fear of jeopardising their chance of securing permanency. They also commented that they started to see other graduates as their competition. This situation caused tension and compromised collegial working environments. Competition and the need to prepare

multiple applications and attend interviews was seen by the early career teachers as taking time away from their core teaching duties and distracted them from supporting student learning.

Geography and Preparedness

There were no significant differences for graduate teacher perceptions of preparedness and effectiveness based on aggregated school location (metropolitan and non-metropolitan) from the survey data. Differences in experiences of graduate teachers, based on school location, were, however, apparent in the case studies and in the disaggregated simple descriptive statistics. It is important to understand here that, due to the small number of responses from graduate teachers working in remote and very remote schools, their perspectives are potentially obscured in this analysis. For example, working on a small staff, catering for a large age and stage range, professional isolation, career planning, engaging the local community and teaching across the curriculum were among the challenges faced by teachers in isolated and small schools (Kline and Walker-Gibbs 2015). Exposure to leadership opportunities and access to financial and transfer incentives were among advantages more common for participants working in regional and rural schools. This finding illustrates the value of a mixed methods study because each method on its own does not tell the whole story. The qualitative data present an opportunity to look at the magnitude of differences in graduate teachers experiences in various school settings by exploring what works differently for teachers in the different environments. The qualitative data can be read alongside the large-scale survey data to provide a more complete picture of the experiences of graduates in their early years in the teaching profession.

SETE case studies suggest that the ways in which the policy context and school culture interact differ significantly between schools, even schools which are similar in terms of student demographic and location. These variations are not readily captured in the quantitative data. Case studies revealed that staffroom politics can act to isolate graduate teachers and position them as cultural immigrants. This political facet of schools may account for why the school was framed as a normalising apparatus; within which graduate teachers often felt pressure to 'fit in'. Further to this, policy over-lay, including the introduction of the Australian Curriculum and, in Queensland schools specifically 'Curriculum into the Classroom' (C2C), was reported to change the way teachers teach.

One of the circulating discourses is that the school context is critical in teacher effectiveness and this is reflected in the literature of teacher education. Literature, in the last decade in particular (Craig 2012; Lasky 2005; Tang 2011), reveals the difficulties many graduates face upon entering the profession in coming to terms with the shifting nature of both education and their identities as shaped by contextual factors. More recent contextual factors that have been identified as having an impact on teachers' identity in the literature include educational reform. The

demands of performance in regard to registration and to contract requirements have far-reaching impacts on perceptions of effectiveness and also on preparedness. Thus, effectiveness in diverse locations is determined through the graduates' and principals' perceptions of the relational aspects of their preparation and work (Day et al. 2006, 2007; Sammons et al. 2007) coupled with the notion that teacher education is indeed 'initial' and that learning teaching is ongoing and continues in schools (Berry et al. 2010; Mockler 2013). We think of effectiveness in terms of how the new teachers perceive their own effectiveness in relation to context and personal variables (as opposed to the way effectiveness is often determined, either through teacher performance assessments or value-added measures of student achievement). Perceptions are contextualised within the broader social, political, historical and economical contexts of schools in Australia, as well as the specific contextual factors of the schools such as school philosophy, location and student population, to name a few. Personal qualities and variables included notions of the self, interactions and experiences in relation to the context.

Conclusion

In the SETE project diversity is understood in multiple ways and includes geography and location (rural/urban/remote), school size, sector and student demographics including socio-economic status (SES). Diversity is also apparent in the variety of pathways into teaching and the diversity of ways in which graduates are employed and the coming together (or not) of the learnings from their initial teacher education program that arise in the 'first' teaching appointment. How well-equipped graduates were to meet the requirements of the diverse settings in which they were employed is a critical question, not only for the wider literature of teacher education and to deepen our understanding of the construction of teacher identity, but also to the development of workforce policy for graduate teachers, a central theme which is progressively revealed in this book. This chapter has outlined the dilemmas of working with generic Australian professional teaching standards and the situated nature of teacher education within Australian higher education. The impact of which is that it (re)surfaces teacher education as a curious practice that continues to attract significant and vested interest outside of its professional community.

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Chapter 5
What Characteristics of Teacher Education Programs Are Most Effective in Preparing Teachers to Work in a Variety of Schools?

As discussed in Chap. 4, research on preparing teachers for varied and diverse classroom settings has increased over recent decades. This research focus has developed, at least in part, to address a particular critique of teacher education preparation and adequate staffing of schools. Aubusson and Schuck (2013) note that one of the issues with this critique is that 'there appears to be a shortage of quality teachers who are able to teach in diverse and challenging environments' (p. 323). As previously noted, the SETE research team understood such variety or diversity to mean the following:

- geographic variability (e.g. rural, regional, outer urban),
- socio-economic variability (e.g. low, middle and high) and
- demographic variability (e.g. cultural, linguistic, faith-based).

Harder to staff schools in the Australian context are more likely to be those based in low-socio-economic areas; in rural and remote communities; and with high cultural and linguistic diversity (White 2015).

In an effort to ensure teacher preparation meets the needs of these diverse contexts, attention has turned to better understanding and responding to the critique of pre-service teacher education. Studies have been conducted to attempt to meet what Louden (2008) notes as 'uncertainty about the impact of Australian teacher education programmes [which] stems in part from the consistently poor reviews new graduates give in the first few years of employment' (p. 358). Louden cites Australian studies that have examined graduate views of their preparation to date, noting that

> Margaret Batten and her colleagues… found that less than half of new teachers were positive about the quality of pre-service preparation (Batten et al. 1991). Dinham and Scott (1996) concluded that only '38% of respondents thought their teacher training adequately prepared them for teaching' (p. 47). Fewer than half of teachers in a national study rated themselves 'well' or 'very well' prepared for their first year of teaching by their pre-service course (Tasmanian Educational Leaders Institute 2002, p. 134). More recently, a national survey of new graduates reported that only 69% of new primary school teachers thought that they had been prepared adequately to teach literacy (Louden and Rohl 2005, p. 69). Offered the opportunity to identify ways in which teacher education courses could be improved, 43% of the new graduates who volunteered responses called for more practical ideas and strategies in their pre-service programmes. (p. 358)

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These findings are consistent with anecdotal conversations held in many schools across Australia where graduates remain critical of their initial teacher preparation and with research studies that document the different possible reasons for beginning teachers' experiences of what Weinstein (1988) termed 'reality shock':

> A number of educators have offered possible explanations for beginning teachers' reality shock. Ryan (1979), for example, suggests that teachers have difficulty in their first year because they are undertrained for the demands of their work, there are no clear selection criteria in teacher training, and beginning teachers are not trained for specific jobs in specific schools. Veenman (1984) cites work by MullerFohrbrodt et al. (1978) that identifies both personal causes - inappropriate career choice, improper attitudes, unsuitable personality characteristics - and situational causes - inadequate professional training, loneliness in the work place, difficult relationships with parents, and a burdensome work load. Corcoran (1981) hypothesizes that the large number of unknowns in beginning teaching is complicated by the need to appear competent and confident: "to admit to not knowing is to risk vulnerability; to pretend to know is to risk error" (p. 20). According to Corcoran, this dilemma prevents beginning teachers from transferring previously mastered concepts and skills from the university to the public school classroom. Finally, Pataniczek and lsaacson (1981) point to the organizational structure of the public school, which places novice teachers in task situations no different from those of their experienced peers. (Weinstein 1988, p. 31)

As noted, while some studies have found that beginning teachers' feelings of being unprepared relate to the employment side of the preparation equation, in particular recruitment and retention, for example, lack of mentoring and support, high workload and socialisation issues (Mansfield et al. 2016; Freidman 2004), research has importantly continued to interrogate the components that comprise initial teacher education and what changes across both together could be made to positively impact beginning teachers' self-reported perceptions of their effectiveness and preparedness. It is with this focus that this chapter now concentrates. While Chap. 6 documents the employment and mobility of Australian teacher graduates, Chap. 7 makes clear that our collective recommendation is to see both 'halves' of the preparation and employment equation as holistic and as a transition, rather than to focus on a 'blame game' of one in opposition to the other.

Our study specifically asked about the characteristics of teacher education programs that are most effective in preparing teachers to work in a variety of schools, and looked closely at the structural and substantive features (Louden 2008) both in the mapping exercise and in the responses by the participants across the multiple data sets. This chapter explores this question through a discussion of the current literature in defining initial teacher education components and their characteristics, and discusses the key findings derived from the graduate teacher and principal surveys and from the intensive case studies. Combined, the data sets paint a nuanced picture of the complexity of matching characteristics of ITE to preparing teachers for varied or diverse settings, revealing a number of key recommendations and the need for a closer integration of teacher preparation, induction and on-going professional learning.

Interrogating Initial Teacher Education Programs: Unlocking the Black Box

One question which arises from within the crisis discourse around teacher education is the extent to which particular characteristics of initial teacher education develop 'quality' beginning teachers who can work successfully in diverse contexts. Darling-Hammond (2006) noted the need for what she calls a 'black box' investigation into initial teacher education programs, especially one that moves beyond the structural features into

> what goes on within the black box of the program—inside the courses and clinical experiences that candidates encounter—and about how the experiences programs design for candidates cumulatively add up to a set of knowledge, skills, and dispositions that determine what teachers actually do in the classroom. (Darling-Hammond 2006, p. 303)

In many ways the SETE project is the first of a 'black box' type investigation into initial teacher education programs in Australia, and the impact of these programs in terms of graduates' and their principals' perceptions of their preparedness and effectiveness. While all programs investigated as part of the SETE study were accredited, variation across programs was evident and interrogated. As Louden notes (2008) programs can differ both structurally and substantially. While programs can differ structurally in terms of length, mode and type, Louden notes substantially programs can also

> vary in the degree to which they focus on content knowledge, balance fast-starting practical skills against long-term capacity to challenge and critique, prepare new graduates for the demographic diversity they will find in schools, and focus on working with children who have difficulty. (p. 361)

Our study examined both components and interrogated the data through both high-level statistical analysis and through an examination of the deeper, qualitative data. We also analysed key findings from other studies to better understand the context of our study's findings. In the next section we explore some of the literature as a way to further frame our analysis and findings.

What Does the Research Currently Tell Us?

Overall, research to date has tended to focus on what does not work in terms of initial teacher education, rather than what does. For example, as Kosnik and Beck (2009) note, fragmentation is a longstanding problem in pre-service teacher education due partly to separation between the sub-disciplines of education but also to the way pre-service programs are structured (p. 9). The perceived disconnect between 'theory' and 'practice' is another significant, persistent and ingrained issue and the best place for both has long been contested (see, e.g. Dewey 1904). It is arguably the biggest issue at the heart of all reforms into initial teacher education

(White and Forgasz 2016). Over a century ago, Dewey highlighted two different models: the laboratory approach and the apprentice model. Historically, both have been trialled by different state and territory jurisdictions since colonisation in Australia (see Aspland 2006). For Dewey and many other researchers (see, e.g., Zeichner 1992; Le Cornu and Ewing 2008) the laboratory model is the preferred approach:

> He [Dewey] believed that the apprentice model problematically reinforced a technical–rational approach to learning to teach, reducing the complex decision-making of informed professionals to a series of generic, technical manoeuvres. Dewey cautioned that a focus on the acquisition of technical skills would come at the cost of ongoing professional growth and development. (White and Forgasz 2016, p. 234)

As Campbell and Hu (2010) noted, many of the initial teacher education debates, problems and subsequent reforms identified in the research literature stem from the perceived 'theory-practice' divide and the sense that there is 'no clear understanding of the relationship between educational theory and practice among either the students [pre-service teachers] or the supervising teachers' (p. 241).

As a point of contrast, Darling-Hammond (2006), studied what did work, in her exploration into exemplary teacher education programs. She concluded that

> well-designed teacher education programs have a number of common features, including: a 'vision' which extends across all aspects of coursework and practical experiences; practical experiences that are 'extensive' and aligned with coursework, with both practical and theoretical components evaluated and assessed against robust standards designed to guide knowledge and practice; 'core curriculum' (covering pedagogy, assessment and curriculum) sensitive to learning contexts, socio-cultural realities and informed by understandings of child development; and strategies to support candidates to trouble their value-systems and engage fully with notions of difference. 'Adaptive expertise' and 'reflective practice' are attributes of successful graduates of these programs. (p. 276)

To drill further and focus more specifically on the 'parts' of initial teacher education beyond the overarching debates around the conceptual and philosophical aspects of the preparation of pre-service teachers, attention internationally has focused on a series of interrogations into the specific features or dimensions (what we have called 'characteristics') of initial teacher education programs (see for example Tatto 1996; Korthagen et al. 2006; Darling-Hammond 2006; Zeichner 2010). Such studies have sought to identify key features and match them with other features which combined might have more impact. Tatto's (1996) study, for example, explored program 'norms', seeking convergence between Faculty members' beliefs about student learning with emerging pre-service teachers' beliefs. Such specific rubbing together of what could also be viewed as discrete aspects provided us with the background to look for connections and coherence across the data.

Research that makes connections across and between specific features of initial teacher education programs is extremely helpful in understanding how to respond to pervasive questions, such as those identified by White and Forgasz (2016):

> "At what stage of their teacher education program should pre-service teachers engage in practicum or professional experiences in schools?"; "Which schools should they attend and for how long?"; "What should they do while they are there?"; "What will they learn?"; "How will they learn it?" and, "Who will assess whether sufficient professional learning has been achieved and demonstrated?" These questions have, in turn, led to different views, models and approaches to the age-old dilemma of how best to prepare teachers for diverse contexts and, ultimately, of the purpose and place of practicum experience in initial teacher education programs. (p. 232)

SETE has begun to respond to these types of questions regarding the professional experience component and other questions in terms of exploring the specific coursework features that graduates and their principals reflect upon as positively contributing to their self-reported feelings of preparedness and effectiveness. Importantly, we have built from other research findings to look closely for connections across data sets and across 'variables' (see Chap. 3 for a full discussion of the variables used within the study).

In the next section, we examine the structural and substantial characteristics of initial teacher education programs, as well as entry into a program, a third component identified by Louden (2008).

Examining Structural Characteristics Across ITE Programs

As noted earlier, broadly structural characteristics of initial teacher education can refer to program length, mode of study and qualification awarded. Explanations of Australian teacher education accreditation and regulations (while discussed earlier) are provided as the policy landscape, as outlined in Chap. 1 and two, and has changed since the study was conducted.

Of the 38 universities that offered teacher education programs in Australia in the years in which the study was conducted, 37 were public universities and one was a private university. Bachelor's degrees accounted for 72% of the 551 teacher education programs reviewed, 17% were Graduate Diplomas and 11% were Master's degrees. Outlined below are details of the different programs, their length, mode and impact.

Program Length

At the time of the study, teachers were prepared in multiple study pathways in higher education settings, including

(i) four-year undergraduate Bachelor of Education degrees (ii) four-year double degrees comprising a degree in the subject discipline area and a degree in education, and (iii) one-year Graduate Diploma in Education or 2-year Master

> of Teaching programs after an initial 3-year Bachelor's degree in the discipline area. The programs usually comprise professional studies, curriculum studies and professional experience or practicum. The 4-year undergraduate courses also include discipline study in relevant teaching areas (Mayer 2014, p. 461).

The programs ranged in length from 1 to 5 years. The majority of undergraduate teacher education programs were offered over 4 years or part-time equivalent (63%). In total, 15% were recorded as 1-year programs. Two per cent of Bachelor's programs had a 5-year program structure that were commonly double degree programs, such as a Bachelor of Arts/Education (Secondary: Humanities and Social Sciences) or Bachelor of Education/Bachelor of Arts in International Studies. Out of 551 programs, 17% were 18-month or 2-year programs.

If the study was to be repeated currently, there would be far fewer (if any) graduates studying diplomas as the Australian government has been phasing out this qualification (effective from 2017), although conversely in the future there may be more 'alternative pathways' graduates due to the proposed increase in fast-track programs allowing registration before the completion of a qualification such as Teach for Australia. Figure 5.1 outlines the distribution of participants who had completed their teaching qualification according to program type.

As noted in Fig. 5.1, of all 4907 graduate teacher respondents, 9% had completed a Master's qualification, 47% a Bachelor's degree and 43% a Graduate Diploma. A very small number of graduate teachers stated 'other' for program type (1%), which included a Doctorate and a Refresher Teaching Course.

In matching length of program to graduates' perceptions of their preparedness and effectiveness, Master's or Bachelor's qualifications perceived themselves as more ***effective*** than those with Graduate Diploma qualifications. Similarly, while a clear majority of graduate teachers reported that they were ***well-prepared*** by their teacher education program, of those who said they were not, higher proportions had completed a Graduate Diploma than had completed Master's or Bachelor's teacher education degrees (Mayer et al. 2015). Further analysis of data for the Round 2, 3 and 4 Graduate Teacher Surveys also indicated that graduates with a Master's or a Bachelor's degree perceived themselves as ***better prepared*** for teaching and more ***effective*** than their colleagues who had completed a Graduate Diploma. Though the

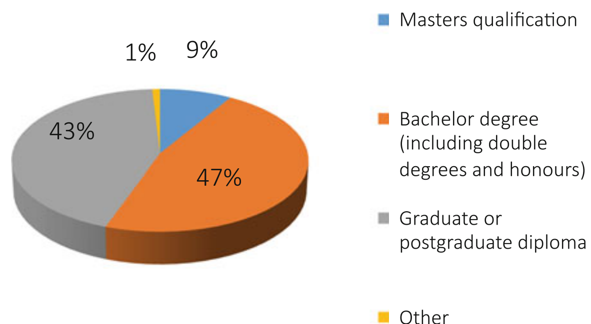

Fig. 5.1 Graduate teachers by program type

statistical differences (see Chap. 3 for methodological explanation) are relatively small, the consistency of the findings suggests this was a persistent trend:

> Analysis of the longitudinal survey data indicated that the differences for preparedness were not significant, but were near significant (x^2 (3,n=188) = 7.419, p= .06) for effectiveness. In the top 25 per cent for perceptions of effectiveness there was higher than expected representation of graduate teachers who completed Master's and Bachelor's level teacher education programs. Respondents who completed Graduate Diplomas were over represented in the bottom 25 per cent. (Mayer et al. 2015, p. 155)

The case study responses reinforced the finding that graduate teachers with Master's or Bachelor's qualifications perceived themselves as more ***effective*** than those with Graduate Diploma qualifications. Similarly, the case study data revealed that while a clear majority of graduate teachers reported that they were ***well-prepared*** by their teacher education program, of those who said they were not, higher proportions had completed a Graduate Diploma than had completed a Master's or Bachelor's degree. In addition, those with Master's degrees were more likely to agree that the knowledge gained through university-based units was important and helped prepare them for their current teaching context, than those teachers with Graduate Diplomas.

Analysis of point-in-time data for the Round 2, 3 and 4 Graduate Teacher Surveys added further confirmation that graduates of Master's and Bachelor's degrees perceived themselves as better prepared for teaching and more effective than their colleagues who had completed Graduate Diplomas. Though these differences were relatively small, the consistency of the findings suggests this was a persistent trend. The point-in-time mapping data showed that whilst a majority of the undergraduate programs were 4-year programs, some postgraduate and Master's programs were, at that time, less than 2 years in length. Several participants in the case studies expressed the belief that their 12-month Graduate Diplomas were too short to prepare them appropriately or to be effective. Some of these, however, also noted that they would not have enrolled in a longer postgraduate program even if it had been on offer. This particular paradox continues to be played out in the tensions in the Australian preparation and employment context. The SETE findings highlight that beginning teachers who have studied for longer periods of time felt better prepared than their colleagues who had only completed a 1-year degree. The length of time matters, and the longer period of preparation time appears to be important. In harder to staff schools however there is pressure to employ 'fast-track' graduates to ensure an adequate supply of teachers.

Program Location and Mode of Study

Unlike countries such as Norway (Roness and Smith 2008) where universities are dispersed equally across urban and regional locations, historically, in Australia, most universities have been based in city locations. While some regional campuses

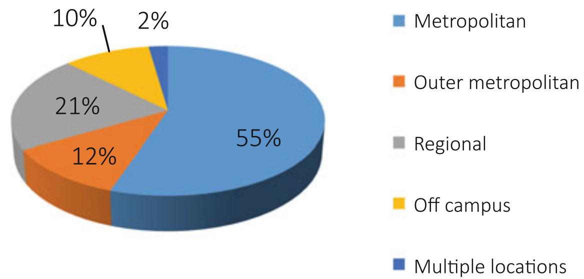

Fig. 5.2 Graduate teachers by campus location of their program

that moved from teaching colleges to universities in the late 1980s remain, teacher preparation is predominantly a metropolitan-located endeavour. This reality is reflected in Fig. 5.2 with over half of the graduate teachers attending their program on a metropolitan campus, and with outer-metropolitan areas included, taking the proportion in the greater metropolitan areas to 64%. Twenty-two per cent of graduate teachers attended a regional campus and 12% completed their teacher education off-campus.

The large number of pre-service teachers studying at metropolitan universities compared to where they initially commence their employment (often outer urban, regional/rural) reveals another tension in preparation and employment. The SETE study found that graduate teachers felt better prepared when they had participated in a practicum in a school similar to the one in which they were now employed or when they had participated in an internship program in the same school before commencing employment as a graduate teacher. This finding suggests that metropolitan-based pre-service teachers need to have more experience in settings other than their own familiar school communities to ensure they are well-prepared for a diversity of employment contexts. This recommendation is difficult to implement, however, due to the difficulties experienced by pre-service teachers' involvement in a school community away from where they live. Halsey (2005) as an example documented the financial costs as well as the difficulty in securing accommodation and accessing safely geographically rural and remote contexts. As White and Forgasz (2016) summarise:

> Ensuring pre-service teachers have a range of practicum experiences is a persistent issue, in particular, experiences that will support them to be able to serve those in disadvantaged settings. Ronfeldt (2012) noted that 'easier-to-staff' practicum experiences, for example, at middle class, suburban schools, may not offer adequate opportunities to learn to be effective teachers of underserved student populations. In their US study, Sobel et al. (1998) argued that the pre-service teachers who completed an internship practicum in an urban school were perceived to be 'highly marketable in the workplace' (p. 796) because they graduated with experience teaching in the district's most challenging urban school environments. Conversely, a range of studies indicate that 'harder to staff' practicum experiences (for example in low socio-economic, highly culturally and linguistically diverse and, depending on the northern or southern hemisphere context, 'urban' or 'rural' respective locations) can be particularly challenging settings for learning to teach (White and Reid 2008), and sometimes may even perpetuate negative stereotypes and attitudes. (Hill et al. 2007, p. 244)

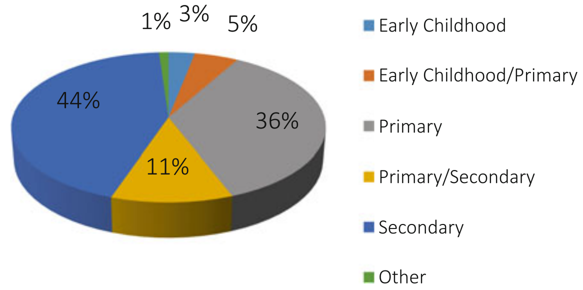

Fig. 5.3 Graduate teachers by main area of program

Program Qualification

The main area of study or qualification recorded on a graduate's testamur revealed that at the time of the study, many graduates were still studying a single degree rather than a dual accreditation course, such as early childhood/primary combination. Six categories were extracted to take into account those graduate teachers who identified as teaching younger, or mixed-age groups. Figure 5.3 shows the percentages of the different categories of qualifications.

Of all respondents, 44% indicated their teacher education had a secondary focus, 30% had a primary focus, 11% a combination of primary and secondary, and 8% identified early childhood as the main area of their program. Special Education, English as a Second Language, Middle School and Music were covered by respondents who selected 'other'.

Chapter 6 takes up the issues of employment and mobility but it is interesting to note that different qualifications revealed greater and lesser degrees of preparedness across the nine key categories (see Chap. 3 for explanation).

Comparing Coursework to Practicum: Looking Closely at Theory and Practice

Regardless of the three main characteristics of length, mode and qualification all programs are comprised of two structural design features: university coursework or curriculum and the practicum or professional experience component. As highlighted earlier, for many students and colleagues in schools this is seen as the theory-practice divide. Although closely regulated at the national level and through the various state-based authorities, the SETE study found that there is still the capacity for diversity across and between these two components—both in terms of structural components (for example, length and mode of study), and substantially (in terms of models, approaches, etc.).

The mapping activity found that in relation to the teacher-education curriculum there are variations across programs' vision and purpose, content, assessment design, and sites of learning. Likewise, while professional experience or practicum

days are mandated, (60 days for a postgraduate degree and 80 days for an undergraduate program), there were also differences in length of time, structure and location of professional experience models Universities also have the flexibility to incorporate or embed professional experience into the curriculum program or for it to remain external to the curriculum.

New teachers often perceive the professional experience component of their teacher education course to be the most influential part of their preparation (see for example, Haigh and Ward 2004; Graham 2006; Allen and Wright 2014; White and Forgasz 2016). This study reflected this trend, with graduates highly valuing their professional experience placements. When asked to reflect on the relevance of their professional experiences to their current teaching context, the majority of graduate teachers in Rounds 1–4 (see Table 5.1) either agreed or strongly agreed that their professional experiences prepared them for their current teaching context.

In contrast, in the surveys in Rounds 2–4, graduates responded less favourably to the question of the relevance of university-based knowledge to their current teaching context. Approximately 70% of graduates either agreed or strongly agreed that the knowledge gained in their university-based units was relevant to their current teaching context (Table 5.2).

Table 5.1 Graduate teachers with a teaching position by their view of relevance of practicum to current teaching

The professional experience/practicum components of my program helped prepare me for my current teaching context	Round 1		Round 2		Round 3		Round 4	
	n	%	*n*	%	*n*	%	n	%
Strongly disagree	16	1.6	14	0.6	12	0.7	10	0.8
Disagree	33	3.4	64	2.8	51	2.9	51	3.8
Neither agree nor Disagree	37	3.8	133	5.7	119	6.8	83	6.2
Agree	311	32.0	857	36.8	698	39.9	534	40.1
Strongly agree	574	59.1	1258	54.1	871	49.7	655	49.1
Total	971	100.0	2326	100.0	1751	100.0	1333	100.0

Table 5.2 Graduate teachers with a teaching position by their view of importance of knowledge gained in university-based units, Round 2–4

The knowledge I gained through my university-based units was important	Round 2		Round 3		Round 4	
	n	%	*n*	%	*n*	%
Strongly disagree	36	1.5	22	1.3	27	2.0
Disagree	166	7.1	153	8.7	104	7.8
Neither agree nor disagree	333	14.3	259	14.8	237	17.8
Agree	1342	57.7	1005	57.4	741	55.6
Strongly agree	449	19.3	312	17.8	224	16.8
Total	2326	100.0	1751	100.0	1333	100.0

While the overarching findings are to be expected and are consistent with the international literature, for the purposes of this study we have then interrogated further into the variety of characteristics of both components to better understand the differences and ways in which graduate teachers and their principals reflected upon key features.

Practicum

Many different terms are used to describe pre-service teachers' practical experiences, for example: student teaching; teaching practice; practice teaching; field work; professional experience; internship; teaching round; and, more recently, clinical practice (White and Forgasz 2016, p. 231). The international literature reflects that there is much debate about the ideal practicum structure and the benefits and challenges regarding its location and duration. Ryan et al. (1996, p. 365) historically noted the following three dominant formats most commonly described in the literature:

- the extended single placement sometimes described as an internship;
- multiple, shorter block placements, usually distributed throughout the program; and
- part-time placements or a distributed practicum of one to three days per week extending over a semester or a year, sometimes also called the concurrent model.

Consistent with this literature, the range of approaches in the programs we mapped also reflected this variation. The Graduate Teacher Survey asked graduate teachers how their teacher education professional experience was organised. In the main, teacher education programs offered supervised practicum in the form of a block practicum (5 days a week over one or more weeks), a distributed practicum (1–2 days a week over a period of time) and/or an internship. It is important to note that the term 'internship' was a contested term with some participants using it to reflect a more traditional 'block' period rather than the conventional use of the term reflecting a sustained period immersed in a school, usually at the end of the degree where the person is unpaid but takes on a significant proportion of a teacher's role and responsibilities. In the programs mapped, the average length of an internship was 6 weeks, a duration consistent with the literature in terms of an extended period of time.

Regardless of the approach, according to the graduate teacher survey respondents:

- Skills developed during the supervised practicum component of professional experience were important (95% agreement).
- The practicum prepared them for their current teaching context (approximately 90% agreement across the survey rounds) irrespective of the ways in which it was structured—days per week or blocks of time in schools.

Two important distinctions reveal, however, that participants reported feeling better prepared if they had a practicum in a similar type of setting to the school in which they were employed. As noted earlier, this finding has implications for preparing teachers for harder to staff schools. Those who completed an internship felt slightly better prepared, again highlighting the importance of a period of sustained immersion towards the end of the degree in a school:

Though not statistically significant, further findings of interest from the longitudinal analysis of the Graduate Teacher Surveys include:

- There was a higher than expected representation of those who completed a distributed practicum in the top 25% for preparedness and less than expected in the top 25% for effectiveness.
- There was a higher than expected representation of those who completed an internship in the top 25% for preparedness and less than expected in the top 25% for effectiveness.

There is some evidence (see below) from a number of the case studies that graduate teachers had secured employment in a school because they had completed a practicum or internship in that school. Some principals did agree that they used internships (and even extended practicums) to look for graduate teachers who would fit into the school.

At one of the case study sites in Queensland (Pine Tree) three of a group of five beginning teachers (each coming from different universities) had completed a practicum in the school or close by. In one of the focus group interviews they note:

> I did prac here, and then I started here during my last year because they had someone leave, so I started under permission to teach, and then just continued on once I graduated. (Graduate 1)

> I did my final prac here and graduated, and the first term I did Supply, second terms I was at Forest Lake, and then Mark gave me a phone call for a Term 3 contract. So I got that and I think it looks like I'll be extended to Term 4 as well, so it's good. (Graduate 2)

> Yeah, I did my final year of prac here, my 12 weeks, and I just approached Geoff the Deputy and, "Do you have any jobs?" and he said, "Yeah." And then I got the job. (Graduate 3)

At another case study school in Victoria two out of the three new graduates had completed an extended practicum at the school.

One graduate explained:

> In my fourth year I did my internship here so I was here term 1 and term 3, but I ended up just doing two days a week all year. In the time that I was here I really learnt about the approach that they're trying to teach the kids here and I loved it. It fits in well with me. I'm always trying to better myself as a person and keep growing from each experience I have, and that's what we're trying to teach the kids here, to have a growth mindset and it's okay to make mistakes and that sort of thing. I think when it came to interview time last year, because I knew what they were doing, because it fitted in well with me, that sort of helped me. But it also helped me in my fourth year to make that connection between university and my professional life because I could associate the two so closely. (Graduate A)

She also explained the approach that the university took in adjusting the name and approach of the program.

> Yes. They actually changed the name to the Advanced Practicum rather than the Internship because the university felt that student teachers going through felt that they were just treated as interns, and from the feedback that they'd had they were getting photocopying jobs and things like that. That wasn't the aim for it, so by changing to the Advanced Practicum, we were there to be teachers and that title helped other teachers in the school see that we are teachers and hopefully help them to see us more as colleagues, rather than student teachers just there to do that sort of stuff. (Graduate A)

Length and Timing of Practicum

The request for more time in schools was a theme that resonated across the open-ended response in all four rounds of the surveys. The request for 'more' practicum was commonly linked to a valuing of 'practical' experience with responses requesting: '*More practical strategies to use in class.*' (Graduate Teacher, Round 2). '*Less theory based. I did love learning about the theory, but I have found that when I got into the classroom, I was expected to magically know all these things that I simply did not*' (Graduate Teacher, Round 2). Graduate teachers' and principals' perceptions that there was often a lack of preparation around classroom management were connected to a scarcity of practical experience. This theme also recurred across multiple case studies.

Participants were particularly negative towards programs that did not offer a practicum experience until the second or third year of their study; or where practicum experiences were regarded as 'too short' (although there was no universal agreement on how this was understood).

> The teacher preparation of getting out on the prac, that's what helps the most. You sit down and you talk about pedagogy and teaching styles and trying to get the kids engaged, and behaviour management styles, but until you get out into the prac and actually see it working or not working, that's when you see it. And the way my program, my university program worked was, I had prac in the first year. Because we were separate from education. So I've been out in the first year, and actually getting out in the classroom and seeing what it's like, that helped as well in that. I had friends go for two years without stepping through into the classroom, and they did a lot of their theory, and then after two years and stepping in the classroom and not liking it, because they didn't realise how tough it is. (Graduate D)

The case studies and responses to open-ended questions identified numerous views about where teacher education might be improved, including opportunities for extending professional experience components of the program and for better-preparing graduate teachers for the challenges associated with managing classrooms and creating safe and supportive learning environments.

School-University Partnerships

While the mapping process highlights considerable variation in practicum processes and structures across teacher education programs, interviews with the teacher educators showed a strong commitment towards school-university partnerships. For instance, some programs provided a range of practicum settings including partnerships with schools or school clusters in remote or international communities including experience-based practicum in rural settings and in Indigenous communities.

Teacher education providers commonly identified social justice as a 'distinguishing feature' of their programs. Community-school-university partnerships and discipline/method knowledge were also identified; with each feature reported to underpin program philosophy, content and structure.

Selection of Pre-service Teachers into a University Program

Entry into teacher education programs is a contentious issue and one that has captured the attention of policy makers, educational commentators and members of the wider community. It is one way in which 'quality' is seen to be defined—a quality entrant into teacher education will lead to a quality graduate teacher. The ATAR score is one measure, a rather blunt one it has to be said, for determining selection into teacher education, but other measures are being mooted by educational decision-makers. Analysis of principals' comments about the preparedness of graduate teachers reflects their views that teacher education providers are solely accountable for teacher preparedness. This suggests that they see no role for mentor or colleague teachers, or their own role, in the development of high-quality graduates. Some principals were in favour of introducing additional selection criteria, including aptitude tests and ways of determining a candidate's personal characteristics and attitudes, as these were seen as key indicators of potential performance and professionalism.

Some principals noted the connection between a graduate teacher's quality and the quality of their experience while undertaking professional placements, and called for 'more' and 'higher quality' experiences.

Teachers' personal characteristics, and school and teacher education program characteristics, as measured in the surveys, appeared to account for little of the variance in overall perceptions of preparedness. However, survey analyses suggest graduate teachers' gender, prior industry experience, language spoken at home and proportion of Aboriginal or Torres Strait Islander students enrolled in the schools in which graduate teachers work, have a statistically significant association with perceptions of preparedness. Being female, working in a school with smaller numbers of Aboriginal and/or Torres Strait Islander students, speaking a language other than English and having previous industry experience was positively

correlated with perceptions of preparedness. The effect size for each of the characteristics was found to be statistically significant, however, are generally small.

Standard multiple regression was conducted for teacher characteristics, including gender for the longitudinal dataset. Being female, speaking a language other than English and having previous industry experience was associated with higher scores for perceptions of preparedness (SETE items only). All independent variables showed weak relationship to the dependent variable (less than 0.3), thus this result is reported for interest only.

Coursework and University Curriculum: An Exploration of the Substantive Features of ITE Programs

Overall, the Graduate Teacher Surveys revealed a positive skew associated with perceptions of preparedness regardless of the school contexts in which the graduate teachers work and the teacher education programs they completed. This suggests that for graduate teachers working in Victoria and Queensland there is value and quality represented in Australian teacher education. Kline et al. (2015) report that upon completion, graduate teachers are equipped with 'a collection of professional learnings, tools and experiences that resonate in a variety of school contexts' (p. 81). The message from the Graduate Teacher Surveys is that graduates felt that the teacher education program they completed prepared them for the school contexts in which they are employed. There were a number of other characteristics of the teacher education programs studied, in terms of their content (as opposed to their structure). Graduate teachers were asked to reflect on the 'best' parts of their programs, as well as the areas they felt needed improvement.

Reflections on the Best of Initial Teacher Education

High-quality university teaching staff, valuable practicum experiences, and opportunities for practical application of professional knowledge in assessments and other activities that afforded theory-practice links were commonly identified strengths of teacher education programs. Other strengths include the following:

- Small classes/tutorials,
- Working with fellow classmates,
- Practical hands-on pedagogy.

In noting these strengths, graduates tended to reflect most positively on the components in which connections and links were made between what they were learning and the work of teachers. This is consistent with Kosnik and Beck's (2009)

findings and further consolidates their work in identifying the priorities of teacher education. It supports the notion that a lack of focus and 'cohesion' across the various components of teacher education leads to feelings of being unprepared.

Improvements to Be Made to Initial Teacher Education

Numerous opportunities to improve teacher education were also documented in the responses from the longitudinal sample. These tended to focus on a perceived need to better prepare graduate teachers for challenges associated with managing classrooms and creating safe and supportive learning environments, and increasing practical components. Graduate teachers' survey responses emphasised that teacher education would be improved if there was:

- Less theory/more practice,
- An apprenticeship model for teacher preparation,
- More opportunities to spend time on professional experience,
- More focus on managing student behaviour,
- More focus on dealing with diversity in the classroom (including physical, social, intellectual, emotional diversity),
- More focus on how to use assessment to inform teaching
- More focus on non-teaching issues related to teachers' work beyond the classroom.

Similarly, the point-in-time responses and case study data highlighted other areas that graduates believed there was the need for, such as:

- More time in schools (early in a program),
- More engagement with school curriculum and content including senior secondary curriculum,
- More university lecturers and staff with recent school experience,
- Increased practical assessment,
- More explicit feedback on assignments (and less group assessment),
- More hands-on learning of ICT,
- Longer program duration—programs of 18 months or less were regarded as too short (although in the case studies participants often noted that they would not have studied a longer program if the short program was still available).

Beyond the broad themes we drilled into the more specific influences of program characteristics on perceptions of preparedness. Table 5.3 highlights the responses from the longitudinal study and emphasises in more detail which areas need improvement. The key challenges identified by graduate teachers and principals in the surveys and case studies provides additional insight into the aspects of teacher

education where there may be potential for enhancement. Classroom management was identified as a particular challenge for which graduates felt they were not sufficiently prepared. They often reported that they were expected to take full responsibility for their students' learning (including behaviour and attendance) with little or no support from the school administration. Engaging with parents was another common challenge. In noting these challenges, the graduate teachers often acknowledged that these were areas of teaching that could only be learned 'on the job'. Interestingly, where the teachers did feel prepared, this was often because they had engaged in simulated and practical activities during their teacher education coursework and classes.

The case study interviews of graduate teachers revealed multiple perspectives of teacher education programs. Teacher education reflected a developmental view of learning to teach. Teacher education was positioned as foundational and valued for providing knowledge and skills. The programs were valued for the type of practicums they offered and the links the courses made to school experience. Although there were few specifics from the program providers themselves identifying strengths of teacher education, specifics on difficulties of teacher education were noted. These included teacher education's difficulty to completely prepare graduates for the work of teaching. Teacher education fails to provide the expertise required to manage classroom relationships and relationships with parents and the community. Teacher education also fails to prepare for the day-to-day work of teaching.

Table 5.3 Understanding influences of program characteristics on perceptions of preparedness

	Longitudinal Round 2 mean	Longitudinal Round 3 mean	Longitudinal Round 4 mean
My teacher education program prepared me in the following area…			
Teaching culturally, linguistically and socio-economically diverse learners	3.3	3.4	3.2
Design and implementation of curriculum	3.5	3.5	3.4
Assessment and the provision of feedback and reporting on student learning	3.3	3.4	3.2
Pedagogy	3.9	3.9	3.9
Classroom management	3.1	3.2	3.0
Professional engagement with parents/carers and the community	2.9	2.9	2.9
Collegiality	3.3	3.4	3.3
Professional ethics	3.9	3.9	3.9
Engagement with ongoing professional learning	3.7	3.7	3.6

Conclusion

The majority of graduate teacher participants reported feeling effective and prepared, and the majority indicated they would recommend their teacher education program to others. This offers endorsement to the structures and practices of their teacher education programs including the considerable efforts that are invested in ensuring that the vast majority of programs offer early and sustained opportunities for students to experience schools. This is consistent with literature which has argued that learning to teach takes time and effective teacher education programs provide an extensive and sustained experience-base across different settings of universities, schools and communities to develop strong pedagogical strategies that serve diverse learners effectively (Darling-Hammond 2006; Darling-Hammond 2006; Feiman-Nemser 2001).

The case studies demonstrated that teachers grow in confidence and self-belief over the 3 years following their graduation, and that they believe they are effective in their teaching.

However, it is also important to acknowledge that many participants identified areas for improvement in the design and content of teacher education programs. Each of these have implications for teacher education going forward:

- There was a repeated and often passionately articulated belief that in-school components of teacher education programs had the most impact upon preparation and effectiveness;
- Case study data also suggests that having a practicum in a school similar to place of first/early employment impacts positively upon perceptions of preparedness and effectiveness. This is significant given the large number of programs that are based in metropolitan areas, and the number of employment opportunities in regional contexts;
- These findings also suggest that many graduate teachers draw an artificial distinction between university and school: and often do not recognise that the in-school components of their program are key parts of an overall teacher education program;
- Although the majority of participants regard themselves as prepared and effective they do not attribute this to the content of their teacher education programs (in terms of curriculum, etc.). This raises questions about content, but also about the ability of teacher education programs to make explicit the relationship between content and practice;
- Although the majority of participants regard themselves as prepared and effective they nevertheless identify major areas requiring additional preparation; and
- The majority of teacher education providers identified 'social justice' as a key feature of their programs; despite this, graduates identified the ability to work effectively with diverse learners as a key issue.

Though all teacher education programs in Australia have to adhere to guidelines for accreditation, the mapping and case study data reflected a diverse range of structures, pathways, approaches and content delivery across programs. It is note-worthy to highlight that teaching is a complex job and that each teacher-education program aims to facilitate the kinds of learning that teachers need to best support a variety of learners. From the interviews with providers, it became apparent that although there was broad consistency across programs, some teacher education providers distinguished themselves as having distinctive foci, goals and strategies that are underpinned by a specific educational philosophy and promote the values of their institution. These efforts are not readily captured in the matching of graduate perceptions of preparedness and program characteristics for quantitative analysis, making inclusion of qualitative methods an important inclusion for this type of research. Indeed, in this project it was through the case studies that researchers were able to find evidence to support Linda Darling-Hammond's synthesis of well-designed programs as having: coherence; strong core curriculum; extensive, connected clinical experiences; explicit strategies that help pre-service teachers confront their beliefs about learning and students and learn about people different from themselves; an inquiry approach; strong school-university partnerships; and performance assessment that requires demonstration of critical skills.

In summary, reading across the data it is apparent that while perceptions of preparedness were not often able to be causally linked with particular characteristics of teacher education, most of the early career teachers felt as prepared by their teacher education program as they could be; teacher education provided founda-tional knowledge and skills upon which ongoing learning of teaching in context continues. This was particularly true for graduate teachers who completed a pro-gram of two or more years' duration. Practicum experiences in schools were consistently regarded as more important than the coursework components of teacher education and perceptions of preparedness are mediated by context—where there were discrepancies between the perceived goals of professional learning in their teacher education program and the demands of schools, graduate teachers' sense of preparedness was lesser. Graduates in schools where there were solid support structures, where there was synergy between the graduate's educational philosophy, their teacher education program and that of the school's, were more likely to comment that they were well-prepared by their teacher education program. Case studies also revealed schools to be an institutionalising force and demonstrated that within the employment setting, graduate teachers started to renounce their positive stories of teacher education.

Preparedness for classroom management, catering for diverse learners, managing workloads, teaching out-of-field and engaging with parents were among the areas that graduate teachers reported feeling less prepared by their teacher education programs. Preparing for classes was identified in the case studies as particularly time consuming and a workload challenge for which they were not initially pre-pared—workloads were not seen to reflect the novice status of graduate teachers, though by the third year in teaching many of the graduate teachers were keen to take up additional responsibilities.

Thus, schools of education must design programs that help prospective teachers to deeply understand learning, social and cultural contexts, and teaching and be able to enact these understandings in complex classrooms serving increasingly diverse students. In addition, if graduate teachers are to succeed at this task, schools of education must design programs that transform the kinds of settings in which novices learn to teach and later become teachers. This means that the enterprise of teacher education must venture out further and further from the university and engage ever more closely with schools in a mutual transformation agenda, with all of the struggle and messiness that implies.

Interviews with teacher education providers revealed that the commitment towards strengthening professional experience and university-school partnerships is strong. This commitment may go some way to addressing the concerns raised by teachers and principals, though providers also highlighted significant barriers to enhancing their programs such as financial and structural constraints, including the cost of the practicum and placement shortages. Given the importance of the practicum and its capacity to provide significant experiences for preparing graduates to teach in multiple settings, funding and cost-effective measures need to be developed to ensure strong partnerships and quality of supervision between schools and universities that takes into account differentiated but complementary roles and responsibilities for the partners. These partnerships are crucial in providing coherent linkages between content, theory and application to strengthen pedagogical strategies for teaching in diverse school settings. In addition, practicum experiences need to offer a variety of diverse school settings with quality placement supervision so as to prepare graduates to engage in the broader educational settings of schools and communities.

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Chapter 6
Employment Pathways, Mobility and Retention of Graduate Teachers

The relationship between the quality of teacher education and the employability and retention of graduate teachers in schools has received increased attention from policymakers and researchers in the current context of educational reforms (Barber and Mourshed 2009; Bransford et al. 2005; TEMAG 2014). The logic of this relationship is built on a sector-based approach to workforce development (Weil 2009) that attempts to enhance the quality of schooling by focusing more on the effectiveness of teacher education and professional development than on increasing funding for schools (Gonski 2011). In Australia, this approach to teacher education and employment, generally, draws attention to the demand side of school systems/employers and, hence, is both driven by their needs and regulated by ITE accreditation standards and professional standards for teachers. The implementation of this approach relies typically on formal and large-scale partnerships that connect schools and universities in the teacher education phase to ensure preparedness of graduate teachers for meeting industry needs as they transition to workplaces. Governments play a central role in encouraging the partnership model of teacher education. In this way, they attempt to ensure accountability of teacher education providers for preparing 'classroom ready' graduates (TEMAG 2014), as well as regulating the teacher job market by forecasting its demands.

The sector-based approach to workforce development and planning, therefore, relies on a comprehensive analysis of teacher employment, retention and attrition trends, which presents certain challenges, which were recognised in the *Australia's Teachers: Australia's Future* report (Committee for the Review of Teaching and Teacher Education 2003). Written a decade ago, the report argued that more comprehensive data 'relating to teachers, teacher workforce trends generally and specific fields of teaching and teacher education need to be consistently, reliably and regularly collected on a national and collaborative basis' (p. 95). Equally, *Staff in Australia's Schools* (SiAS) reports have provided a descriptive representation of the teaching workforce that can assist in understanding changes in the workforce and, in turn, in planning for the future (McKenzie et al. 2008, 2011). Because the sector-based approach is driven by the job market demands rather than by the needs

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of employees, it poses certain challenges in understanding a contextual specificity of graduate teacher employment pathways. Hence, this specificity can be better addressed from a situated perspective on employment pathways that takes into account graduate teacher needs and school characteristics.

The situated perspective on employment of graduate teachers focuses more on the supply side of their transition to workplaces, that is on the characteristics of both beginning teachers and schools in particular geographical locations. Unlike SiAS reports, the SETE project has offered a situated perspective on graduate teacher employment trends. It has provided complementary and valuable qualitative data sets from the open-ended responses to survey and case studies in schools to understand and represent career progression of beginning teachers. The situated approach has helped us to build links between graduate teacher employment pathways, retention and mobility, on the one hand, and the essential characteristics of schools, such as workplace conditions or staff turnover, on the other. In doing so, this perspective has assisted us to focus on the most pressing needs of beginning teachers, such as their concerns about job security and changing employment patterns, along with providing support structures and mentoring. Unlike the sector-based approach to understanding career pathways, the situated perspective shifts attention from the employment trends of beginning teachers, more broadly, to linking these trends with how they perceive their capabilities and effectiveness as teachers in particular schools, as well as with how they assess the quality of workplace conditions.

Hence, this chapter discusses findings related to the career progression of graduate teachers—their employment pathways, possible reasons for attrition and retention strategies used by schools. In doing so, it identifies multiple factors that can influence career pathways of graduate teachers. These factors include professional capabilities that graduate teachers have developed as a result of teacher education, conditions of the current job market and employment opportunities and, in particular, workplace conditions. The chapter argues, furthermore, that an investigation of graduate teachers' employment pathways needs to take into account different reasons for residential and/or workplace mobility that are often associated with age of beginning teachers, their family circumstances, employment possibilities in particular locations, housing market as well as whether they perform or do not perform traditional gendered or social class identities. It concludes with the discussion of attrition trends and retention strategies used by schools to support beginning teachers.

A Situated Perspective on Employment, Retention, Mobility and Attrition of Beginning Teachers

A situated perspective on graduate teacher employment experiences has its origin in Suchman's (1987) work that presents planning as discursive constructs that require interpretation through situated actions (doing). In this way, planning and doing

become not only connected but also intimately related to the situations in which actions occur. For instance, workforce development, as a way of preparing teachers for work in schools, is based on preordained plans of producing quality graduates whose employment and career progression could be tightly managed. However, in reality, employment pathways cannot be regulated as planned; a diversity of contexts and conditions trigger multiplicity of employment patterns, including mobility and attrition, and hence presents a significant challenge to workforce planning. The situated perspective on employment shifts attention away from fitting 'classroom ready' graduate teachers in schools and towards a more relational model of 'interaction' between their motives, capabilities and circumstances and the needs and conditions of particular schools, that is a shift from equivalence to complementarity.

What Does the Demographic and Teacher Education Profile of Graduate Teacher Tell Us?

Any situated inquiry into the employment pathways, mobility and retention of graduate teachers should start with establishing their demographic and teacher education profiles. This is essential for understanding both their decisions to enter the teaching workforce and the impact of pre-service education and experiences on particular employment pathways sought by them (Boyd et al. 2009; Ronfeldt et al. 2013a). Attraction to teaching, for example is closely linked to the motives of choosing this career. Our project data show that these motives are varied and complex, ranging from idealistic to more practical ones. The highest scoring responses of graduated teachers were 'wanted to make a difference', 'always wanted to teach/work with children' and 'wanted to work in an area of specialisation or interest' (see Mayer et al. 2014). These motives reflect non-monetary preferences, including the attraction associated with the impact of teaching as a social profession on people's lives, as well as with the professional fulfilment that teaching can provide. Other intrinsic reasons were enjoyment of teaching, love for knowledge that was inspired by previous teachers and past experiences working with children.

Nonetheless problems with attraction to teaching persist. This is partly because teaching as a profession 'suffers a status anomaly' (Ashiedu and Scott-Ladd 2012, p. 18) where teacher effectiveness and the complexity of their work are often underestimated or misrecognised by the public and politicians. Teachers' work conditions such as pay and contract employment have been prevalent in the media during the survey and case study period of this project, and such issues remain of concern to those considering entering ITE. In addition, the old perception of teaching as a semi-professional practice that is of a lesser social standing as compared, for example to law or medicine has been persistent over the years (see Lortie 1975/2002). Partly, this perception is based on the old view of teaching as 'itinerant work taken up by men on their way to a 'real' profession and by women before marrying or having children' (Johnson and Birkeland 2003, p. 583).

A more recent perception of teaching as a career has emerged over the past three decades due to the ongoing professionalisation of teaching and teacher education and to the changing conditions of the job market. Teaching has become perceived increasingly as a secure job and a first career choice rather than just a fallback career. This is particularly relevant to those who are motivated by the *social utility* value of teaching such as shaping children's futures, enhancing social equity, making social contribution and having passion for working with children (Watt and Richardson 2008). Job-related motivational factors, however, refer to the *economic utility* of various professions such as salaries, social status, demands, etc. People who prioritise the economic utility factors are either less motivated to pursue teaching as a career or tend to change professions. Indeed, many from today's generation of teachers expect to have more than one career (Margolis 2008). This diversity of motivational factors can be linked to the demographic composition of the beginning teaching workforce detailed in Chap. 4.

The demographic and educational characteristics of beginning teachers provide no guarantee that they will stay in teaching over the course of their career or at least for a longer period. Job markets today offer many employment opportunities, providing access to high pay and status occupations, well-equipped work settings, opportunities for rapid career advancement and so on. In *Best Practice Teacher Education Programs and Australia's Own Programs* (Ingvarson et al. 2014), it is reported that attrition rates are as high as 20% for teachers in their first five years, and that this occurs despite recent improvements to induction and mentoring. In the final Graduate Teacher Survey of our project, 30% of respondents indicated that they did not see themselves working in schools in three years' time.

The gender, ethnic and social composition of graduate teachers in this project adds some additional complexity to studying their employment pathways, mobility and attrition. The sample has a high proportion of females (78%) and this composition is consistent across four rounds of surveys. More females tend to work as primary school teachers. Continued perceptions of teaching as an 'appropriate' career for women remains, that is it is reasonably well paid, with holidays and hours that allow a combination of responsibilities in work and family contexts (Acker 1989). The number of men teaching in primary schools, in particular, is declining (Richardson and Watt 2006). Yet, the analysis of SETE career progression data shows that employment and career chances of female and male graduate teachers diverge. Male graduates were more likely to be employed in full-time positions and saw themselves in leadership role in 3 years' time, while female graduates were more likely to be employed in part-time positions and saw themselves teaching or in other education-related occupations in the future. Across SETE survey rounds, there was an equalisation between genders on seeing themselves staying in a school teaching career and some increase in females seeing themselves moving to 'other' occupations.

The cultural-linguistic backgrounds of beginning teachers in the SETE project remained largely stable with the overwhelming majority of teachers (more than 80%) coming from English-speaking backgrounds. Australian Aboriginal and/or Torres Strait Islander teachers in the SETE sample made up less than one per cent

across all four rounds. This was slightly less than the proportion in the SiAS 2010 sample (McKenzie et al. 2011) and less than the proportion of people who identify as Australian Aboriginal and/or Torres Strait Islander in the Australian population, which was 2.5% (ABS 2011a). According to the AITSL report (2013), teacher education programs have a slightly higher proportion of Australian Aboriginal and Torres Strait Islander students (2%) when compared with the percentage across all fields of higher education (1%), but this representation of Indigenous students in teacher education does not yet match the proportion of Indigenous school students (4.9%) (ABS 2011b).

In terms of the socio-economic backgrounds of graduate teachers, teacher education degrees attract a greater proportion of students from a lower socio-economic status and/or from regional areas to teaching programs than to other tertiary education degrees (Connell 1985). These are arguably those students who are more likely to come from backgrounds with family members not well represented in terms of higher degree qualifications, and certainly those that would contribute to a diverse teaching workforce reflective of the student body. Recognising this trend, the AITSL (2013) report highlighted that 'the diversity of entrants to teacher education programs is a feature of the teacher education landscape, providing schools with qualified teachers from a range of backgrounds and histories' (p. 8). Nonetheless, it is important to notice that the 'first in family' graduates in the longitudinal sample were less likely than other graduates to be represented in the top 25% of survey respondents for preparedness for teaching, but their perception of effectiveness was higher than of their preparedness, which was indicative of their teaching experiences in schools. Although a welcoming development, this does not mean that coming from lower socio-economic background and/or from regional and rural areas to teaching programs, rather than to other tertiary education degrees, will resolve the mismatch between the socio-economic composition of the teaching workforce and students in schools.

The teacher education backgrounds of graduates were another key factor in understanding their pathways to teaching profession, as well as their career progression and mobility. Due to teacher education being under scrutiny in this country and elsewhere, there is a growing body of literature that investigates the impact of teacher education on teacher employment, effectiveness and mobility (Boyd et al. 2009; Mihaly et al. 2013; Ronfeldt et al. 2013a). Our study has provided a quantitative descriptive picture of teacher education backgrounds and employment pathways of beginning teachers. Specifically, we provided longitudinal data that allowed us to consider what types of programs contributed to better employment opportunities and initial teaching experiences in diverse settings. For example, graduates of Bachelor's degrees were more likely to be employed in full-time permanent positions. Graduates of Graduate Diplomas were less likely to be full-time permanent and more likely to be part-time permanent or casual. In the first three years of employment, graduate teachers were more likely to move to full-time or part-time permanent positions and less likely to be employed on a casual basis (refer to Chap. 4 for more detail).

Employment Pathways as Ways of 'Utilizing' Graduate Teachers

Employment destinations of graduate teachers reflected the general job market demands across states and school sectors during the period 2012–2014. For example, Victoria had the larger percentage of employed graduate teachers than Queensland, which is consistent both with the demands of these states and with the proportions of graduate teachers registered in these jurisdictions. Government schools across Victoria and Queensland were by far the largest employers of graduate students, followed by Catholic and Independent school sectors. Primary schools employed more of the graduate teacher respondents than secondary schools. Combined P-12 schools and special education settings employed up to one-fifth of graduate teachers over the three years. Metropolitan schools had the largest demand and approximately 65% of graduate teachers who were in the teaching workforce worked in major cities. This proportion of graduate respondents employed in schools located in major cities remained fairly constant, as did those in inner regional areas (slightly over 20%). Teachers employed in outer regional, remote and very remote schools constituted approximately 12% of all respondents with a teaching position.

Boyd et al. (2003) have explored the geographic scope of teacher labour markets—a little understood but potentially important feature relating to the recruitment of more qualified teachers to schools. Their particular interest was in how prospective teachers defined the geographical locality of their job search, asking 'How broadly are teachers dispersed from prior places of residence and what attributes of teachers affect this geographic span?' They found that teachers demarcated their job searches to relatively small geographic areas, very close to where they grew up. While preferences varied somewhat based on the characteristics of the individual teachers, distance appears important for all groups of teachers that they analysed. Such preferences are supported by Ronfeldt et al. (2013b), who state that teachers, especially new ones, prefer to teach in schools that are close to them in proximity, where they grew up, or in schools similar to the ones that they attended. However, our project data also showed that many employed graduate teachers were venturing further away from densely populated areas and the location of their teacher education (see reasons for the mobility of beginning teachers in the following section).

Employment opportunities were also influenced by areas of teaching specialisation. Graduate teachers with specialisation in mathematics or special education were more likely to be working in their specialist area. This trend was expected as these subject areas have been identified as the areas of high demand in this country and also internationally (Department of Education and Training 2015a, b; Organisation for Economic Co-operation and Development (OECD) 2011). The shortages of mathematics teachers have been driven by broader workforce demands in servicing 'knowledge economies' and, in turn, by a variety of opportunities present for graduates with this educational capital. At the same time, this situation reduced the probability for mathematics majors to pursue teaching degrees and

careers (cf., Bacolod 2007; Ingersoll and Perda 2010). Employment demands were high in the areas of special needs, languages other than English, and technology. The data showed that graduate teachers with specialist qualifications in society and the environment, the arts, and health and physical education were least likely to be teaching in their specialist areas at the beginning of the third or fourth year after graduation (see Chap. 4 for more detail).

School principals were asked in their surveys if they liked to employ graduate teachers. In all three rounds of principal surveys, well over 75% of principals agreed or strongly agreed that they liked to employ first year graduate teachers. Between 13 and 17% neither agreed nor disagreed, and between one and four per cent disagreed or strongly disagreed. Not many principals referred to difficulties in staffing specific subject areas (such as Maths/Science, English, LOTE, Physics), but rather focused on the location of schools and the willingness of graduates to move outside of major population centres. For example, some school principals emphasised the desirability of the location and the reputation of their schools as a key recruitment factor. Indicative of this are the following statements: 'We are in an academic metropolitan school, with a good reputation; therefore, it is not difficult to attract graduate teachers', 'Being close to a large provincial city we are usually overwhelmed with applications'. By contrast, principals in rural and remote locations told a different story: 'Getting graduates to leave the coastal regions where they have grown up and attended uni is a challenge'; 'There is a difficulty in attracting any teacher to our location, because of remoteness and isolation from the city'; 'Our remote location does not lend itself to the social aspects that a significant number of young people want to be involved in'. Some school leaders also emphasised the problems created by the lack of affordable housing.

In the main, school principals wanted to offer graduate teachers opportunities to consolidate their knowledge, recognised the enthusiasm that graduates bring, and were keen to ensure their schools had a balanced staffing profile. The financial implications of employing graduate teachers—that is, the fact that they cost less—was another aspect of their appeal. These findings suggest that local schools pay attention to teachers' employment preferences and capabilities, as well as taking into account school needs and financial interests in offering employment to graduate teachers.

Teacher Mobility

In the literature on teacher mobility, the general term 'turnover' is used as an umbrella term to describe 'the departure of teachers from their teaching jobs' (Ingersoll 2001, p. 500). Some researchers use the term attrition to refer to the phenomenon of teachers leaving the profession, and the term migration to describe the transfer of teachers from one school to another. In this regard, teachers may be leaving teaching for good (attrition) or they may be moving across schools (migration). However, from the perspective of their school, this distinction matters

little, since the school must deal with the loss regardless of whether the teacher moves to another school or out of the profession altogether (Ingersoll 2001). Hence, teacher mobility can be juxtaposed with a sedentary view of teaching pathways and many researchers label those who continue to teach in the same school from one year to the next ‘stayers’, those who are mobile ‘movers’, and those who leave teaching altogether ‘leavers’ (see Johnson and Birkeland 2003; Johnson and the Project on the Next Generation of Teachers 2004; Luekens et al. 2004).

In relation to early career teachers, Cochran-Smith (2004, p. 846) argued that stayers and leavers are not a homogenous group: ‘rather there are multiple variations of practice-coupled-with-career decisions, some of which are desirable and some are not’. Some attrition is considered desirable, (e.g. if beginning teachers perceive themselves, or are perceived by others, as not well-suited to teaching), but some attrition is not (e.g. the attrition of highly qualified graduates). Some attrition is temporary (e.g. teachers leaving to complete a postgraduate degree, raise a family or take a long period of leave before returning to teach), and some is inevitable (e.g. teachers retiring). Teacher mobility, however, is related more to workplace issues such as student discipline concerns, lack of support and mentoring arrangements, poor working conditions, conflicts with administration, lack of participatory opportunities in school decision-making and governance (Cochran-Smith 2004; Darling-Hammond 2003; Ingersoll and Smith 2004).

Furthermore, in contrast to previous generations of teachers who tended to teach until retirement, today’s teachers expect to have more than one career (Margolis 2008; Peske et al. 2001). The international teaching workforce data confirm this assertion, demonstrating that teachers are increasingly moving between schools or leaving teaching all together in large numbers after relatively short periods of service (Ingersoll 2001, 2003). The most likely to leave or move are teachers in under-resourced or hard-to-staff schools (Cook and Engel 2006; Lankford et al. 2002; Schaap and Goodman 2001). The inability of schools to maintain a stable teaching force over significant periods of time is cited as a major impediment for creating and maintaining teacher quality and school effectiveness (e.g. Ingersoll 2001, 2003). Early attrition and mobility have an impact on education quality in certain schools (e.g. disadvantaged, rural and remote), as well as affecting school staffing more broadly. In both cases, teachers need to be replaced. However, mobility has a more direct impact on schools than on systems, and hence is a less problematic (although still significant) issue for governments.

International research presents teacher turnover as a complex phenomenon that has been identified as either a problem for workforce planning and resources or as an indicator of the relatively low quality of schooling and teacher morale. According to the *National Commission on Teaching and America’s Future* (2003), 33% of all new teachers who enter the system leave within the first three years and around 50% leave within five years. Exacerbating this problem further is the fact that many of those who stay in teaching move frequently between schools looking for improved working conditions (e.g. 8.1% of the teachers moved from their public school and 5.9% moved from their private school) (Marvel et al. 2007, p. 7). Urban public schools in the US, those that often cater for culturally diverse and

underprivileged students and that are struggling to attract high quality teachers, are also the schools that are primarily affected by teacher attrition and mobility. Also illustrative of the challenging conditions in the US public urban schools is a very low motivation of teachers to work in those schools. This refers, in particular, to the more able and educated teachers who have better prospects in finding alternative workplace conditions (e.g. Robertson et al. 1983; Henke et al. 2000).

As a result of turnover, according to Ingersoll (2002), teacher shortages are becoming increasingly a global problem. In the UK, teacher shortage is reported as a national crisis and the situation is worsening in Sweden, Germany and New Zealand (Herbert and Ramsay 2004; Mackenzie and Santiago 2005). Policymakers usually respond to teacher shortages by increasing the supply of teachers. Some researchers are sceptical, however, that this measure can improve the situation. In their view, recruiting enough new teachers has not been the main problem, but it has rather been the tendency of teachers to leave quickly (Ingersoll 2001). Partly, this problem can be addressed through teacher retention strategies and, partly, through understanding the nature of, and reasons for, workforce mobility.

Previous large-scale studies into the teaching workforce in Australia have captured some key mobility patterns relevant to the SETE study. For example McKenzie et al. (2011) explored career paths in teaching and reported that 40% of primary teachers and 36% of secondary teachers surveyed in 2010 spent less than two years at their first school (as compared to 42 and 40% in 2007 respectively). On average, movers spent about 3 years in their first school, with only 5% spending more than 10 years at their first school. They also looked at the patterns of teacher mobility across school sectors, states and in/outside metropolitan cities. In comparison to 2007, movement between sectors appears to have slowed in 2010, with 81% of primary teachers and 67% of secondary teachers working in the same sector as their first school (71% of primary and 60% of secondary in 2007). Similarly, there was some decrease in moving away from government schools from 20% in 2007 to 13% in primary in 2010 and from 28 to 22% in secondary. The data showed that about 80% of teachers who had moved schools were teaching in the same state or territory as their first school. Compared to 2007, a higher percentage of primary teachers began teaching in a school outside of a capital city (61% in 2010, 55% in 2007).

Main SETE findings on teacher mobility reveal that:

- Most graduate teachers stayed to teach in the state/territories in which they completed their teacher preparation. For example most of the 2011 graduates of teacher education programs in Victoria and Queensland were employed in those states in 2012, and at the beginning of 2013, about 85% of 2011 graduate teachers in Victoria and Queensland had been teaching there for more than one year.
- Of the Round 3 respondents, 29% taught in schools in areas where they lived prior to entering the university program, and about two-thirds reported teaching in schools located in areas with a similar population size, socio-economic size, social and cultural diversity profile as that in which they lived prior to their teacher preparation.

- Of those 2011 graduates who were employed as a teacher early in their first year after graduation, 57% of them remained employed in the same school 12-months later, early in their second year. Twenty per cent of these graduate teachers moved to another school usually to secure full-time, often more permanent employment. Other reasons included lack of support in their initial school and family/personal reasons.

Focusing on the 2011 graduate teachers only, SETE data show that for those graduates with teaching positions in Round 1 in Victoria all of them were still in that same state or territory in Round 2. For Round 1 graduates from Queensland, 98% were still in Queensland in Round 2, one per cent moved to schools in the Northern Territory and one per cent overseas. The movement of graduates from time two (Round 2) to time three (Round 3) across states and territories shows that there was less than a four per cent change from Round 2 to Round 3 for graduate teachers in Victoria. Overall, the data showed that nearly all graduates remained teaching in the same state/territory between the end of their first year and the beginning of their second year in teaching.

In more general terms, the analysis of the qualitative data (both surveys and case study interviews) demonstrates that the main reason for teacher mobility, revealed in this study, were better employment opportunities. Most of the graduate teachers who moved were employed on short-term contracts or in casual relief teaching positions and relocated to different schools, systems or geographic areas as soon as they secured full-time positions. They moved for more secure jobs and, at least initially, applied for positions in order to have more stable employment, rather than because they were attracted to particular educational contexts. The data also showed that the major cause of graduate teacher mobility and turnover was that a majority of early career teachers remained on short-term contracts. This pattern of beginning teacher mobility is reflective of the marketplace and system changes that have reduced demand for teachers in certain geographic areas and prompted different employment patterns. Job insecurity also had the consequence of driving competitive behaviour amongst graduates that was at odds with professionalism and collegial relationships.

From the interviews and survey free-text responses, both graduate teachers and principals attributed the difficulty in finding employment to the perceived oversupply of teachers and the lack of full-time jobs. Contributing factors in this regard were retirement delays, an ‘out of service’ pool of teachers, public sector cutbacks (e.g. freezing salaries), etc. As some studies of teacher employability show, the supply of new teachers is closely affected by the economic cycle. However, it does not reflect the cycle directly but rather lags behind it, contributing to some increase in teacher casualisation or unemployment when the economy starts to perform better after its downturn. A consequence of this, evident in our case studies, was that graduate teachers perceived themselves to be expendable. Casual and contract employment was also associated with reduced access to professional learning opportunities and had negative impacts on the development of professional

identities and practices of beginning teachers such as, for example on their sense of being less effective in teaching.

In sum, case study interviews and responses to open-ended questions in the survey illustrate four types of mobility—international, transfer between systems, transfer within the system, and exits from the system (see Fig. 6.1). Respondents to the survey indicated that many were employed as replacement teachers filling short-term vacancies. The age-profile of the teaching profession, and consequently both retirement levels and maternity leaves, either temporary or semi-permanent, affected the demand for replacement teachers. Another reason was the uneven level of economic activity in urban and rural locations that created an over-supply of teachers in some geographical areas and an undersupply in others. The interplay of such factors was mentioned by participants in this study, particularly by beginning teachers who were mature, mid-career changers, and were from dual-income families that lack mobility. The patterns of mobility also showed that some schools

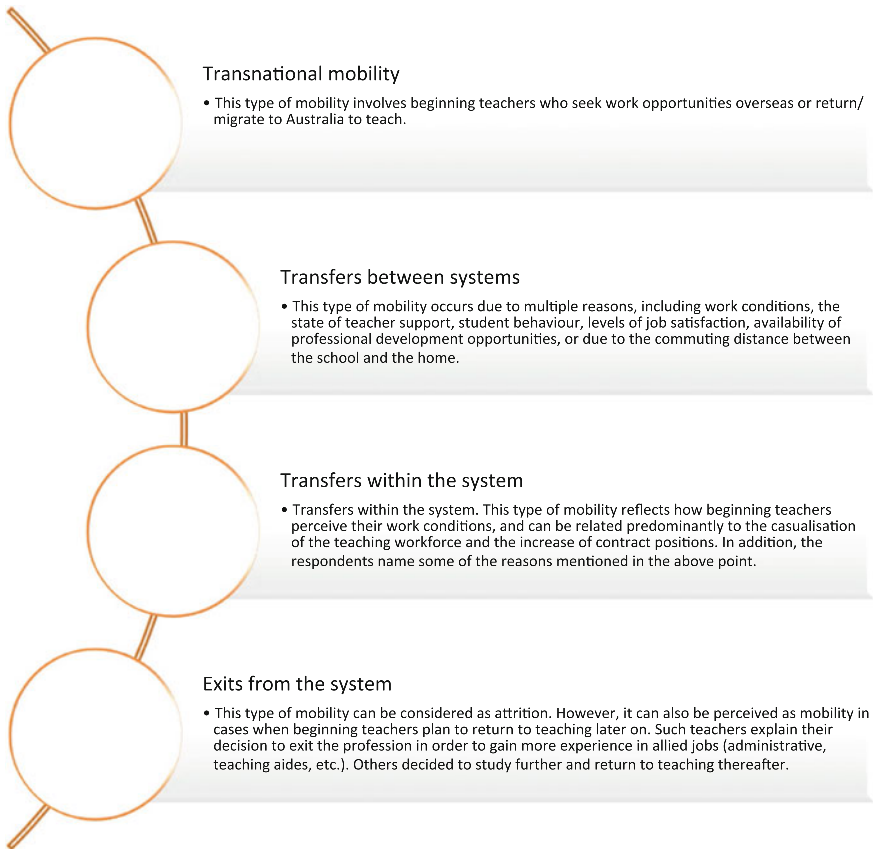

Fig. 6.1 Types of teacher mobility

suffered more from the effects of shortages than others, most notably those with large numbers of low socio-economic status students.

Open-ended comments taken from each of the survey rounds showed the contextual variation that occurred across states:

- '*All my efforts to find permanent employment as a secondary school teacher in my field have failed. I have been either unemployed or a casual teacher for over a year and a half and it is very frustrating. I am now seeking work with NGOs and considering moving overseas so that I can work as a teacher*' (Graduate teacher, Round 3).
- '*Have had to re-apply for a position every year since 2010. Would love a permanent spot at the school, as I adore the children, parents, staff* etc' (Graduate teacher, Round 4).
- '*The rural location of positions, which I am not able to pursue*' (Graduate teacher, Round 2).
- '*Availability of HPE positions*' (Graduate teacher, Round 2).

In this regard, teacher mobility is as relevant to the retention of qualified teachers as attrition. Evidence suggests that teachers tend to move away from low-performing and low socio-economic schools (Hanushek et al. 2004). Beginning teachers generally require three to five years of teaching experience to become entirely effective at improving student learning outcomes (Rivkin and Hanushek 2005). Some studies show that more effective and experienced teachers are less likely to leave their schools or the profession, while inexperienced teachers are more likely to leave (e.g. Kreig 2004). As a result, schools with high mobility rates tend to fill vacant positions with new teachers, leading to the concentration of inexperienced and less effective teachers among their staff. In this context, teacher retention has an important role in improving students' learning. However, the mobility of beginning teachers, beyond its relationship to effectiveness and experience, is also dependent on workplace conditions. The following sections will elaborate on these issues in more detail, illustrating the four types of early career teacher mobility based on the analysis of findings.

Why Do Beginning Teachers Leave?

There is a wide body of literature on why teachers stay or leave teaching during their first years in teaching. Lortie (1975) and Cohn and Kottkamp (1993) showed the persistent and important role of intrinsic rewards for teachers' satisfaction. For example, in both of these studies more than 85% of the teachers who were surveyed felt rewarded when they 'knew that [they] have 'reached' students and they have learned' (Lortie 1975, p. 105). Many scholars contend that school environment and culture are a major factor in shaping teachers' decision as well. For example, Johnson and The Project on the Next Generation of Teachers (2004) argue that

teachers are looking for a hospitable, supportive, collaborative, challenging and stimulating work environment, where they can grow, assume responsibility as leaders and feel respected (e.g. Henke et al. 2000). Overall, international research shows that around one third of new recruits resign or burn out within three to five years of beginning teaching (Ewing and Smith 2003; O'Brien et al. 2008; Brill and McCartney 2008; Liu 2004).

The first year of teaching form a transition stage to a more secure employment status. In Australia, this year is colloquially known as being employed as a 'first-year-out' teacher. Following the completion of a recognised university teacher education program, graduate teachers, whether they are working full or part-time or casual, will provisionally register as teachers and occupy 'the ritual bridge' (Britzman 1986) 'that beginning teachers have to cross to enter the teacher's world' (Ballantyne et al. 1998, p. 51). Early experiences in the teaching workforce are a critical period. It is during this time that attitudes and behaviours with respect to the profession are formed and continue to shape the subsequent years of teaching (Bartell 2004). Workplace conditions are therefore a crucial factor in shaping their perceptions of professional practice and in decision-making to stay in the profession or to leave.

The responses to open-ended questions in the Graduate Teacher Surveys (e.g., Round 2) provide a data source for understanding more about the reasons why early career teachers choose to leave the teaching profession. The data include an analysis of obstacles to securing a teaching position, reasons for not seeking employment, as a teacher as well as induction and support for graduate teachers in schools. While the vast majority of responses to the question 'Are you satisfied with the conditions of your employment?' in the initial phase of the project were in the affirmative, 20% of participating teachers wanted to change their conditions of employment. Overwhelmingly, the most common reply focused on some aspect of job security. A typical reply was: 'I would prefer to be in an ongoing position rather than contract, for increased job security' (Graduate teacher, Round 2).

The second most frequently named area in need of change was pay—'pay is far too low to go into teaching full-time. I earn more doing what I do now and have done for 10 years' (Graduate teacher, Round 2). Issues of pay were often tied either to the long hours of work or difficulties of the job that many commented on. As one of the graduate teachers argues, 'teachers are working far too hard for the minimal salaries they are on' (Round 2). In conjunction with the pay issue, a few argued that their qualifications or prior career experience were deserving of a higher starting salary (e.g. recognition of prior experiences and level of education). 'With a combined ten years of tertiary education (B.Sc., BForSc, Ph.D. and GradDipEd) with ten years (four as part of a Ph.D.) experience in science research/teaching within the tertiary sector, my remuneration is the same as graduate with no experience and four years tertiary education. Given teaching is part of the education sector I believe people's education levels should at least be recognised in some way to encourage and support talented graduates.' (Graduate teacher, Round 2).

Much more specifically, one graduate teacher commented: '…being placed in a mining region on a first year teacher's wage and minimal teacher housing available,

I have found living expenses to be difficult to handle. I don't believe teachers are adequately supported financially in the central regions of Queensland' (Graduate teacher, Round 2). Others elaborated on the demands of the job. Specific conditions of work, including class sizes, stress levels and the lack of work–life balance were all identified as areas that graduates would like to alter. For example, 'I get paid to work 37.5 h a week and I actually need to work about 60 h a week to get the job done. I'd like to change that so that I could have more time to enjoy life' (Graduate teacher, Round 2).

Another area of concern named, although much less often, was the lack of support provided from leadership teams or from mentors. For example, 'I have received no support from management or senior staff in planning and implementation of learning and teaching programs. Conditions agreed to at the acceptance of employment vastly changed once employed. There is too much of an expectation of weekend and night work without any compensation. I have been taking on roles and responsibilities way above my level of experience and pay scale' (Graduate teacher, Round 2). Graduate teachers indicated that school culture is determined largely by the principal and that this, in turn, affected their own sense of professional identity.

Later in the study, there was a slight drop in the percentage of teachers who stated that they were satisfied with their conditions (78.5% in Round 3 as compared to 80% of those who responded in Round 2). Of the total of Round 3 respondents, 21.5% were dissatisfied, stating the following main reasons:

- the lack of ongoing or permanent employment (51% of comments fitted into this category);
- the 'conditions' of work, in particular, inadequate pay, long hours, lack of collegiality, lack of recognition for the additional duties undertaken (31% of comments); and
- the perceived inadequacies of leadership or mentoring in the school (8.6% of comments).

The lack of ongoing employment remained a major concern for the majority of those who responded, summed up in the following comment that, with slight variations, was repeated often:

> Six-month contracts are not conducive to getting the best from beginning teachers, the stress created from this detracts from energy you can put into the job. Your long-range planning for your job is difficult to find under the burden of 6-month contracts and your acceptance by other teachers is reduced. Now that I am on my third in a row I can see that the school would extend these or make me permanent if they could but the nagging doubt is always there underneath that I may not be renewed next semester. I am a mature person with family and financial commitments - this worries me and I don't think that the situation sees me produce my best teaching practice. (Graduate teacher, Round 3).

At the final stage of the project, the percentage of those who expressed satisfaction or dissatisfaction with their current employment status remained very consistent. As in the previous surveys, in Round 4, slightly more than 21% of the respondents reported that they were dissatisfied with the conditions of their employment. Like the previous rounds, the most frequently named area of concern

was the type of employment experienced by these teachers, many of whom graduated in 2010 and 2011. Almost 50% of responses focused on the lack of permanent or ongoing positions. Some of the responses were pithy: 'I am still on a contract going into my 4th year and I would like to be made on-going' (Graduate teacher, Round 4), or 'Have had to re-apply for a position every year since 2010. Would love a permanent spot at the school, as I adore the children, parents, staff, etc' (Graduate teacher, Round 4)

'Workload' and 'pay' were the next most commonly named areas of their employment that Round 4 teacher respondents would like to have seen changed. While not all respondents used these explicit terms, when the two categories of responses were taken together, they added up to almost 30% and encompassed a very large list of issues that respondents saw as in need of change. The lack of adequate pay for the hours or conditions worked was frequently linked to other issues, including type of employment, benefits or lack of access to professional development. For example, a number of those on contracts noted that 'unpaid overtime' is required to keep up with the amount of work. Others coupled the pay scale to changing conditions of work: 'pay is too low for hours and responsibilities expected—also the new legislation around performance-based pay may drive me and others from the profession due to breakdown of collegiality and morale' (Graduate teacher, Round 4). Still others sought 'increased pay for administration duties. Pay is not increased with increased responsibility' (Graduate teacher, Round 4) or noted that 'no access to paid professional development and lack of support with VIT registration are unacceptable. The workplace I am currently in does not treat teachers fairly or offer support' (Graduate teacher, Round 4).

The perceived lack of support or clear vision from leadership teams emerged as of growing concern among those who were dissatisfied with their employment. 'The lack of support from leadership when dealing with student and staff issues' (Graduate teacher, Round 4) or 'support for graduate teachers' (Graduate teacher, Round 4), to more explicit comments that provide glimpses into serious concerns, such as 'workplace bullying' and 'better, safer conditions' and '…the violence from students that I am expected to tolerate' (Graduate teachers, Round 4).

The desire to change their location was mentioned in Round 4 more often than the earlier rounds. Perhaps the delight in gaining ongoing employment by accepting positions in remote locations has begun to diminish after several years. One lengthy comment encapsulates a number of others:

> Underpaid, long hours, in a remote town far from home. Extremely expensive, far from family and friends, long hours due to shortage of staff or school funds to pay casual staff. Working consistently on selling the school to keep up student numbers, role diversity is ridiculous, hours exhausting. Community is always your personal space due to such a small town… no retreat from work as high needs, low social economic community always see school staff as a social welfare. Exhausting! Do love the work but exhausting. It is no wonder that many ppl leave here after a few years. (Graduate teacher, Round 4)

Finally, a number of respondents took the opportunity of the survey to reflect on the wider, cultural perceptions and change regarding the profession. The following

comment from one respondent serves to sum up the major issues highlighted in the comments of Round 4 and allows a teacher to have the final say:

> It saddens me that a culture has developed that puts pressure on teachers to do many hours of unpaid overtime and use personal funds to buy equipment for school. Performance reviews contribute to an attitude of suspicion that teachers are not working hard enough. More contracts also contribute to a lack of stability in the living circumstances of an early career teacher. In my third year of teaching I am still unable to apply for a mortgage because I am officially on a contract ending in 9 months' time. Nothing other than a complete overhaul of the system and a campaign to improve attitudes from a government-led position, will achieve this. I'm not holding out hope.' (Graduate Teacher, Round 4)

Retaining Beginning Teachers

The data from this study indicate that for early career teachers there are significant differences in the patterns of employment and these experiences are paralleled by a host of issues associated with securing a 'first' position and demanding workplace conditions. It seems clear that graduating from a teaching degree and gaining an initial full-time ongoing position, with the likelihood of a permanent position to follow, no longer constitutes the norm for Australian teacher education graduates. The current situation in Australia contrasts sharply with the experiences of the Australian 'baby boomer' generation who received their teacher education in the 1970s. This generation of teachers were often bonded to an education authority and completed their qualification in a period of expansion in education, and whether bonded or not, readily found employment.

Furthermore, research suggests that teachers' decisions to remain in their schools and in teaching are influenced by a combination of the intrinsic and extrinsic rewards that they receive in their work. Intrinsic rewards include such things as their capacity to make a difference and effectively contribute to students' learning, the enjoyment of teaching and working with children, developing new teaching and leadership skills, etc. In addition to these intrinsic and extrinsic rewards, there are certain conditions of work that make the everyday experience of teaching enjoyable or not. In some situations, the negative conditions may outweigh the positive, leading teachers to leave their schools (mobility) or teaching (attrition). Our research has shown that there are important links between teachers' sense of being effective, their satisfaction with their work and retention. An unrealistically demanding workload, a lack of support, or isolation from one's peers may compromise teachers' opportunity to teach effectively and, thus, succeed with students. As a result, satisfaction decreases, potentially leading to teacher attrition or mobility. Therefore, broadly speaking, teacher retention can be affected positively or negatively by factors that influence a teacher's sense of effectiveness in the classroom and satisfaction with workplace conditions.

Our study has also provided some insights into how schools perceive challenges in retaining beginning teachers. Twenty-three per cent of schools had difficulties in this regard. The biggest reason given by schools is their location, with school leaders noting that graduate teachers leave due to the remoteness and isolation of rural and regional schools and teachers wishing to return to major cities for social and family reasons. Department staffing policies also play a major part in schools being unable to keep graduate staff, for example, in Queensland. This is reflected in responses noting the lack of staffing flexibility (i.e. ongoing staff having preference over contract staff), the system placing ongoing staff in schools rather than schools making decisions, inability of schools to offer permanent placements thereby beginning teachers leaving to take up permanent positions elsewhere, and the department policy of graduate teacher transfer to non-preferred regions. These factors were recognised as constraining decision-making of school leaders and, in turn, their ability to enhance the retention of beginning teachers.

Free-text responses from school leaders indicate other difficulties in retaining staff, including the following statements: 'Being a school about an hour from a major city travel becomes an issue when trying to retain graduates' and 'As a rural-remote school young grads are often looking to return to larger centres'. Many principals argued that they tend to lose good graduates due to 'our location and size… after a few years as there is no opportunity for advancement in our school; no leading teachers or AP. They can often want the brighter lights of a larger centre and the opportunity to work in a much larger school. Having said that, we have had a couple who have found that our setting has exposed them to greater diversity of teaching than had they been in a larger school where they primarily stay in their own unit'. The issue of retaining graduate teachers in small and remote schools was often compounded by their financial circumstances. These schools generally employed beginning teachers in contract positions 'due to being a small school and bigger schools can offer greater opportunity for on-going positions'.

Yet, our study has demonstrated that when schools develop and maintain support systems for beginning teachers that include serious mentoring and induction oriented on improving teachers' practice, teachers are more likely to stay in their school and are less likely to move to other schools or leave teaching (see also Ingersoll and Smith 2003). There is a wide consensus among educators that strong, vibrant, professional communities of teachers and administration support are essential for beginning teachers to stay, develop and thrive (e.g. Johnson and The Project on the Next Generation of Teachers 2004; Louis et al. 1996; Tamir 2009).

Conclusion

The situated perspective on understanding employment pathways, mobility and attrition of beginning teachers has also provided a differentiated representation of experiences that takes into account affordances and constraints related to both beginning teachers and workplaces. Similarly, Cochran-Smith et al. (2012) note that

most studies do not link teacher retention with teaching practice. Our study looks specifically at career decisions and progression as intimately linked with practices in diverse school settings and opportunities that these workplaces create for the continuing professional learning of beginning teachers. The situated perspective on experiences of beginning teachers therefore is related to Wenger's (1998) view of learning as authentic participation in practices of the professional community. Becoming a teacher is essentially regarded as a socio-cultural activity that involves making sense of their experiences as they participate in practices of a school community. Participation may involve multiple ways that, in our case, are related to employment pathways. Yet, it also involves a close attention to discourses, resources and cultures of schools that ultimately enable (or not) beginning teachers to increase their participation in the community and effectively to continue learning to teach. The school context of employment, from the situated perspective, becomes a key to retention and further professional formation of beginning teachers.

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Chapter 7
Learning Teaching and Doing Teaching in New Hybrid Spaces

Recap of the Context and Purpose of the Study

In many countries, government concerns about global economic competitiveness are driving large-scale reforms agendas designed to address perceived problems of teacher quality and the effectiveness of teacher education, both of which, it is argued, are critical to understanding and addressing falling economic competitiveness. The situation is often 'imagined' as needing neoliberal policies incorporating greater deregulation and market competition (Furlong 2013; Rizvi and Lingard 2010). Thus, increasingly tighter regulation is being imposed on teacher education programs through accreditation and the credentialing of graduates. It is somewhat ironic, therefore, that at the same time, more resources are directed to alternate pathways that enable various cohorts into teaching without having completed an accredited teacher education program. Some of the policy and media attention that supports these alternate pathways involves a 'distortion and misuse of research' (Zeichner and Conklin 2017) in ways that are designed to manufacture a narrative that university-based teacher education is failing. The crisis discourse developed in this way is also fuelled by think-tanks and multinationals producing reviews and reports purporting to draw on available research, but which is inevitably filtered according their purposes and associated funding arrangements. Zeichner and Conklin (2017) use the interesting concepts of 'knowledge ventriloquism' and 'echo chambers' to demonstrate how these narratives of failure of university-based teacher education are manufactured and then used to justify reform agendas. Using examples from the US, they show how various research conclusions and also conclusions from reviews of research are cited in part, then reused by others and taken up by yet others, such that the message bounces back and forth, ending in a situation where the cited rationale for a reform agenda is, at best, only part of the story, and at worst, a deliberately inaccurate referencing of the research. As part of the 'derision and salvation' discourse associated with alternate pathways into teaching, alternatives to the current university-based teacher education are

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painted as innovative and pioneering, with the assumption that what we have now is not.

It is within this context that we, a group of teacher education researchers, set out to provide a large-scale evidence base about the effectiveness of Australian teacher education programs in preparing new teachers for the diverse contexts in which they gain employment. We started not from the premise that 'teacher education is successful' or from an initial standpoint that 'teacher education is failing'; rather, we set out to provide research evidence in a space where we believed unsubstantiated claims were being made. We acknowledge that teacher education—as a field—has not generally articulated a response that speaks to policymakers about the effectiveness of teacher preparation programs. As we noted in Chap. 1, reviews of teacher education research regularly conclude that the research is characterised by isolated, often unrelated and small-scale investigations (Cochran-Smith and Villegas 2015a; Cochran-Smith et al. 2015; Murray et al. 2008). This body of research does not present a convincingly coherent argument that governments believe they can use as rationales for reform agendas. In the end though, most reform agendas are political so the starting point is not necessarily the research findings. Of course, these small-scale case studies have regularly informed teacher education curriculum and pedagogy. However, they gain little attention in the policy sphere.

Therefore, we set out to design and implement a project designed to 'speak to policy with evidence' and to 'unlock the "black box" of teacher education, turn the lights on inside it, and shine spotlights into its corners, rafters, and floorboards' (Cochran-Smith 2005, p. 8). In this way, the *Studying the Effectiveness of Teacher Education* (SETE) project was conceived. This book, almost five years later, is the culmination of our work. The chapters so far have provided the rationale for the study, the conceptual framing, the methodological approach and rationale, and the findings in relation to the three overarching research questions:

1. How well equipped are graduates to meet the requirements of the diverse settings in which they are employed?
2. What characteristics of teacher education programs are most effective in preparing teachers to work in a variety of school settings?
3. How does the teacher education program attended impact on graduate employment destination, pathways and retention within the profession?

As we have shown, the approach we used aimed to problematise the 'teacher education is failing us' discourse as well as the pursuit of essential 'truths' or so-called 'best practice' models. We have argued that there are multiple ways of thinking about and enacting teacher education that involve different but related spatial practices. In this way, teacher education is not a singular construct but a set of representations, practices and experiences that are socio-spatial and relational in their nature. As discussed in Chap. 2, we used the work of Lefebvre (1991) and Soja (1996) to help us consider the spaces where teacher education is understood differently—the conceived space, the perceived space and the lived space. This

approach has enabled us to be sensitive to the dynamics between the teacher education program, the individual and the workplace, and to examine the layers of factors that influence new teachers' sense of preparedness and effectiveness as beginning teachers.

SETE set out to backward map teachers' perceptions of their effectiveness in their school context to their preparation for teaching. Our focus has been on how the graduate teachers perceived their teacher preparation as effective in preparing them for the context in which they are working and to identify characteristics of various programs thought to be effective. We acknowledge that graduates begin teaching in diverse school contexts that are situated within the broader social, political, historical and economic contexts in which initial teacher education is developed and regulated. The effectiveness of graduates in their specific school contexts also takes into consideration the graduates' practical consciousness—their identity, pedagogical preferences, professional experiences and intended/actual lived space in the context of educational reform in Australia. Effectiveness in this research differs from the understanding of the term used in improvement frameworks. Effectiveness here is determined through the graduates' and principals' perceptions of the relational (Day et al. 2006) aspects of their preparation.

Chapter 3 explained the ways in which this project sought to make sense of the complexity of teacher education through its longitudinal, mixed methods, iterative research design involving: a mapping of initial teacher education programs; surveys of graduate teachers and their principals about the graduate teachers' preparedness to teach and their effectiveness as new teachers (four surveys over 3 years involving over 5000 graduate teachers and 1000 principals); and, case studies of 197 beginning teachers in 29 diverse school settings to understand their preparation and effectiveness as well as their employment and career pathways.

Chapters 4, 5 and 6 examined the findings in relation to each of the three research questions: Chap. 4 How well-equipped graduates are to meet the requirements of the diverse settings in which they are employed; Chap. 5 The characteristics of teacher education programs that are most effective in preparing teachers to work in a variety of school settings; and, Chap. 6 How the teacher education program attended impacted on graduate employment destination, pathways and retention within the profession.

This final chapter discusses the implications of the findings from this study for teacher education practice and policy. In summary, we argue that SETE findings raise issues associated with quality teaching that call for a reconsideration of initial teacher education such that it becomes a collective responsibility between universities, schools, systems and communities requiring the fusion and synthesis of the goals of teacher education, schooling and education more broadly. We also discuss possibilities and imperatives for future research. First, we review the findings and summarise implications for teacher education practice.

Recap of Main Findings and Related Implications for Teacher Education Practice

Despite the crisis discourse referred to above and in Chap. 1, approximately 75% of graduate teacher respondents in the SETE surveys indicated that they would recommend their teacher education program to others. Overall, they felt prepared by their teacher education program and effective as beginning teachers across all of the nine key areas of teachers' work that were used in the surveys and examined in the case study data:

- Teaching culturally, linguistically and socio-economically diverse learners
- Design and implementation of the curriculum
- Pedagogy
- Assessment and the provision of feedback and reporting on student learning
- Classroom management
- Collegiality
- Professional engagement with parents/carers and the community
- Professional ethics
- Engagement with ongoing professional learning

Principals reported that they felt the new teachers were more effective in all areas than they judged themselves. Interestingly, the graduate teachers reported feeling more effective in all areas than prepared by their teacher education programs in those areas.

However, while the graduate teachers did feel generally well prepared by their teacher education program and effective as beginning teachers, they reported feeling better prepared in: pedagogy; professional ethics; and, engagement with ongoing professional learning. They felt less well-prepared in: classroom management; professional engagement with parents/carers and the community; assessment and the provision of feedback and reporting on student learning; and, teaching culturally, linguistically and socio-economically diverse learners. This later category was worryingly the area in which graduates felt least well prepared as well as least effective despite a majority of teacher education providers nominating 'social justice' as a key feature of their programs when asked as part of the mapping of Australian teacher education programs.

In terms of effectiveness as beginning teachers, the graduate teachers judged themselves as more effective in the areas of professional ethics and engagement with ongoing professional learning but less effective in: teaching culturally, linguistically and socio-economically diverse learners; design and implementation of the curriculum; pedagogy; and, assessment and the provision of feedback and reporting on student learning. The areas in which the graduate teachers felt less effective are firmly located in their classroom work with students. In addition, the case study data highlighted that negotiating relationships with other staff members and with school leadership were areas of challenge impacting one's effectiveness as a beginning teacher.

Graduate teachers reported that they knew they were effective as beginning teachers when their students demonstrated successful learning and when they received positive feedback from more experienced teachers, students and parents. However, they also cited their own developing sense of confidence in making pedagogical and curriculum decisions as a basis for judging themselves as effective. In many instances, the graduate teachers attributed their effectiveness as new teachers to their own hard work and the assistance they had received from mentors rather than directly to anything from their teacher preparation program.

Both graduate teachers and principals identified classroom management and catering for diverse learners as key challenges in beginning teaching, although the teachers rated these areas as a greater challenge for themselves than principals thought were a challenge for them. Interestingly, teachers rated assessment and reporting and planning as far greater challenges than principals thought they were, while principals highlighted pedagogy as a far greater challenge for the new teachers than the teachers themselves judged this area to be. The case studies highlighted that new teachers saw classroom management as a key challenge early in their teaching careers but that it became less challenging with more classroom experience in the first few years of teaching.

In the statistical analysis of the survey data, perceptions of preparedness were not often able to be causally linked with particular characteristics or dimensions of the teacher education programs, though there is some evidence to support the view that those graduate teachers who completed a program of two or more years' duration did feel more well prepared. Nevertheless, as Chap. 5 has shown, when all data sources are analysed and synthesised, there are some things to learn about the components of effective teacher education. Despite it not always being seen as an integral part of the teacher education program, professional experiences in schools were highly valued and were linked to feelings of preparedness especially if they were in settings similar to the schools in which the new teachers began their teaching employment. This was especially so for those who completed an internship towards the end of their programs. However, graduates experienced conflict and challenge when their own view of themselves as teachers and the type of teachers they aspired to be, did not align with that of the teacher education program and/or the schools in which they undertook professional experiences and in which they began their careers as new teachers.

While both graduate teachers and principals suggested that the preparation provided by teacher education programs could have been strengthened by more time spent in schools and more time on strategies for teaching and less theory, both articulated a view that teacher education provides foundational knowledge and tools from which the learning teaching journey continues along with increasing effectiveness as a teacher. In this way, initial teacher education is viewed as the first part of a professional continuum of doing and learning and developing expertise.

SETE also investigated the career progression of graduate teachers—their employment pathways, possible reasons for attrition, and retention strategies used by schools. Unlike the sector-based approach to understanding career pathways

which focuses mainly on employment trends (e.g. McKenzie et al. 2011), a situated perspective was taken in SETE to focus on transition into the workplace and take into account graduate teacher needs and school characteristics. As Chap. 6 explained, by taking this situated perspective SETE provides understanding of the links between graduate teacher employment pathways, retention and mobility, with characteristics of schools, such as workplace conditions or staff turnover. This approach has enabled a focus on the needs of beginning teachers, including their concerns about job security and changing employment patterns, along with providing support structures and mentoring, making links to how they perceive their capabilities and effectiveness as teachers in particular schools, as well as with how they assess the quality of workplace conditions.

While SETE graduate teacher respondents highlighted a range of intrinsic and practical reasons for choosing teaching, like wanting to 'make a difference', wanting to work with children, and wanting to work in an area of their particular specialisation or interest, career pathways for these graduates were influenced by multiple factors including the professional capabilities that they developed as a result of their teacher preparation programs, the conditions of the current job market and employment opportunities, as well as particular workplace conditions. It is clear that graduating from a teaching degree and gaining an initial full-time ongoing position, with the likelihood of a permanent position to follow, no longer constitutes the norm for Australia teacher education graduates. Analysis of the findings related to graduate teachers' employment pathways highlight different reasons for residential and/or workplace mobility often associated with age of beginning teachers, their family circumstances, employment possibilities in particular locations, housing market as well as whether they perform or do not perform traditional gendered or social class identities.

Moving Beyond Manipulating Policy Parameters and Increasing Accreditation Demands

SETE findings do provide some guidance in relation to things that need consideration in teacher education practice and there are certainly areas where teacher educators could strive to improve in their programs if graduates are to feel prepared and effective as beginning teachers. One area that cannot be ignored is working with diverse learners. However, we argue that the way of understanding and responding to the SETE findings is not simply to add to the list of required content in teacher education programs. This is often the immediate response in such a situation. The argument goes something along these lines: 'Graduating teachers (or principals) say they are not well prepared by their teacher education programs in X, therefore teacher education programs must now include a unit/course in X in order to be accredited or to maintain their accreditation'. This is seductive for the political cycle

in that governments can demonstrate their increasingly ‘tough’ measures that promise to ‘fix’ the problem of beginning teachers not being ‘classroom ready’ in X.

From our analysis, we argue that simply adding to the list of program requirements for accreditation will not ensure more effective teacher preparation or more effective teachers because of two important factors found to have the greatest bearing upon perceptions of preparedness and perceptions of effectiveness: employment status and workplace context. Not unlike Brouwer and Korthagen (2005), SETE found that the type of employment (for example, contract or permanent) and the school context including various levels of formal and informal support for new teachers, had a significant impact on how graduates perceived their teacher education program. In SETE, those who were employed on an ongoing, permanent basis reported feeling better prepared and more effective compared to those in casual/contract positions irrespective of the actual program from which they had graduated. In addition, graduate teacher perceptions about their teacher preparation as well as their effectiveness as new teachers were mediated by the workplace context including the induction and support they received in the school. These factors impacted choices about career pathways and retention.

Moreover, while the graduate teachers in SETE shared an understanding of the importance of initial teacher education in providing them with the necessary knowledge and skills to enter the profession as effective beginning teachers, they also acknowledged that their professional learning and growth continued during the first few years of teaching. This view was supported by their principals. However, SETE participants highlighted how the type of employment impacted their capability for ongoing professional learning. For example, if they were employed casually or on short-term contracts, they had little opportunity for sustained classroom practice that would enable their learning. Moreover, those working casually were usually not able to access mentoring and professional development opportunities in the schools in which they provided relief teaching.

This view of teacher education as a continuum of teacher learning is not new. It has been evident in policy and some practice for some time (Conway et al. 2009). In the past, much of it has constituted stage-based descriptions of teacher learning and development, including for example the work of Dreyfus and Dreyfus over 20 years which focussed on five levels or stages of teacher development: Novice, Beginner/Advanced beginner, Competent performer, Proficient, Expert (Dreyfus and Dreyfus 1986, 2004). In Australia, Green (2009) argued the need for ‘a cumulative program of connected multi-disciplinary and multi-focused work in teacher education that concerns itself with issues of practice and policy, curriculum and pedagogy across the continuum of preparatory, transitional, and continuing teacher education, and involves both universities and the profession’. This notion of ‘Initial -> Transitional -> Continuing’ depicts teacher education as a journey from novice to expert. It is mediated by the local context (universities and schools) as well as the broader political context. It builds on pre-existing knowledge and develops as a result of accessing a knowledge base for teaching and utilising practice-based inquiry. In trying to understand the sorts of activities that might be

most useful to student teachers in different stages and places, Reid (2011) mapped the work of Green onto the Dreyfus and Dreyfus model in this way:

- Initial teacher education: Novice—Beginner
- Transitional teacher education: Advanced Beginner; Competent Performer
- Continuing teacher education: Proficient performer; Expert

(p. 302)

More recent emphases have conceptualised initial teacher education as the first part of a professional continuum of doing and learning and growing expertise, rather than a distinct preparatory phase (Ward et al. 2013).

All of this work is especially helpful in helping us think more carefully about teacher education practice and policy that is thankfully taking attention away from the 'seductive pursuit of what we now call "best practice": namely, single, best solutions, to complex problems' (Bullough 2012, p. 344) and/or the endless list of requirements for entry into teacher education programs along with the ever growing program content requirements for accreditation, all of which, it is argued by some, enhance teacher quality and the status of the profession. These approaches are often favoured by politicians and governments, because when teacher education is positioned this way policymakers can be seen to manipulate parameters of teacher education such as these and demonstrate their visible actions intended to 'fix' teacher education.

However, while it is helpful to interrogate the growing work on understanding the teacher education continuum and its component parts such as teacher preparation, transition into teaching employment, and then ongoing professional learning as teachers become more proficient and expert. However, SETE highlights the messiness of delineating, understanding and somehow trying to strengthen one or more of the component parts in isolation of the others. We argue that the learning teaching continuum cannot be neatly compartmentalised and analysed in this way. Nor, we argue, is it helpful in thinking about how we might improve teacher education writ large; that is, the entire learning teaching continuum over a career. After all, it is this that will support and enhance teaching quality.

Underpinning the expressed perceptions of preparedness and effectiveness by both graduate teachers and school leaders are a number of factors pointing to limitations in current approaches to teacher education and which served to artificially segment learning teaching. First, learning teaching in teacher education was often separated from learning teaching and teaching practice in schools. Moreover, a linear progression of development was often assumed: first, one is prepared and then effectiveness comes afterwards. In addition, some graduates seemed to attribute their preparedness and effectiveness to their individual capacities and capabilities valorising narratives of resilience and of hardening up and survival, especially where they were employed in difficult contexts. Insufficient attention seems to being given to the role of relationships in learning teaching and doing teaching, including relationships with students and with colleagues and other members of school communities. And, as we have highlighted many times, the

types of employment contracts have significant impact on effectiveness and uncertainty of employment conditions resulted in teacher behaviours that were not always linked to student learning but had more to do with securing more stable employment.

These narratives have been around for some time and have sometimes been used to argue for bypassing teacher preparation in universities and giving increasing responsibility and resourcing to schools to undertake their own teacher preparation, such as, for example, the Teach Direct program in England and Wales. We do not believe this is the answer to improving teacher preparation and beginning teacher effectiveness. SETE highlights learning teaching as:

- Neither linear nor stage-based;
- Mediated by the local context (universities and schools) as well as the broader political context; and,
- Building on pre-existing knowledge and developing as a result of accessing a knowledge base for teaching and practice-based inquiry.

Therefore, we argue for more time to be spent, both in practice and in policy, on focussing on graduate teachers' lived sense of preparedness and effectiveness *in* a transitional space that incorporates both preparation and beginning teaching. This is a space in which the boundaries between 'being prepared' and 'being effective' are blurred and we argue that it is only in this way that we can come to understand learning teaching and thereby growing professional knowledge and professional practice as well as professional engagement across the teacher preparation and early years of teaching space. We argue for attention to a third hybrid space, a space in which neither universities nor schools are bypassed or privileged, but where all stakeholders work collaboratively both in policy and practice terms. This is beyond the current interpretations of partnerships in teacher education. Moreover, we argue that a focus on being classroom ready is not 'the' destination for learning teaching even if we partition preparation from ongoing learning.

Teacher Education in a Third Hybrid Space: Partnerships and Classroom Ready Are not the Destination

Recently, as part of the discourse questioning the preparedness of new teachers for the work of teaching, the term 'classroom ready' is being used in policy contexts to focus attention on what are judged to be important indicators of teacher preparation (e.g. Teacher Education Ministerial Advisory Group 2014). We acknowledge that since new teachers are expected to carry out the duties of teaching just like their more experienced colleagues—in that student learning is the goal for all teachers—and therefore attention to 'classroom ready' and all that term embodies is important, we argue that 'classroom ready' is not the destination. Learning teaching is ongoing but nonlinear. It occurs across multiple spaces in messy and recursive ways.

Moreover, 'partnerships' is often proposed as the way to bridge the so-called theory–practice gap and the perceived overly theoretical orientation of university-based teacher education programs. It is often assumed that such partnerships will ensure that university-based teacher educators will be influenced by school practitioners and thus become more attuned to the 'real world'. This is often fuelled by school-based teacher educators advising pre-service teachers to attend more closely to their learning during professional experience since this is where they will really learn to teach; a view often subsequently reflected in the beliefs of pre-service teachers. Even in their best form designed to support pre-service teacher learning in both spaces, there is often a tendency to separate this learning and expect the pre-service teachers to make sense across the spaces. These bounded spaces and the associated knowledge hierarchies often force participants into a situation where they feel they have to choose between theory and practice, situations that sometimes uncritically glorify practice (Zeichner et al. 2015) or deride it as simply reinforcing the status quo.

We argue that to understand how teachers are prepared for the variety of school and community settings in which they ultimately teach, teacher education must focus on a transitional space, a hybrid and third space, one where learning teaching and/or doing teaching is not situated at one point in time with one side of the 'partnership' (in university), and then at another point in another partnership space (in school), and then somewhere in between after graduation and during early employment where the graduates themselves are left to make sense of and negotiate the context and their learning, often with little support.

This lack of connection between teacher education in universities and teacher education and teaching practice in schools is evident in the SETE project and plays out as dichotomies or binaries in the data, for example: being prepared then being effective; learning teaching in a pre-service environment and then in-service; learning teaching in universities versus in schools; learning teaching then doing teaching; theory versus practice; and, university knowledge versus school knowledge. These oppositional positionings in the activity of preparing teachers are operationalised in accountability terms resulting in blame of the other for not contributing to the reality as well as perceptions of teacher quality. Like the recent British inquiry into the role of research in teacher education which 'demands an end to the false dichotomy between higher education and school-based approaches to initial teacher education' (British Educational Research Association 2014), SETE results highlight the importance of focussing on the 'transitional' part of the continuum of learning teaching that blurs the boundaries between *being prepared* and *being effective*. This analysis urges us to rethink teacher education policy, structures and practice to more adequately prepare and support growing professional knowledge and professional practice that challenges the linear notion of first one is prepared and then one is effective. Rather than argue for a focus on the 'transition', we argue for a consideration of a new hybrid teacher education displaying multiple physical and virtual dimensionality and integrated circuitry of environments, subjects/objects, and purposes—the motherboard of teacher education.

Transitional Teacher Education: A Third Space Laboratory

Some researchers and authors have explored ways of thinking about the gaps between teacher preparation and beginning teaching employment. For example, Ziechner et al. (2015) call for approaches to teacher preparation that value and promote interaction between practitioner, academic and community-based knowledge requiring the creation of new 'hybrid spaces' where these knowledges can come together to inform innovative solutions to teacher preparation (p. 124). Similarly, the Teacher Education Ministerial Advisory Group (2014) argued for an integrated system, though it is likely that the partnership models imagined by this group are dissimilar to those that would occupy the hybrid space. In the US, and increasingly in other contexts, the development of new ways to share responsibility for teacher education across institutional boundaries is being explored such as in urban teacher residencies (Cochran-Smith and Villegas, 2016). However, Zeichner et al. (2015) suggest that while they offer,

> …the potential for developing genuinely hybrid contexts for teacher education, thus far they have not realized this potential and have experienced some of the same problems (e.g., connecting coursework with clinical work) that have plagued traditional college and university recommending programs and early-entry programs. (p. 124)

Further, Zeichner et al. echo Klein et al. (2013) in highlighting that a third space is a continual construction and perhaps a utopian prospect that is never fully achievable (p. 126). Perhaps this is so. Hopefully SETE can contribute to this ongoing and continual construction and challenge the forces that play out as arguments idolizing the practical pitted against arguments for closer attention to teacher qualifications and autonomy.

Returning to our theoretical framing related to the spaces for teacher education, the notion of a 'thirdspace' affords an open, critical spatial imagination of how things can be different (Soja 1996). Ryan (2011) notes that:

> Lived space is a space to resist, subvert and re-imagine the 'real-and-imagined' spaces (Soja 1996) of everyday realities and hegemonic ideologies. It offers the potential for space to be made and remade with generative possibilities for critical transformation and civic participation. It is a space for new possibilities and imaginings of how things could be, a space of transgression and symbolism (Lefebvre 1991). (p. 888)

Employment practices and opportunities, emotional identities and school contexts have been shown in SETE to be central moderating influences in early career teaching on teacher effectiveness, commitment and resilience. Therefore, we urge consideration of new synergies and new ways of working together to create collaborative spaces for teacher education (physical as well as conceptual spaces) involving universities, employers and schools that bring together learning teaching and doing teaching.

To support this approach, we argue for thinking about teacher education as a complex system rather than a complicated one (Davis and Sumara 1997). Much of

what has characterised policy thinking to date suggests a complicated systems approach whereby teacher education has been taken apart, the component pieces have been examined with the assumption that by examining the pieces one can understand the whole system and its functioning. In this way, various reform agendas have been promulgated focussing on one component part and providing a solution for that part of the whole with the assumption that the whole is the sum of its parts—fix one part and the entire enterprise of teacher education can be fixed. However, drawing on complexity theory:

> If a complex system is taken apart, key aspects of how the system works and what makes it work in the first place are lost since unexpected consequences arise as a result of the dynamic interaction of parts. (Cochran-Smith et al. 2014, p. 107)

So, when teacher education is thought of a complex system in a third hybrid space, we acknowledge the multiple parts and interactions, but also acknowledge that the whole is more than the sum of its parts.

> [C]omplexity is manifested at the level of the system itself as a result of the interactions and non-linear relationships of component parts and of intricate feedback loops in the system (Cilliers 1998 cited in Cochran-Smith et al. 2014, p. 107)

Thinking about teacher education as a complex system in a third hybrid space involving universities, schools and their communities, and systems, as part of a continuum of lifelong learning and doing teaching, will require examination of questions about where learning teaching happens, who does it and how they are prepared for the task, as well as a rethinking of where in this continuum employment and teacher certification occurs and (re)occurs. Specifically, negotiating whose knowledge will guide the outcomes, the processes and the structures of this transitional teacher education will need attention. It will require decisions about who is part of the system, their agreed roles, as well as the establishment and maintenance of relationships based on mutual respect and reciprocity. Moreover, attention will be needed to the constraints and affordances for each of the players—pre-service teachers, the school community and the teacher educators. It might require a redefinition of 'teacher educator' such that teacher educators actively contribute to the learning of all teachers in the school community, making significant contributions to the capacity of school leadership groups in the same ways that school leaders could make significant contributions in supporting teacher education. It will be important to focus on learning teaching within and across spaces, putting teacher learning at the centre of the contradictory and often conflicting spaces associated with teacher education, community and school by focussing on negotiating the contested knowledges about quality teaching and how to prepare quality teachers and drawing on notions of horizontal expertise.

It will also prompt (re)consideration of key aspects of teacher preparation which we currently take for granted, such as:

1. From SETE, the length of one's teacher education program matters, but what does 'length' mean in a transitional teacher education?

2. What will professional experience mean? What does it look like in a transitional teacher education? How can sustained practice be positioned alongside learning to teach, in preference to the current model of practice through intervals of placement or internships?
3. At what point does 'employment' happen and what does it look like?
4. At what point is a 'learning teacher' registered or credentialed as a teacher?
5. What is the role of research in teacher education? Universities are sites of research to inform education. Teacher educators are researchers and teachers of teachers but more thinking will need to be directed to the role of teachers as researchers.

In summary, SETE argues that quality teaching requires a reconsideration of teacher education such that it is a collective responsibility between universities, schools, systems and communities. This will require a focus on inquiry-centred teacher education, rejecting the idea that there are universally appropriate 'best practices' or models to be transported from other places and implemented universally. It will require much working together to make it clear what each is uniquely positioned to offer teacher education and to learning teaching over time. Differing conceptions of teacher education have been articulated and championed in Australia, but if they are to be future focused and meet changing community expectations of the university and schooling sectors, policy and practice changes will benefit from the evidence that this large-scale mixed methods project has generated.

We know there are isolated projects and examples of where this third space is working focussing on knowledge in the boundary spaces (design, practices etc.) but many are one-off. The fragility of this work means we have to move from isolated projects to more sustainable options, which will only be possible through policy incentives to drive systemic change in new ways.

Further Research

In Chap. 1, we provided a brief overview of the history of the relatively new field of teacher education research. For some time, research on effective teaching was the research being taught and practiced in teacher education. More recently, research on and about teacher education and professional learning has emerged and, even though it is plentiful, it has not been regularly taken up by those outside the teacher education academy. Policymakers in particular have generally not seen this body of research as persuasive in policy terms. Some argue that the effectiveness questions at the core of the early process-product research that dominated understanding of effective teaching during the 1960s and 1970s have never really disappeared (Cochran-Smith and Villegas 2015b) despite subsequent attention to questions about knowledge for teaching and a knowledge base for teacher education. With

our increasingly global context involving goals associated with economic competitiveness as well as the challenges of educating increasingly diverse student cohorts, more current research on teacher preparation has focussed on policy and teacher learning (Cochran-Smith and Villegas 2015b). Policy-related research questions focus on parameters of teacher education that might be manipulated by policymakers in seeking to improve teacher and teaching quality.

We argue that by drawing on our spatial framing, we have sought to position SETE in relation to both these purposes, but acknowledge that, in the main, we have investigated versions of policy questions albeit a slice of that angle. Part of this was because of the collaborative nature of this project and the involvement of large jurisdictional employing bodies and regulatory authorities. However, we never set out to make judgments about beginning teacher effectiveness through classroom observations or to fully understand how they learn to teach diverse student populations. We always set out to understand the perceptions of the graduate teachers about their preparation by their teacher education program for beginning teaching and about their effectiveness in the diverse contexts in which they began teaching employment. We also set out to understand the perceptions of their principals and school leaders. Along the way, we came to understand some areas for program improvement and support for beginning teaching, but we came to understand the artificiality of separating learning teaching and doing teaching and the need to blur the boundaries between being prepared and being effective not as part of any linear developmental continuum but through close examination of a new hybrid space for learning teaching.

We agree with Cochran-Smith and Villegas (Cochran-Smith and Villegas 2015b) that future research should address questions that link teacher learning with student learning and examine the relationships between research practices and social, economic and institutional power. While there are differences across countries in relation to policies and practices that influence research related to initial teacher education, given our increasingly globalised and culturally and economically connected world, many of our conclusions and suggestions for future research have relevance beyond Australia. However, traditional methods of research and analysis (perhaps those more readily accepted by policymakers) fall short when researching a complex system like teacher education. Teacher education is usually in a continuous process of change responding to reform agendas as well as to their ongoing improvement processes.

> Thus, there is a need for engagement, participation and involvement of key stakeholders in a continuous process of research, reflection and refinement adopting a responsive mode to change over time. Thus there is, in contrast to a more technical rational view of research, a very real need to engage practitioners in the process of research, reflection and analysis. (Gray and Colucci-Gray 2010, p. 429)

Moreover, as we have argued, no one single research approach can help us understand teacher education as a complex system in a collaborative hybrid space. Recognition of different boundaries for different participants will mean learning to

coexist with different representations of the issues at stake and the related uncertainties. Acknowledging such complexity will require reconsideration of the current search for definitive causal links.

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