

Transition into the teaching profession and transformation of pedagogical practice in the secondary geography classroom

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List of Abbreviations

AGTA	Australian Geography Teachers Association
AITSL	Australian Institute for Teaching and School Leadership
APSTs	Australian Professional Standards for Teachers
CEP	Cultural emergent property
CoP	Community of practice
ECT	Early-career teacher
EE	Environmental education
EfS	Education for sustainability
GER	Geography education research
GTANSW&ACT	Geography Teachers Association of NSW and ACT
HASS	Humanities and Social Sciences
HSC	Higher School Certificate
HSIE	Human Society and Its Environment
IBL	Inquiry-based learning
ITE	Initial teacher education
ITEP	Initial teacher education program
KLA	Key learning area
MMA	Morphostatic–morphogenetic approach
NCGS	National Committee for Geographical Sciences
NSW	New South Wales
PCK	Pedagogical content knowledge
PEP	Personal emergent property
SEP	Structural emergent property
STEM	Science, technology, engineering, and mathematics
TARL	Teaching and Assessing for Reflective Learning
TEMAG	Teacher Education Ministerial Advisory Group
TEP	Teacher education program
TES	Teacher education student
US	United States
VTR	Visible thinking routine
WIL	Work-integrated learning

Abstract

The experience of transitioning into the profession, from teacher education student (TES) through the early-career years, is an under-researched area, particularly in geography education. The experience of transition can be understood through enabling and constraining influences. The nature of, and responses to, such influences raise important implications for policy and practice in school and initial teacher education (ITE) contexts.

The present longitudinal, qualitative study drew on Archer's reflexivity theory to focus on five TESs as they transitioned into the profession. Participants were purposefully sampled from one geography methodology unit at a large metropolitan university in Australia. The study followed them for 18 months, from their final year of study and professional experience in an initial teacher education program (ITEP), to a time of profession entry, and then to their first 12 months positioned in schools. Data generation occurred through social labs, lesson observations, and semi-structured interviews. A conceptual frame of reflection and pedagogy, derived from the *Teaching and Assessing for Reflective Learning* model, and the *Professional Standards for the Accomplished Teaching of Geography* informed the data analysis.

Results from the study show that participants enter and transition into the profession with an expectation of teaching their specialist subject amidst a supportive and collegial school environment. However, results also show that participants experience transition as a time of constraint, often in response to higher-than-anticipated levels of responsibility and workload, and the incidence of out-of-field teaching. The arrival of COVID-19 added another constraint as participants adapted their pedagogical practice to an online delivery. Participants also reported two enabling influences which contributed to the transformation of their pedagogical practice: personal values and beliefs about what it means to be a geography teacher, and a structure which provides an opportunity to engage with theory–practice reflection. Participant engagement with theory-practice reflection showed the *Professional Standards for the Accomplished Teaching of Geography* and use of recurring questions were effective tools of reflection that enabled the distinctiveness of a geography lesson to be developed in response to managing the challenges and opportunities of transition into the profession.

The study provides recommendations for future longitudinal research within and beyond the scope of geography education to inform policy and practice about how ITEPs,

schools and other stakeholders can work together to mitigate the challenges of entering and transitioning into the profession.

Keywords: transition, geography, initial teacher education, secondary education, reflexivity, theory-practice reflection

Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Ethics approval was granted by the HREC Humanities and Social Sciences committee on 15 February 2019 to complete the study (Ref No: 5201937236998)

Signed:

Date: 3 August 2021

Susan Caldis

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Chapter 1: Introduction

1.1 Introduction

This study investigates how the experience of transitioning into the teaching profession influences pedagogical practice in the context of secondary geography education in Australia. Participants are secondary geography teachers; they commenced the study as teacher education students (TESs) and concluded it as early-career teachers (ECTs) at the end of their first year of teaching. Their journey is examined for 18 months to advance the understanding of the key features of a transition process that is known to be a critical, uncertain, and complex career phase, often without a well-defined path (Abrandt-Dahlgren et al., 2014). Transitioning into the teaching profession is internationally regarded as challenging and a contributor to teacher attrition. TESs' experiences during initial teacher education programs (ITEPs), the professional relationships they develop, and the support structures in schools are important for assisting TESs to transition into the profession (Heikkinen et al., 2018; Mason & Poyatos Matas, 2015).

The current research has implications for policy, practice, and future research about transitioning into the teaching profession, the teaching of geography in secondary schools, and the effect of geography methodology courses on initial teacher education (ITE).

1.2 Australian context for geography and geography education

In 2018, the National Committee for Geographical Sciences (NCGS) launched a strategic plan for the discipline called *Geography: Shaping Australia's Future* (NCGS, 2018). The purpose of the strategic plan was to explain the contribution made by the discipline of geography to the economic, social, and environmental wellbeing of Australia. It provides a series of recommendations for future directions to advance the visibility of the discipline, including geography education in Australian schools. This strategic plan is drawn upon here in conjunction with theoretical examinations to provide an overview of the Australian context for geography and geography education.

In a recent review of geography, Head and Rutherford (2021) reported that while geography grew steadily in Australian universities between 1951 and 1981 with the appointment of eight to more than 200 full-time geography academics, in recent times the growth of the discipline has plateaued. For example, 25 out of 37 universities currently offer a geography-related major degree, yet 14 of those 25 universities do not

include 'geography' in the school or department name because geography is part of geosciences (Head & Rutherford, 2021; NCGS, 2018).

Geography education in Australian schools also faces challenges with identity because of curriculum positioning and the high proportion of out-of-field teaching compared with other subjects. For example, in curriculum development and school subject department structures, the interdisciplinary nature of geography is not formally recognised, and geography is positioned in the Humanities and Social Sciences (HASS) key learning area (KLA) (Gerber, 1990). This diminishes the opportunities for exploration and representation of geography's interdisciplinary nature across the sciences and social sciences and has contributed to the recent call for the professional teacher associations to lobby Ministers of Education about recognising geography in policy and practice as a subject of science, technology, engineering, and mathematics (STEM) education (NCGS, 2018).

Another challenge facing geography in schools is the extent of out-of-field teaching. It is reported that 40% of teachers who teach geography did not complete a geography major and geography methodology as part of their teacher preparation (Weldon, 2016). In part, this is attributable to only nine out of 37 universities having a full-time specialist geography educator, which then affects the provision of geography methodology units in ITEPs and the number of teachers who can identify as specialist geography teachers (NCGS, 2018). Commentary in *Geography: Shaping Australia's Future* suggests the number of geography methodology units available in Australia is insufficient for preparation of effective geography teaching and that professional teacher associations should address provision of geography methodology units in ITE and the urgency of out-of-field teaching in geography with Ministers of Education (NCGS, 2018).

The *Australian Curriculum: Geography* was endorsed in October 2013 and available for implementation in Australian schools pending decisions by state and territory curriculum authorities (ACARA, 2013). So, despite the introduction of a national curriculum for geography, its implementation varies around the country. In New South Wales (NSW), where research for the present study occurs, geography is a core learning area for students up to Year 10 (age 16), with an opportunity to study 'elective geography' in Years 9 and 10 if offered by the school. In other states and territories, such as South Australia and the Northern Territory, geography is core learning up to Year 8 (age 14). The discrepancy in core learning for geography across Australia affects visibility of the subject and perceptions of its relevance for further study and career pathways.

1.3 Purpose, problem and aims of the research

The purpose of the current research is to explore TESs' experiences of transitioning into the teaching profession and develop an understanding of how these experiences influence and transform their pedagogical practice in the secondary geography classroom.

The purpose of the research arises in response to research problems about a dearth of longitudinal research focused on the TES experience of transition; also there being no known empirical research focused on the suitability of the *Professional Standards for the Accomplished Teaching of School Geography* (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010). There is a lack of understanding from research about the challenges and opportunities faced by TES during a time of transition, especially around how TES develop their identity, agency, reflective practice and pedagogical practice from an ITEP into their early career years (Steadman 2021; Stenberg & Maaranen, 2020a, 2020b; Stenberg et al., 2016). There is also a lack of research about the inclusion and influence of TES voice in informing and developing support structures the TESs feel will be necessary to facilitate their transition into the profession (Fantilli & Gordon, 2009; Gordon, 2020). In the context of geography education, the nature of and understanding about influences on and impact of pedagogical practice in the secondary geography classroom amongst TES and early-career teachers (ECTs) of geography is lacking. As a result, the research problem for the present study focuses on an emergent epistemology about transition and transformation: to develop empirical understanding about the conditions that emerge during a time of transition and influence the identity and practice of TES as they complete their final year in an ITEP, enter and then transition into the teaching profession.

To achieve this purpose and develop a response to the research problem, the present study adopts a longitudinal qualitative design with a reflexive approach and uses reflexivity theory (Archer, 2010b). A reflexive approach is appropriate for the study because of my active engagement in geographical education and my journey with participants in a process of individual transition and transformation as a geography educator, researcher, and aspiring academic (Catungal & Dowling, 2021; Dowling, 2016). Textboxes in Chapter 5 are used to capture my observations and reflections about participants' experiences and my journey as a researcher.

Reflexivity theory (Archer, 1979, 1982, 1988) identifies three emergent properties of structure, agency, and culture as transformative causal mechanisms. Emergent properties are not hierarchical or conflatable; the effect of their presence and interplay will differ over time to cause change or stability in response to a given situation and context (Archer, 2020; Archer & Morgan, 2020). Structural emergent properties (SEPs) include empirical evidence, rules, procedures, policies, and structures which provide guidance and consistency to the conduct of activities (Archer, 1982). Human agency is known as a key characteristic of change or stability in the education system (Archer, 1979) and is related to personal values and beliefs. Personal values and beliefs are known as personal emergent properties (PEPs). They are powerful influences and often cause a person to react in response to the strength of their feelings, values, and belief systems. Cultural emergent properties (CEPs) refer to behaviour and practice associated with place, time, and people (Archer, 1988). Reflexivity theory considers the nature, influence, and action of emergent properties through the processes of discernment, deliberation, and dedication. Discernment relates to identification of the emergent properties of influence; deliberation is to deeply consider which of the discerned emergent properties are enablers or constraints to practice, and to determine the emergent properties of most influence; and dedication is to decide on a plan of action to mitigate the constraint related to a given emergent property or to maximise its enabling influence. In the present study, reflexivity theory is appropriate because the research addresses a structure–agent problem in education regarding transition into the profession and transformation of pedagogical practice by explaining how emergent properties work in relation to each other.

The study uses a range of theory–practice reflection activities contextualised around the examination of pedagogical practice in geography, which is a priority area for research in geographical education (Lambert, 2015). The examination of pedagogical practice occurs through several data-generation activities at multiple points of time throughout the study (Johnson & Christensen, 2017). These occur in three phases over 18 months between June 2019 and December 2020. Data-generation activities include social labs, lesson observations, and semi-structured interviews. The research design enables the development of a deep understanding of individual experience and context to advance the understanding of the transition into the teaching profession, its transformative influence on pedagogical practice, and the importance of theory–practice reflection within and beyond ITEPs.

Two conceptual frames are used to examine participants' pedagogical practice. The *Teaching and Assessing for Reflective Learning* (TARL) model (Ryan & Ryan, 2013, 2015) and the *Professional Standards for the Accomplished Teaching of School Geography* (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010), also known as the GEOGStandards.

The TARL model (Ryan & Ryan, 2013, 2015) is a customisable multidimensional framework used to indicate the depth of reflective thinking and action over time. The model has been applied in a longitudinal study in an ITE context and with ECTs (Adie & Tangen, 2015; Bursaw et al., 2015), and is shown to be effective in promoting reflective practice among ECTs.

The GEOGStandards were developed between 2008 and 2010 by researchers, teachers, and representatives from peak professional associations as a set of subject-specific teaching standards (Mulcahy, 2011). To develop an empirical base to support the GEOGStandards generation, the practice of experienced specialist geography teachers was observed, and the teachers were also interviewed about their teaching practice in geography. The purpose of the standards is to guide individual and collaborative reflection, encourage self-assessment of teaching practice, and inform the development of professional learning activities regarding how to teach geography effectively in a secondary school setting (Hutchinson & Kriewaldt, 2010; Kriewaldt, 2010; Mulcahy, 2011).

Overall, the research aims to:

- (i) understand the participants' experience of transitioning into the teaching profession in response to personal, structural, and cultural emergent properties
- (ii) understand how the participants' discerned, deliberated, and acted upon personal, structural, and cultural emergent properties to transform their pedagogical practice in a secondary geography classroom
- (iii) determine how the participants' discerned, deliberated, and acted upon the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) as a reflective tool for pedagogical practice.

1.4 Research question

The question to frame the research is, 'How does transition into the teaching profession influence a transformation of pedagogical practice in the secondary geography classroom?'

To address the research question, it is necessary to investigate what participants discern, justify, plan for, and enact as:

- (i) distinctive features of their geography lessons, in response to their personal beliefs and practice, and the GEOGStandards
- (ii) enabling influences on their pedagogical practice, by drawing on their understanding of personal, structural, and cultural emergent properties from reflexivity theory
- (iii) constraining influences on their pedagogical practice, by drawing on their understanding of personal, structural, and cultural emergent properties from reflexivity theory
- (iv) goals to develop their pedagogical practice, by drawing on their understanding of the GEOGStandards and reflexivity theory.

In each phase of the study, two recurring questions are posed for the participants and guide the activities of the study: 'What makes your geography lesson geographical?' and 'How have knowledge, understanding, and skills gained from the geography methodology classes informed your practice?'

1.5 Significance of the research

The research is significant because it seeks to understand the challenges and opportunities faced by TEs as they leave ITEPs, enter the profession, and transition into their early-career years — a process that is currently under-researched for education and geography education (Mason & Poyatos Matas, 2015). The study also addresses the need for more research into understanding the outcomes of teaching practice on practitioners themselves as educators (Catling, 2017; Lambert, 2015).

The study is significant because it adopts a longitudinal design. Few longitudinal, interdisciplinary studies have used a pedagogical lens to reveal implications for the future of geography education in schools and ITE contexts (Butt, 2015; Solem & Boehm, 2018), including the impact and suitability of geography methodology units in shaping the pedagogical practice of TEs (Bednarz et al., 2013; Mitchell, 2017). The

longitudinal design is used to advance an understanding of how TESs reflect on theory and practice to develop their identity as they complete professional experience, transition into the profession, and incorporate reflection into their daily work as a teacher (Ovens et al., 2016; Stenberg & Maaranen, 2020a, 2020b; Stenberg et al., 2016; Toom et al., 2015). Similar gaps are also evident in a geography education context.

The current research is also significant because the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) are a conceptual frame for understanding the transformation of pedagogical practice of TESs as they move into their early-career years. There is a lack of empirical understanding regarding the impact of the GEOGStandards as a reflective tool for pedagogical and professional practice in secondary geography classrooms. At the time of writing, no empirical studies focused on the use of the GEOGStandards are known to exist.

1.6 Geography and geography education research

The origins, identity, and status of geography as an academic discipline are, and continue to be, contestable (Clifford, 2018; Heffernan, 2009). Contestability relates to the 'turns' of geography, or its changing areas of emphasis, from navigation to exploration and conquest, to geopolitical regional understanding, to a future-focused interdisciplinary approach in solving grand challenges, and active citizenship (Bonnett, 2003, 2017; Clifford, 2018; Heffernan, 2009). Contestability regarding the identity and status of geography relates to its identification across the sciences and HASS (Heffernan, 2009).

The so-called physical (science-based) and human (HASS-based) domains of geography are theorised as competing for precedence in the formation, contribution, and relevance of the discipline because each has its own histories, research, and noteworthy scholars (Heffernan, 2009). In the modern era, the works of von Humboldt and Ritter are most often cited as being important in forming the current identity of geography as a discipline (Bonnett, 2003; Dasgupta & Patel, 2017; Heffernan, 2009; Rawding, 2017a). While von Humboldt focused on species and interactions occurring in natural environments, Ritter focused on investigating regions, communities, and human–environment interactions (Bonnett, 2003; Holt-Jensen, 2019). The works of von Humboldt and Ritter not only defined the respective physical and human domains of geography, but when examined in combination, their research also provided a holistic or anthropogenic view of the world through its human and non-human communities to

create a bridge between the sciences and HASS (Bonnett, 2003; Dasgupta & Patel, 2017; Heffernan, 2009; Rawding, 2017a).

In university structures, geography became recognised as an interdisciplinary discipline with its purpose to connect nature and culture (Baerwald, 2010; Matthews & Herbert, 2008). There are many specialist fields or 'neighbourhoods' spread across the domains of physical and human geography — for example, cultural geography, architecture and planning, geomorphology, applied geography, and geography education (Bonnett, 2003; Gibson, 2007; Holt-Jensen, 2019; Lambert, 2010).

Geography education research (GER) is an authentic boundary-crossing specialist field of geography; it connects the disciplines of geography and education (Lambert, 2010). GER is a recent field to emerge within the discipline of geography, however, its low visibility compared with other fields of the discipline is not related to its timeframe of establishment (Solem & Boehm, 2018). The low visibility of GER is due to its emphasis on retaining the rigour of research methodology and identifying what works in practice rather than focusing on the contribution of geography to education; therefore, it attracts little interest or funding (Lambert, 2010; Solem & Boehm, 2018). Puttick (2018) identified three areas for GER: research about GER, research for GER, and the geographies of education. Research about geography education is typically conducted as small-scale qualitative studies that use reflection and interviews to provide rich descriptions about a particular aspect of geography education to inform policy and practice (Puttick, 2018). In Australia and England, GER typically occurs within the domain of educational research rather than within the discipline of geography (Butt, 2015; Firth & Brooks, 2017; Lambert, 2010, 2015). GER is closely linked to ITEPs (Firth & Brooks, 2017) and pedagogical practice in school settings (Lambert, 2015) to address perceptions of relevance, apply research to classroom practice, consider the role and function of powerful knowledge in a geography curriculum, and understand the implications for pedagogy in a knowledge-led curriculum (Butt, 2020).

A strength of geography's interdisciplinarity relates to being able to create something new for the discipline and keep its research frontiers expanding, and to readily draw upon and combine the different and specific research training from the sciences and HASS to produce novel conceptualisations, methodologies, and research findings (Bracken, 2017). While the perceived strength may benefit the research frontiers and progressive identity of the discipline, geographers from Canada, the United Kingdom, and the United States (US) believe it creates a lack of reciprocal understanding about

what constitutes and differentiates between geography as a discipline at university and geography as a school subject (Butt, 2020; Ferreira, 2018; Sharpe, 2009).

Interestingly, the identity of geography in schools appears to be much clearer although limited, particularly in Australia, where it is predominantly known as a subject of HASS (Gerber, 1990). Consequently, the link between geography as a subject in schools and geography as a discipline at university is tenuous. This has caused a problematic gap in the perception and understanding of geography, and this has widened over time to become a 'chasm' that threatens the future development of geography as an academic discipline, geography as a subject in schools, and geography as a career pathway (Biddulph & Lambert, 2017; Bonnett, 2003; Butt, 2020; Butt & Collins, 2018). The lack of alignment between geography being taught in schools and researched in universities (Butt, 2020; Ferreira, 2018; Sharpe, 2009) is a compelling argument to find a distinctive core to the interdisciplinary discipline of geography (Gerber, 1990; Sharpe, 2009). If a distinctive core is not discernible, geography as a subject in schools will become irrelevant (Fien, 1999). Ascertaining a distinctive core will crystallise the academic identity of geography, provide an opportunity for the discipline to align with industry and establish geographically distinctive career pathways, and enhance the public perception and status of geography and geography education (de Blij, 2005; NCGS, 2018; Sharpe, 2009).

1.7 Distinctive core of geography and geography education

The distinctive core of geography includes three generally agreed upon concepts of place-based analysis, spatial analysis/reasoning, and human–environment interactions (Baerwald, 2010; Dasgupta & Patel, 2017). These are articulated as the three key concepts of place, space, and environment, which cut across the domains of physical and human geography (Gregory & Lewin, 2018). Further, these three key concepts form significant ways of knowing and thinking about geography (Maude, 2015, 2017, 2018). Inquiry and fieldwork are also known to be part of geography's distinctive core (Fuller et al., 2006; Hope, 2009; Kent et al., 1997) as significant ways of doing geography.

Some scholars also propose interconnection, scale, and time as key concepts. For example, Kirk Stone (1972) a North American geographer known for his pioneering research in establishing remote sensing as a geographical methodology asserted that the concept of scale is unique to geography because it provides context for spatial descriptions and analysis. While Chang and Kidman (2021) confirmed place, space,

and human–environment interaction as key concepts of the discipline, they also advocated for scale as an organising concept to set a framework for analysis. Scale is posited both as a ‘spatial scale’ and a ‘process scale’; a spatial scale focuses on defining a place or space, and a process scale provides a connection to discuss other concepts and examine the contexts and conditions of geographical phenomena (Chang & Kidman, 2021). A view that contrasted with Stone’s assertion (1972) was offered by Doreen Massey, a human geographer from England whose research and influence was ground-breaking in the way she understood and communicated relational approaches and relational thinking about place and space to show why and how geography matters (Meegan, 2017). Massey (1999) drew upon the scholarship of physical geographers to propose that space and time are the most useful disciplinary concepts overall because they are relational to the processes and species being investigated. In a systematic review of the research contribution of physical geography, Day (2017) affirmed place, space, human–environment interactions, time, and scale as the key concepts. Results of the systematic review reflected a combined view of distinctive concepts from across the discipline.

This thesis positions place-based analysis (place), spatial analysis or spatial reasoning (space), human–environment interactions (environment), interconnection, and scale as the five key concepts of geography in the present study. Table 1.1 provides a short definition of each, drawn from the work of Australian scholar Maude (2010, 2015, 2017, 2020), whose theoretical arguments contributed to and advanced international and national debates about the nature and use of key concepts in geography and school-based geography education.

Table 1.1

Five key concepts in geography used in this thesis

Concept	Definition (adapted from Maude, 2010, 2015, 2020)
Place	Place is the context in which things happen; each place has unique characteristics and, as such, this will influence what happens in a place. Place is about its meaning, significance, and effects — each place is a named and defined part of the Earth’s surface that has meaning to people to therefore become a way of seeing, understanding, and knowing the world.
Space	Space is concerned with the influences of absolute and relative location on the existence of physical and environmental phenomena. Spatial thinking is about the organisation of space and the distribution and patterns of phenomena to understand the consequences of such concentrations or dispersal.

Concept	Definition (adapted from Maude, 2010, 2015, 2020)
Environment	Environment supports human life because it provides raw materials and resources. It is also a source of inspiration and aesthetic value. Humans are dependent on the environment; however, they are also changing it at a rapid rate, which simultaneously enhances and threatens its continuity.
Interconnection	Interconnection is about cause-and-effect to ensure nothing is studied in isolation. All processes and phenomena are influenced by their relationships, interactions, and interdependencies within and between places across a variety of scales.
Scale	Scale refers to the level at which an investigation occurs: personal, local, regional, national, or global.

1.8 Researcher positioning

When I commenced my career as a geography teacher in the mid-1990s, my intent was to remain in schools. Although I taught at different schools, my reputation as ‘fieldwork queen’ preceded me. The geography teaching community is small, and I often found myself as one of two or a few who identified as a specialist geography teacher. As a result, leadership in school-based geography education came quickly, and it was not long before I was leading a department and mentoring geography teachers who were new to the profession or new to teaching geography across communities of schools. One day, after significant surgery, not only did I have to withdraw from being a participant in the GEOGStandards project, but my surgeon also advised that I should give up teaching geography through inquiry and fieldwork and find another way to teach the subject. I could not. After almost 15 years teaching geography in schools, perhaps I was stuck in my ways.

Nevertheless, I found another way to be involved in the subject, and that was through leading the development of the Australian Curriculum: Geography at ACARA. The transition from being a geography educator in a local school to being a geography educator in a national corporate bureaucracy was a steep learning curve. I learnt a lot on the job and drew heavily on my identity and skills as a geography teacher; ‘geography’ was a point of connection with leading academics and practitioners from across the discipline. Gradually I saw myself as a ‘geography curriculum expert’ and then a ‘geography education leader’ as I became absorbed in the leadership of state and national professional associations — roles that continue to this day.

I returned to teaching geography in schools. I loved it, but professionally it was not enough. By now I had started postgraduate study and was researching the influence of a professional association on a curriculum development process. An opportunity arose to teach the geography methodology units at a local university. Immediately I began asking myself, 'How can I do more of this?' I transitioned into the role of a postgraduate student and quickly realised that my doctoral candidature was part of my transition into an academic career. As I taught the methodology units, continued to read, looked at what other countries were doing in geography education, and started to lead action on recommendations from NCGS (2018), I began to realise the possibilities of what could be done in geography education. This thesis is a significant part of that journey.

1.9 Overview of the thesis

This thesis is organised into seven chapters. Chapter 1 opens the thesis with an introduction to transition into the profession, transformation of pedagogical practice, geography as a discipline, and GER as a specialist field of the discipline. It then provides an overview of geography education in Australia and discusses researcher positionality as part of a reflexive methodology. This chapter also introduces the research question, research problem, and outlines the significance of the study.

Chapter 2 reviews the literature on three aspects of the research. It opens with an exploration of transition into the teaching profession for TESs and ECTs. The known experiences of transition are considered in response to the challenges they present to TESs and ECTs for their pedagogical practice. Consideration is also given to strategies offered to address the challenging experiences of transition. Next, the review focuses on the transformation of pedagogical practice in the geography classroom, mostly by drawing on studies from geography methodology units in ITEPs. The purpose is to build an understanding of how the pedagogical practice of TESs can be shaped and influenced as part of their preparation for professional experience and entering the teaching profession. The final section of the literature review explores reflection and reflective thinking to consider the importance of theory–practice reflection in ITEPs, and to present reflection and pedagogy as the conceptual frameworks. Both conceptual frameworks are derived from Australian scholarship.

Chapter 3 explores reflexivity theory (Archer, 1979, 1982, 1988) as the theoretical framework for the doctoral research. It starts with an overview of sociology and critical realism as the discipline and philosophy from which reflexivity theory arises. Next, an explanation of the nature of the theory and its contribution to the field of critical realism

together with a rationale for the application of reflexivity theory in the present study occurs. The chapter also identifies how reflexivity theory connects with the research design.

Chapter 4 describes the rationale for and nature of the research design and methodology. It describes the three research phases and includes information about the participants and instruments of data generation; it also includes the purpose of capturing researcher reflexive accounts. The methodology also addresses interruptions to research caused by the COVID-19 pandemic. A description of the methods used for data analysis ends the chapter.

Chapter 5 presents the results for each participant according to each research phase. Results are presented in chronological order of research phase and data-generation activity in each phase. Within each research phase and data-generation activity, the results are organised in response to the emergent properties of reflexivity theory: personal, structural, and cultural. Participants, who are referred to by pseudonyms, appear alphabetically: 'Anna', 'Emily', 'Grace', 'Karen', and 'Matt'. Throughout the chapter, in response to a reflexive methodological approach, there are textboxes that reveal my internal dialogue or observations about participants' practice and responses.

Chapter 6 synthesises and discusses the results in conjunction with existing studies to demonstrate how the role of theory–practice reflection assists TESs to manage and respond to the challenges of transition and yield a transformation in their pedagogical practice. Theory–practice reflection is made in response to the GEOGStandards and reflexivity theory, in addition, a recurring question — 'What makes your geography lesson geographical?' — and careful consideration of individual practice allowed the identification of enablers of and constraints to participants' practice.

Chapter 7 concludes the thesis by summarising the key findings and outlining how the study contributes to the fields of ITE and GER. The chapter also discusses implications for practice and research in ITE overall and geography education within both school education and geography methodology units. The limitations of the research are also discussed. In the closing section — 'Where are they now?' — participants each share a story about how their career as a geography teacher progressed between the formal conclusion of data generation in December 2020 and the end of Term 1 in April 2021.

The next chapter explores the literature for transition into the profession, transformation of pedagogical practice, and reflection and reflective thinking.

Chapter 2: Literature Review

2.1 Introduction

The present study investigates how transition into the teaching profession can have a transformative influence on the pedagogical practice of TESs in the secondary geography classroom. In so doing, it seeks to develop a response to the problem of the lack of empirical understanding about the emergentist epistemologies of transition and transformation: the conditions that emerge and influence practice and identity of TES as they complete an ITEP and enter and transition into the profession. The study also seeks to empirically understand the impact and suitability of the GEOGStandards in the reflective and pedagogical practice of geography teachers. The dual focus of the present study offers an opportunity to conduct an interdisciplinary investigation whereby concepts, theories, techniques and tools from the two disciplines of education and geography are integrated to advance understanding beyond the scope of a single discipline (Geschwind & Melin, 2016). The conceptual framing of the present study around reflection and pedagogy acts as a bridge to connect the disciplines.

First, the literature review examines the challenges and opportunities related to TESs' transition into the profession, and their influence on pedagogical practice. Areas of focus include precarious employment; responsibilities and workload, including teaching out-of-field; the attributes and desires of a TES population, including those who are career-changers and those who wish to teach in non-metropolitan areas; and teaching in online and blended form, most recently in response to COVID-19.

Next, the literature review assesses how the transformation of pedagogical practice occurs in geography. Areas of focus include developing identity as a subject specialist teacher, the enactment of inquiry-focused pedagogies to teach the distinctive core of geography by exploring grand challenges such as climate change, and using geospatial technologies.

The final section explores reflection and reflective thinking according to the work of Dewey (1933). Reflection and pedagogy are introduced as the conceptual frames of the study. Reflection is introduced through the *Teaching for Assessing Reflective Learning* model (Ryan & Ryan, 2013, 2015). Then, the *Professional Standards for Accomplished Teaching of School Geography* ('GEOGStandards') (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) are outlined as the conceptual frame of pedagogy.

To close the chapter, there is an identification of relevant gaps in the literature.

2.2 Transition into the teaching profession

This section examines the challenges and opportunities of transition into the teaching profession to determine its influence on pedagogical practice. The transition of TES into the teaching profession is a critical career phase known for its uncertainties and complexities rather than being a clear and well-defined path (Abrandt-Dahlgren et al., 2014). These challenges are similar throughout the world and are known to contribute to attrition (Heikkinen et al., 2018). A thematic content analysis by Mason and Poyatos Matas (2015) identified 13 themes of attrition in the Australian teaching population, with three relating to transition: quality and nature of ITEP; collegiality and quality of relationships in a school setting; and presence of support structures overall. Solutions offered by researchers to address the uncertainties and complexities of transitioning include mentoring programs, development of collegial school cultures (Burger et al., 2021; Fantilli & McDougall, 2009; Heikkinen et al., 2018; Schuck et al., 2018), and the development of school–university partnerships to help build networks and communities of practice (Gordon, 2020). To understand key features of a transition process requires examination of a journey over time (Abrandt-Dahlgren et al., 2014), so where possible longitudinal studies are drawn on. Focus is given to examining the challenges and opportunities faced by TES as they leave ITEPs, enter the profession, and transition into their early-career years. Challenges and opportunities are organised around precarious employment, responsibilities and workload, knowledge about the attributes and desires of a TES population and an increased incidence of online teaching in response to COVID-19.

2.2.1 Precarious employment

Many teachers enter the profession through a precarious employment pathway characterised by either casual day-to-day relief or short-term temporary contracts (Mindzak, 2019). The uncertainty of gaining permanent employment is known to be both normalised and increasing in countries such as Canada and Australia (Melville et al., 2019; Mindzak, 2019; Pietsch & Williamson, 2010). Precarious employment is theorised by Millar (2017) and Mindzak (2019) as being typically insecure, casualised, and sporadic, and where the daily or short-term temporary and contractual nature of the work does not provide a living wage. Further, precarity is characterised by a lack of work-based identity, particularly by young people (Millar, 2017), and is understood to create social vulnerability where the loss of existing relationships and constant exposure to new people and new situations leads to the realisation that uncertainty

becomes a condition of living (Millar, 2017; Mindzak, 2019). The following subsections address the challenges of precarious employment known to affect TESs and their practice, together with strategies to respond to such challenges.

2.2.1.1 Challenges of precarious employment for the practice of teacher education students

Precarious employment for those entering and transitioning into the teaching profession elicits a range of emotional responses that can present challenges for task completion and have implications for the design of ITEPs. Empirical studies have revealed that emotions and wellbeing issues associated with precarious employment need to be acknowledged and addressed to assist TESs in developing their professional practice. For example, a reflexive narrative study conducted by Jenkins et al. (2017) focused on four teacher educators from NSW, Australia. The study investigated their emotional responses associated with personal experiences of casual teaching or precarious employment, and some key emotions were uncovered. Discussions and stories shared by participants revealed that feelings of anxiety and fear, sadness due to marginalisation or disconnectedness from a stable professional network and community, shame and vulnerability, and frustration presented implications for practitioners being able to complete their job competently and confidently. Findings also revealed that ITEPs have a role to play in more effectively preparing TESs to understand how emotionality is central to teaching practice and how effective teaching requires the capacity to work through emotions, especially when entering the profession through the precariat (Jenkins et al., 2017). The authors also cautioned ITEP providers to be aware of implications for future course design arising from an emotional, precarious employment entry point and transition into the teaching profession. For example, leaders of ITEPs should consider focused opportunities for TESs to discuss issues related to casual teaching and engage with problem-solving strategies to address the circumstances arising from precarious employment so TESs are better supported to remain in the profession (Jenkins et al., 2017).

2.2.1.2 Strategies to respond to the challenge of precarious employment

Strategies have been suggested to reduce the incidence of TESs entering the teaching profession through the precariat. Gillett-Swan and Grant-Smith (2018) proposed 'work-integrated learning' (WIL) for the professional development, self-efficacy, and wellbeing of individuals as they transition from education to employment. They found that WIL assisted individuals to manage competing threats to their wellbeing

and focus on the experience of learning in the workplace to meet initial accreditation requirements while being paid. Pietsch and Williamson (2010) conducted a study in NSW, Australia with seven TESs who were transitioning into the profession and focused on their engagement with a professional learning community beyond their immediate school. They discovered that the first two years of teaching were crucial to the development of professional knowledge and the development of self as a teacher. For example, when TESs were engaged in precarious employment they became 'stuck' in their initial practice, and the cycle of professional development could not occur because of constant changes between people, culture, and context. It was not until the TESs had gained regular employment, and therefore a living wage, typically by the end of their first year of teaching, that TESs showed interest in engaging with a wider professional learning community, such as a professional association. Reasons given included a greater capacity to learn once contexts of change are minimised due to gaining stable employment in one school, regular access to professional development opportunities occurring within and beyond the school, and having the confidence to engage with a professional learning community. According to Bjorklund et al. (2020), it is also important for TESs to be able to join professional learning communities and develop networks. The authors proposed that ITEPs include explicit units, or modules in existing units, about network-building or network literacy to help TESs understand the purpose and significance of networks for professional development and teacher self-efficacy. ITEPs should also actively create opportunities for TESs to form ties with those already in the profession — for example, by ensuring they complete all professional experience at the same school.

Overall, research has determined that regular exposure to precarious employment and its associated emotions adds complexity to teaching (Jenkins et al., 2017). This situation can be better managed through WIL practice (Gillett-Swan & Grant-Smith, 2018). The Teacher Education Ministerial Advisory Group (TEMAG, 2015) suggested that school–university partnerships are an important way to integrate and sustain theory–practice experiences to achieve strong graduate outcomes and develop a coherent professional learning experience (Eckersley et al., 2017). Miles and Knipe (2018) recommended further research to assess the perceived gap between preparation in ITEPs and the reality of employment in the teaching profession.

2.2.2 Responsibilities and workload

Challenges associated with the entry and transition of TESs into the teaching profession relate to feelings of under-preparedness for the associated responsibilities and workload. This then manifests as difficulties with managing and protecting wellbeing, which in turn affects classroom practice. Responsibilities associated with managing a classroom, or classroom autonomy, were also noted by Ingersoll and Smith (2004), who suggested that the classroom itself becomes a place of success or failure for those entering the profession. The following subsections address the challenges of responsibility and workload known to affect TESs and their practice, together with strategies to respond to such challenges.

2.2.2.1 Challenges of responsibility and workload on the practice of teacher education students

Fantilli and McDougall (2009) conducted a mixed-methods study in Canada with 86 TESs from one ITEP who completed a survey, and 15 who were chosen for a follow-up interview and focus group discussion about entering the teaching profession. The authors found considerable concerns among the TESs regarding responsibilities and support as a result of taking on responsibilities at the same level as more experienced teachers, but with little support compared with professional experience. Consequently, feelings arose of frustration, burnout, anxiety, and stress related to concerns about time management and managing the work–life balance. Similarly, Farrell (2016) referred to ‘transition shock’ to describe the reaction of three ECT participants in his study, also in Canada, to the discrepancy between their expectations of responsibility and workload compared with what they actually encountered. Farrell’s (2016) research was conducted over 14 weeks, and participants completed two one-on-one interviews and 12 weekly group discussion meetings. The ‘first shocks’ identified by participants were a lack of welcome to the school or department and feeling alienated from people and procedures. There was also a lack of care and collegiality shown towards the participants. Other shocks related to not being given access to necessary resources and infrastructure, such as passwords to the school network, having to teach full-size classes of up to 25 students, and not knowing whom to report to or ask for guidance.

Lack of collegiality and support were reported in a qualitative four-year study conducted by Buchanan et al. (2013) in NSW, Australia. The study, which started with 42 ECTs and concluded with 14 ECTs, revealed the following as indicative of a transition experience: the presence or absence of collegiality and support; the nature and

manageability of student engagement and behaviour; the provision of and inclusion in professional learning opportunities; the extent of workload; and the presence or absence of feelings of isolation. Miles and Knipe (2018) conducted a qualitative study with 51 primary and secondary ECTs and 28 supervising teachers across educational sectors in Victoria, Australia. ECTs were recruited to the study between 6 and 12 months after graduation from an ITEP and were interviewed twice throughout the study. Findings indicated that transition into the profession was difficult and led to exhaustion and burnout because TESs felt underprepared from their ITEP for the extensive and complex workload, classroom management, differentiated and inclusive learning strategies, engaging with parents, and context-dependent practice. Miles and Knipe (2018) recommended that schools and universities work together more comprehensively and reciprocally to build stronger connections between theory–practice understanding and reduce the disconnect between teacher education and employment in the profession.

2.2.2.2 Strategies to respond to the challenge of responsibility and workload

It is important to support TESs to protect and manage their wellbeing in response to the ‘shock’ of the responsibilities and workload as they transition into the teaching profession. For example, Kutsyuruba et al. (2019) investigated 36 ECTs regarding their resilience and wellbeing during a time of transition into the profession. Results showed that the ECTs were able to manage their concerns about wellbeing more effectively and develop resilience when they could formally and informally consult with others through mentoring programs or when they viewed their colleagues as supporters and felt able to ask them for advice. Similarly, an Australian study by Beltman et al. (2009) found that TESs and ECTs were able to protect their wellbeing and develop resilience when the following circumstances existed: intrinsic motivation, self-efficacy, collegial interactions in the workplace, and engagement with mentoring programs.

Mentoring is very standards-driven in Australia and is often focused on ‘doing to’ rather than being ‘alongside’. Heikkinen et al. (2018) explored mentoring practices in Finland and Australia over an 18-month period by interviewing pairs of mentors and mentees together and holding separate focus group discussions with the cohort from each country. Results from the Australian participants, who were based in NSW, showed that a more hierarchical relationship existed between the mentor and mentee. This contrasted with the results from the Finnish participants, who demonstrated mentoring as a reciprocal relationship. Australian mentors provided support, resources, and advice

to the mentee to 'fix' arising challenges. A language of caring and professionalism was noted, and communicative spaces were created, although mentees reported finding it difficult to develop trust with their mentors because of the standards-driven approach towards meeting accreditation requirements. A separate study by Gordon (2020), which used a mixed-methods design with ECTs in England and Australia, revealed that collegiality and mentoring were effective strategies in helping practitioners protect their wellbeing and manage a higher-than-anticipated workload. A model for educating, mentoring, and nurturing was proposed to assist ECTs by developing an ongoing, formative, personalised, and pragmatic mentoring approach with specific and explicit connections among universities, schools, and related communities of practice. High levels of responsibility as a challenge of the transition experience were also reported in a large-scale study conducted by Burger et al. (2021) with TESs in Germany who were completing 18 months of in-service training before being awarded their licence to teach. The findings of Burger et al. (2021) showed the importance of school-based mentoring programs to support wellbeing, professional identity, and the instructional style of ECTs. The preservation of wellbeing was found to be necessary to protect against exhaustion.

A community of practice (CoP) model (Wenger, 2009) is another support structure to help TESs face the challenges of transitioning into the teaching profession. CoPs are characterised by a distinct domain of interest (e.g. geography teaching), membership connected to the domain of interest (e.g. geography teachers), and a shared practice, including the creation of resources or strategies for addressing recurring problems associated with the domain of interest (Wenger, 2009). A CoP can provide a sustained social network to support TESs (Barnes, 2020; Van Wyk & De Beer, 2019) and can occur as formal or informal mentoring and collegial approaches. For example, in NSW, Australia, Schuck et al. (2018) found that collegiality and mentoring helped ECTs to navigate the transition into the teaching profession. Their study with 336 ECTs found that collegial support in a school developed ECTs' confidence and assisted with their ability to respond to the complexities of transitioning into the profession. Working with a mutually respectful team, having time to talk, share ideas and resources, and have informal unplanned support and encouragement were empowering for ECTs and helped them to engage with their professional context.

Developing stronger connections between schools and universities can also help to address challenges associated with the transition into the teaching profession. Policy recommendations in Australia include recognising TESs as members of the teaching profession from the beginning of an ITEP (Ingvarson et al., 2014; TEMAG, 2015). For

example, a recent report by the Australian Institute for Teaching and School Leadership (AITSL, 2020) suggested positioning ITEPs in universities as an early part of a teacher's professional journey. Ingvarson et al. (2014) and TEMAG (2015) also identified that support structures such as guidance from professional standards, mentoring, and ongoing professional development should become a focus of school–university partnership activities. The Department of Education and Training (2018) further developed these ideas to propose 'practice-focused mentoring' as a suitable induction program to support TESs in becoming a 'fully-fledged teacher' (p. 74). Practice-focused mentoring includes participation in networks, targeted professional learning and reflection on classroom practice through observation, dialogue and goal setting aligned with professional standards (DET, 2018).

2.2.2.3 Teaching out-of-field as a challenge of workload

Out-of-field teaching is a common experience encountered by TESs as part of their transition experience into the teaching profession. It presents many challenges to teacher practice and is a contributing factor in the decision of TESs and ECTs to leave the profession (Avalos & Valenzuela, 2016; Du Plessis & Sunde, 2017; Gallant & Riley, 2017; Mason & Poyatos Matas, 2015). There are many ways to define out-of-field teaching; however, research in Australia generally refers to out-of-field teaching with respect to subject specialisation *and* stage qualification (Du Plessis, 2015) together with the way a practitioner identifies themselves and their practice (Hobbs, 2013).

Recent Australian scholarship identified discussion about the 'degree' or 'scale' to which teaching is 'out-of-field' (Hobbs & Törner, 2019), reflecting systemic requirements and a need to respond to individual school contexts, for example, due to policy determinants for timetable loads and an allocated number of permanent teachers per school based on student enrolments (Price et al., 2019). However, the degree or scale of out-of-field teaching can also be connected to teaching within a KLA where multiple subjects are offered. For example, a report by Weldon (2016) stated that teachers employed in the science KLA are in-field if they teach biology, chemistry, physics, earth and environmental science, and/or general science. The report also referred to social studies or social science and the out-of-field teaching that can occur in geography. According to Weldon (2016), 40% of teachers across Years 7–10 who teach geography are out-of-field. Further, the proportion of teachers who are specialised in geography but do not teach it is greater than the proportion of teachers who teach geography out-of-field. Statistics in *Geography: Shaping Australia's Future* (NCGS, 2018) regarding the

provision of geography methodology units in ITEPs suggest that there is a lack of provision of geography methodology units in Australian universities for TESs to specialise as a geography teacher. For example, whilst there are only nine out of 37 universities with tenured specialist geography educators for the methodology units and only 19 universities to offer a geography methodology unit for the secondary years of schooling, where a tenured specialist geography is not available the units are taught by sessional academics (NCGS, 2018). Such findings have implications for the development of subject specialist teacher identity (see Section 2.3.1); the acquisition of discipline, subject, and pedagogical knowledge in geography; and the incidence of student misconceptions about geographical processes (NCGS, 2018).

Results from a study conducted in the US by Nixon et al. (2017) confirmed the multi-subject offerings in KLAs and the scale of out-of-field teaching identified by Hobbs and Törner (2019). Nixon and colleagues followed 74 TESs in secondary science for five years, starting from their entry into the profession. Out-of-field teaching among some participants appeared, in part, to be related to being assigned to teach within a KLA where the major or minor subject was a component of the subject offerings. For example, a TES may have a major in biology and a minor in earth and environmental science yet must teach general science because certification structures determine that they are qualified to teach in the KLA of science, and school organisation structures tend to be broader than one subject. To address concerns about managing out-of-field teaching, Nixon et al. (2017) suggested subject-specific induction programs aligned with professional standards. For example, the *Next Generation Science Standards* can help to develop teacher capacity in subject knowledge and pedagogical understanding. This recommendation was supported by Du Plessis (2016), who suggested the provision of mentoring and support from school leadership teams to build resilience and manage teacher capacity.

Another challenge related to out-of-field teaching is additional complexities in classroom management. Du Plessis (2019) interviewed and observed 48 teachers, including ECTs, across seven schools in Australia and South Africa, and found that classroom management issues are more likely to occur when practitioners are trying to master content knowledge and content delivery in an out-of-field teaching context. According to Du Plessis (2019), out-of-field teaching affects the learning experience of students as new teachers manage the additional burden of their lack of discipline knowledge.

Strategies exist to help TESs and ECTs manage the challenge of out-of-field teaching in their timetabled workload and develop their practice. These strategies include the provision of mentoring (Burger et al., 2021; Fantilli & McDougall, 2009) and having access to support from school leadership teams (Avalos & Valenzuela, 2016; Buchanan et al., 2013). Both strategies are known to build resilience and manage teacher capacity in response to out-of-field teaching, which reduces the negative outcomes associated with the transition (Du Plessis, 2016). Additional important support structures for beginning teachers include engaging with CoPs and having access to professional learning (Gallant & Riley, 2017; Rajendran et al., 2020).

2.2.3 Knowing about a teacher education student and early-career teacher population

Knowing about a TES population relates to understanding who they are, why they want to become a teacher, and why they decide to remain in or leave the profession after graduation from an ITEP. For example, some TESs are career-changers with an already strongly held professional identity, and some will purposefully seek professional experience or employment opportunities in non-metropolitan areas based on past experience living in such areas. This information is important because it provides insights into the drivers behind their teaching practice and can be used to inform strategies to provide support during the process of transition. The following subsections present the characteristics of career-change TESs contextualised within the transition, the challenges and opportunities facing TESs and ECTs who choose to teach in non-metropolitan areas, and what is known about entering the profession together with strategies to encourage retention.

2.2.3.1 Career-change teacher education students

There are many reasons cited for joining the teaching profession, such as a desire to contribute and make a difference; to be the type of teacher they wanted to have at school; to be part of and contribute to a community; and to enjoy teaching their specialist subject (Ewing & Manuel, 2005). Contributing to the development of others and enjoying their specialist teaching subject are reasons often mentioned by career-change teachers. For example, a qualitative exploratory study into the identity of two career-change science teachers revealed the importance of identity with the subject, such as identifying as a scientist before identifying as a teacher, and loving scientific learning (Smetana & Kushki, 2021). Such findings inevitably lead to an exploration of teacher–subject identity whereby subject specialism, such as science or geography, is

known to play a crucial role in shaping the personal choices, motivations, and narrative about teaching overall, and the teaching of geography in particular (Brooks, 2016).

Career-change TESs are defined as those having no previous connection to education (Bar-Tal et al., 2020). They are known to bring a broad set of life and work experiences to their studies compared with those who join an ITEP as a school leaver (Varadharajan et al., 2020). Typically, career-change TESs are of mid-life age and individually choose to collect a portfolio of careers over their working lives (Bahr & Mellor, 2016; Varadharajan & Schuck, 2017). Further, career-change teachers are known to be more confident in sharing their knowledge, be committed to a career in teaching, and are better equipped to prepare students for life beyond school and work in an increasingly globalised world (Varadharajan & Schuck, 2017) due to reported stronger self-efficacy when dealing with problematic or challenging situations such as communicating with parents (Bar-Tal et al., 2020). Watt and Richardson (2008) conducted a quasi-experimental Australian study into the motivations and aspirations of beginning teachers, including those who were career-changers, to become teachers. The career-change participants were classified as both 'highly engaged persisters' and 'highly engaged switchers' (p. 147). The 'persisters' looked forward to a long career in the profession after having made a significant change to their life, whereas the 'switchers' were seeking variety, challenge, and diversity in their career as a teacher, but were also hesitant to commit beyond five years in case they did not like teaching. Such findings reflected the views of career-change TESs in an earlier study by Richardson and Watt (2005) whereby the 'Cluster 2' career-change TESs reported that they chose teaching to make a difference to young people and improve the quality of life of their own family. A more recent qualitative Australian study conducted with 17 career-change TESs by Bauer et al. (2017) showed that social factors such as job security and personal factors such as self-fulfilment and contributing to the development of others are the most important influences on the decision to enter teaching. The 'persister' and Cluster 2 career-change teachers demonstrated aspirations for professional development and leadership in response to their intrinsic motivation to teach. These groups also held strong personal values and beliefs about the role and purpose of teaching — for example, to share knowledge and make a difference to others — which enabled them to quickly develop an identity as a teacher (Richardson & Watt, 2005; Watt & Richardson, 2008).

Career-change TESs are reported to feel frustrated with their transition into the teaching profession, often because they feel undervalued as professionals and are struggling

with their personal transition from expert to novice. A qualitative study by Wilkins (2017) focused on 20 career-change TESs in England who were previously employed in the finance, marketing, or engineering sectors and had high levels of authority and autonomy in their roles. Participants were interviewed twice over two years and asked to reflect on critical incidents as part of their development as a teacher. The findings revealed that each participant had at least one moment of self-doubt during their studies that caused them to consider leaving the ITEP, but they drew on their skills of resilience and professional identity to overcome such feelings. However, participants reported that the mentoring and opportunities to contribute and value-add to the subject department or school were not targeted enough to their skills and capabilities, and did little to ease the challenges.

2.2.3.2 Teaching in non-metropolitan areas

It is difficult to attract teachers to non-metropolitan areas of Australia (Hazel & McCallum, 2016; Somerville et al., 2010), and understanding the reasons that ECTs are attracted to teaching in regional, rural, and remote places in Australia requires further research (Hazel & McCallum, 2016). It is not only the ability to attract TESs to non-metropolitan areas that is challenging, but also the ability to retain them in the community (Sharplin, 2002). However, TESs are more likely to seek employment in regional areas if they completed professional experience at a regional school or have a personal connection to, or grew up in, regional or remote communities (Cuervo & Acquaro, 2018; Hazel & McCallum, 2016; Kline & Walker-Gibbs, 2015; Somerville et al., 2010; Young et al., 2018).

A qualitative investigation with five ECTs from one small school in South Australia suggested that a positive experience of living in a regional community can counter the challenges related to teaching in a non-metropolitan school (Hazel & McCallum, 2016). Despite the economic and social difficulties associated with relocation, Hazel and McCallum (2016) reported that the following reasons are important for managing the change and discomfort of relocation: a personal willingness to confront existing perceptions of life in a rural township and participate in local community events; an existing familiarity with life in a rural area (e.g. growing up in a rural community); embracing opportunities for career advancement; and developing a sense of connection to place and environment. However, it is acknowledged that relocating away from familiar services, surrounds, and networks can add another complication to the first-year teaching experience (Hazel & McCallum, 2016), and it is recommended that TESs

minimise isolation from known networks and facilities by locating to regional centres within easy reach of their family and friends (Sharplin, 2014).

Additional complexities associated with relocation include the contractual nature of employment (Somerville et al., 2010) and the likelihood of teaching out-of-field that arises from teacher shortages in such communities (Sharplin, 2002). A longitudinal study with eight TESs enrolled in an ITEP at an urban university in Victoria, Australia, who were completing professional experience at non-metropolitan schools reported that an existing lived experience, such as during childhood, was a contributing factor to wanting to work in and relocate to a non-metropolitan school (Cuervo & Acquaro, 2018). This point is also supported by Hazel and McCallum (2016) and Somerville et al. (2010).

Another complexity with relocation relates to the necessity of the teacher to become familiar with the local area to introduce teaching examples and contexts known to students. In northern Finland, research conducted by Autti and Bæck (2021) over two years in two remote, primary industry communities revealed extensive teacher responsibility and workload because of a small teacher population. Pedagogical freedom is important for such teachers, and so is a willingness to engage with and learn about the local area. A positive teacher attitude towards living and teaching in a remote community is important, as is their willingness to develop a personal attachment to the place and share this with their students. This is because it is important for student engagement that students have their learning explicitly linked to local contexts, and for the teacher to actively facilitate place-based connections that are clearly connected with the community.

2.2.3.3 Entering the teaching profession and strategies to promote retention

Few studies have examined how TESs identify their point of entry into the teaching profession, although there have been several studies about TESs' experiences of transitioning into the profession and their decision to stay, or leave, during their early-career years (Goldhaber et al., 2014; Gordon, 2020). The 'first steps' of teachers are rarely reported in comparison with their overall experience of transition (Goldhaber et al., 2014). However, it is important to know TESs' perceptions of entry into the teaching profession to inform decisions about the development of necessary coherent and nurturing support structures to facilitate their transition into the profession (Fantilli & McDougall, 2009; Gordon, 2020). Ingvarson et al. (2014) and TEMAG (2015) suggested that TESs should be recognised as members of the teaching profession from the

beginning of an ITEP, and a recent report by the AITSL (2020) suggested positioning ITEPs in universities as an early part of a teacher's professional journey.

Networking and CoPs are also important influences on the decision of TESs to remain in the teaching profession. Networking (Bjorklund et al., 2020) and CoPs (Wenger, 2009), mentioned in Sections 2.2.1.2 and 2.2.2.2 respectively, are possible solutions to manage the challenges of transition. However, networks and CoPs also develop in response to having access to professional development and leadership roles. Results from a narrative analysis conducted by Ewing and Manuel (2005) revealed several important reasons that positively influenced teachers' decision to remain in the teaching profession: being involved in professional development activities, having roles beyond the classroom to generate a presence of self as a teacher; and having sustained access to teacher mentors. Involvement in professional development activities — for example, through joining a subject-based professional association in a secondary education context — helps to develop an understanding of subject-specific knowledge and practice. For example, Golding (2017) conducted a mixed-methods study with mathematics teachers in England who were attending an annual conference of the professional association. Golding received 185 responses to surveys, 16 responses to interviews and conducted four semi-structured interviews with four conference attendees. The findings revealed the most important reasons for joining a professional association and attending the annual conference: development in professional identity and values about being a mathematics teacher; access to quality mathematics education resources; networking opportunities; and learning about current research relevant to their teaching practice. Also from England, but in a geography education context, Kinder (2017) identified that joining a professional association is important for developing a professional identity as an individual and as part of a collective. Sustained interactions with the members, leaders, and events of a professional association contribute to a sense of belonging to the teaching profession and within a CoP.

Access to leadership opportunities is another important strategy to foster a sense of belonging among TESs and ECTs and allow them to actively demonstrate their contribution to a school department or community. Puttick (2018) discovered that geography-focused TESs in England were often positioned formally and informally by colleagues as 'knowers' in their subject during professional experience. This supports Butt's (2018, 2020) finding that TESs are often perceived as conduits between research and practice and can therefore become agents of change for themselves as well as among their colleagues. Cheng and Szeto (2016) conducted a study that spanned two

years with 20 ECTs who completed the same ITEP in Hong Kong and were interviewed twice. They found that leadership opportunities were important for professional development and retention. Regardless of whether leadership roles in schools were designated by the school principal or self-initiated and sought out specifically by the ECT, each ECT was able to develop their leadership capabilities, fulfil their interests within teaching, and be seen as contributing to the overall success of the school. Further, while leadership opportunities were dependent on school culture and personal desire or interest to lead, the ECTs could see a 'career ladder' arising from the leadership experiences, which encouraged them to remain in the profession (Cheng & Szeto, 2016).

2.2.4 Teaching in online and blended form

The COVID-19 pandemic required an urgent yet innovative and effective response to move from in-person to digitalised or online modes of research, teaching, learning, and assessment. This was challenging for ITEPs overall, as well as geography methodology units in particular, because often they are taught face-to-face (Bagoly-Simó et al., 2020; Lorenza & Carter, 2021; Schultz & DeMers, 2020; Scull et al., 2020). This section addresses the challenges of teaching in online and blended form, which is known to affect pedagogical practice, together with strategies to respond to such challenges.

Instructional design and planning considerations for online learning suggest a need to focus on modality, pacing, pedagogy, and the online roles of instructors and students (Hodges et al., 2020). However, practitioners face challenges during times of rapid transitions to online learning from face-to-face instruction, such as access to technology. For example, in Germany, Bagoly-Simó et al. (2020) interviewed 15 geography teachers from a range of career stages about the challenges of emergency remote teaching, the use of educational media, and the scope of using COVID-19 as geographical content in their lessons. At the time, all teachers had to quickly reconsider their preferred modes of communication and educational media use with students. Key results identified a range of challenges associated with emergency remote teaching. Examples included difficulties in finding a balance between supervision and support of students in an emergency remote-teaching format; minimal opportunities to incorporate content related to the pandemic into lessons due to a prescriptive syllabus; unequal access to technology among students, which prevented the usual rates of progress and

achievement with their schoolwork; and the compromised ability of teachers to use, apply, and teach geographical mapping skills.

During the pandemic, Schultz and DeMers (2020) reminded geographers that physical and human domains of the discipline have been successfully taught online for decades due to purposeful design combined with extensive planning and forethought. Schultz and DeMers (2020) drew on their experience in online learning and the use of geographic information systems to explain how key principles of effective teaching practice in planned and purposeful online learning for geography can be transferred across to an emergency remote context and then be maintained into the arising post-pandemic learning situation. A study with 27 geography TEs in China, conducted by Guo et al. (2020), focused on transferring emergency remote learning across to post-pandemic learning online learning experiences. The findings showed that multimedia and digital resources created during lockdown can be refined for future use after the pandemic, although fieldwork was not easy to replace technologically.

Additional strategies for addressing challenges of online and blended teaching relate to the adoption of principles for successful online learning, such as designing a well-structured course with opportunities for learners to engage with content, with other learners, and with the tutor (Schultz & DeMers, 2020). However, Schultz and DeMers (2020) cautioned that such principles should be incorporated gradually, actively, and collaboratively during online learning to move away from content delivery and towards facilitation of learning together. The work of Lorenza and Carter (2021) and Scull et al. (2020) in ITE, although not for geography methodology units, also revealed the importance of enhancing interactions with TEs and fostering their engagement with learning as being critical to a successful online learning experience, especially in an emergency remote context, which supports key findings from Schultz and DeMers (2020) about collaboration and connection.

Two studies into online teaching and learning during the pandemic are relevant to the practice of teachers and TEs. In Germany, Wohlfart et al. (2021) sought to understand the factors that fostered or deterred teacher acceptance and the use of technology in their teaching in a secondary education setting. The findings revealed that the complexity of the technology used by teachers was related to user motivation and familiarity in using technology. However, a confident technology user within a group of teachers positively influenced the perception, uptake, and acceptance of technology and the use of digital tools among less technology-capable practitioners. In Canada,

Howe and Watson (2021) conducted a reflexive study with two teachers regarding their individual teaching practice during the northern hemisphere Autumn of 2019 and 2020 to show that synchronous learning, whether face-to-face or online, must actively engage students in their learning with each other and with the curriculum (to view connections), and provide scaffolding activities to assist students in sharing their thoughts and ideas in a safe learning environment. Overall, teachers reflected on teaching conditions from pre-pandemic times and adjusted their practice to fit with alternative modes of lesson delivery required during the pandemic.

Overall, the review of literature about transition into the profession is framed around attrition and retention. Empirical research shows the most common experiences encountered by TES and ECTs during a time of transition, which contribute to high rates of attrition include precarious employment, high levels of responsibility and a large workload, a lack of understanding from school leaders and school communities about the desires and attributes of a TES and ECT population who are either career-changers or seeking employment in regional and remote contexts, and an increased incidence of online teaching. Such experiences have capacity to influence the reflective and pedagogical practice of a TES and ECT. Opportunities for TES retention in the teaching profession during a time of transition connect to involvement in support structures such as mentoring, networking, and active participation in communities of practice, however, the literature review indicates that understanding the necessary support structures from a TES and ECT perspective is limited.

The following section focuses on how the transformation of pedagogical practice can occur in geography education.

2.3 Transformation of pedagogical practice in geography education

This section reports how the transformation of pedagogical practice occurs in geography as TESs transition into the teaching profession. Areas of focus include developing an identity as a subject specialist teacher, the enactment of pedagogies to teach the distinctive core of geography, understanding the influence of professional standards, and the role of reflection and reflective thinking. To understand the nature, importance, and effect of pedagogical practice on the practitioner requires the practitioner to ask themselves, or be asked, about why they teach the way they do (Brandenburg, 2008; Brooks, 2017). An examination of geography methodology units in ITEPs ensues because pedagogical strategies demonstrated in a methodology unit

should be transferable to the school-based teaching context by TESs when they complete professional experience or gain employment in a school.

2.3.1 Developing an identity as a subject specialist teacher

To suitably prepare future geography teachers and equip them to transform their teaching practice in geography, geography methodology units should be taught by specialist geography educators and designed so TESs can explore their geographical subject identity, understand their perspective, and develop a connection with the discipline itself (Brooks, 2016, 2017, 2021; Mitchell, 2017; Seow, 2016). Brooks's (2016, 2017) assertion that a strong teacher–subject identity shapes a teacher's practice arises from her longitudinal investigation over 14 years with 10 geography teachers in England. The focus was on how they used their subject knowledge of geography to help guide the 'why' of their pedagogical practice and deal with challenges faced in their teaching of the subject. A number of questions were regularly posed to participants, such as: Why is geography important to them? Why is teaching geography worthwhile? and Why do they prioritise some pedagogical approaches over others?. Participant responses revealed that a disciplinary way of thinking (geographical thinking) with a focus on key concepts, such as place, was important in their decision-making processes about which pedagogical strategies to employ. Participant responses also revealed the necessity for their pedagogical strategies to assist them with making their geographical knowledge and understanding become relevant or 'real' at a personal and local scale — for example, through investigating social inequalities in the community or using a hobby such as skateboarding. Further, a strongly held teacher–subject identity helped them to navigate their pedagogical practice because they knew what was important and distinctive about geography, so they could develop a 'subject story' that resonated with students (Brooks, 2017). Therefore, for geography methodology units, Brooks (2017) recommended providing opportunities for TESs to develop their subject identity and subject story, and for TESs to learn how to use this identity and story to identify the value placed on geography and the enactment of geography education in school contexts.

According to Mitchell (2017), active teaching methods, including a focus on personal conceptualisations of geography, an emphasis on key concepts, and consistent modelling of geographical inquiry, are integral to the design of a geography methodology course that develops TES capacity and transforms geography education in ITE overall. Mitchell (2017) drew upon scholarship from Bourke and Lidstone (2015)

to shape a research goal to determine how a geography methodology course can assist with the development of TESs who can refine their own conceptualisation of geography; who can think geographically based on key concepts such as place, space, and interconnection; and who can also become competent, critical, and creative users of an inquiry method (Bourke & Lidstone, 2015; Mitchell, 2017). Mitchell (2017) then analysed 12 years of data and experience gained from teaching a geography methodology unit in the US. The findings showed that the methodology unit commenced with a focus on understanding the nature of the discipline and its concepts so students could develop their subject identity. This strategy supports the work of Brooks (2016, 2017) and directly connects to the distinctive core of geography. The unit then focused on geographical literacy to show the connections between geography and other subjects that are likely to be taught by TESs upon entry into the profession (Mitchell, 2017). This strategy not only helps to show the interdisciplinarity of geography (Geographical Association, 2009), but it also provides a strategy for TESs to draw upon in managing an out-of-field teaching experience that characterises their transition into the profession (Avalos & Valenzuela, 2016; Gallant & Riley, 2017; Mason & Poyatos Matas, 2015). The geography methodology unit then focused on different types of map interpretations and the use of geospatial technologies, before proceeding to address pedagogical strategies including the inquiry method and how to incorporate such strategies into lesson planning to develop geographical thinking and conceptual understanding in connection to content (Mitchell, 2017).

To understand TESs' conceptions about geography and how it relates to their desired and enacted teaching practice, it is important to explore notions of 'good teaching' and how to prepare TESs for professional experience (Seow, 2016). Seow (2016) conducted a qualitative study with four TESs to determine their subject conceptions and the connection to classroom practice through a range of activities that included semi-structured interviews, concept mapping, and analysis of curriculum documents. Results showed three subject identities: a geography teacher focused on school geography discourse; a geographer focused on academic geography discourse; and a teacher who happens to teach geography. In a more recent study into the influence of subject specialisation on the conduct of fieldwork, Seow et al. (2020) noted the importance of attending to subject specialist identities in geography methodology units because clarity about what practitioners believe and understand about geography and geography teaching provides useful insights into their decisions regarding pedagogical practice.

2.3.2 Pedagogies to teach the distinctive core of geography

The distinctive core of geography includes concepts, inquiry, and fieldwork (see Section 1.7). A geography teacher uses geographical thinking to bring the distinctive core of geography to life for students, most often through an investigation of grand challenges and the use of geospatial technologies.

Geographical thinking through the five core concepts (place, space, environment, interconnections, and scale) elicits a powerful and distinctive knowledge of geography because the focus of interpretation and meaning-making of content is distinctly geographical (Bustin, 2019; Fögele, 2017; Maude, 2017). As a result, powerful knowledge in geography helps teachers (and students) to discern and justify responses to questions about ‘where is the geography?’ (Bustin, 2019) and therefore understand what it is that makes a geography lesson geographical — a recurring question throughout the present study.

Recent research into making the ‘how’ of teaching geography visible arose from Healy et al. (2020), who focused on the ways in which geography teacher mentors in school and ITE contexts incorporated ‘subject’ into their lesson observation feedback for TESs during professional experience. Healy et al. (2020) drew upon the work of Brooks (2017) and Lambert (2018) to question the type of mentor feedback that best helps TESs to teach the subject, and to emphasise the importance of TESs having access to subject-specific feedback for dialogic reflection about their curriculum interpretation and pedagogical choices in geography lessons. The aim was to foster critical engagement with geographical thinking. Results from the study by Healy et al. (2020) showed that mentors need to better support the development of TES identities as specialist geography teachers and continue to develop their own subject expertise throughout their career so they remain well equipped to support TESs. Results also found that pedagogical choices need to be more carefully considered in the context of the curriculum; in addition, written feedback provides a foundation for dialogic reflection between the TES and mentor while also providing scope for the TES to take ownership of personal reflection on their geography teaching practice.

2.3.2.1 Pedagogies to explore the grand challenges of geography

The ‘wicked problems’ (Rittel & Webber, 1973), ‘big issues’ (Roberts, 2017), or ‘grand challenges’ (Coenen et al., 2015) of geography include discussions about areas such as climate change, sustainable futures, refugees and migration, water scarcity,

and food security (NCGS, 2018; Roberts, 2017). Grand challenges, or wicked problems, are characterised by the need to create and build an argument about the nature of the problem or challenge to develop a potential solution (Hoffman et al., 2021; Rittel & Webber, 1973). Hawkey et al. (2019) believed that TESs will understand and engage with potential solutions to challenges such as climate change if they are able to participate in Socratic questioning and interdisciplinary inquiry. Seow and Ho (2016) suggested that they explore such challenges through questioning and conceptualisation strategies. The outcomes of such approaches are the development of critical thinking skills and understanding of the purpose and use of an inquiry method. In response to the findings from his qualitative study with TESs of geography, Hoffman et al. (2021) suggested that the grand challenges of geography are best taught through an inquiry-focused problem-based learning approach. In doing so, TESs work with an already-defined problem to develop a goal and an intervention, and pose further questions for exploration. As a result, TESs can be agentic in applying their understanding to a social context to propose a range of alternative futures that may potentially solve the wicked problem (Hoffman et al., 2021). The following inquiry-based pedagogical approaches to explore the grand challenges of geography are addressed: problem-based learning, game-based learning, review and critique of personal values and beliefs, and interdisciplinary views from a lens of education for sustainable development.

Problem-based learning encourages TESs to engage in discussion and explore a range of perspectives about geographical challenges. Golightly and Raath (2015) embedded a problem-based learning format and self-directed learning strategy into a geography methodology course module with 103 TESs. The purpose was for the TESs to deepen their learning and geographical understanding about a grand challenge by solving a given existential problem in their country related to the supply, demand, distribution, and consumption of water in various municipalities across South Africa. A continuous assessment process occurred, with final-year students acting as mentors for the TES participants. The mentors facilitated the problem-based learning process and worked with the TESs to develop their reasoning skills, pose questions, and provide feedback about potential solutions to the problem. Results from the study indicated that an active learning approach, enabled through problem-based learning and mentorship, was successful in developing TESs' engagement with content and critical thinking skills. Therefore, this approach is recommended for inclusion in units focused on the preparation of geography teachers, pending further research (Golightly & Raath, 2015).

Game-based learning is another pedagogical approach for helping TESs to understand the distinctive core of geography in connection with a wicked problem — for example, spatial reasoning and the liveability and planning concerns of a city (Kim & Shin, 2016). However, game-based learning in an ITE context for geography remains under-researched (Kim & Shin, 2016). Kim and Shin (2016) conducted a qualitative study with 29 TESs of geography in South Korea to determine how the game *SimCity* enhanced geographical understanding about urban liveability. Evidence from the study showed that the TESs could design unique, creative cities that addressed liveability concerns such as transportation and environmental quality. They were also able to apply theories of urban planning to their city to assess useability and critically examine liveability differences between ‘real’ cities and *SimCity*.

Active learning pedagogies, where a personal stance is taken on controversial issues, or Socratic questioning techniques are pedagogical approaches that TESs can use when teaching about the grand challenges of geography. Seow and Ho (2016) conducted a study with four TESs and six teachers of geography in Singapore to understand how personal beliefs were connected to curriculum requirements using the context of climate change as one of geography’s grand challenges. Participants were interviewed about their knowledge and beliefs of climate change, and then asked to draw and explain a concept map about climate change, and to explain how they would go about teaching such geographical knowledge and understanding to students in their classes either on professional experience or as part of their regular teaching load. Findings from the study showed that for the TES participants, being aware of personal values and beliefs about controversial geographical issues helped them to propose pedagogical approaches. For example, one TES thought it was important for future students to be able to understand a range of perspectives about climate change and therefore suggested adopting active learning pedagogies where students would be motivated to adopt a personal stance towards taking action. Other TES participants believed it was important to break down a complex geographical issue into small, relevant critical thinking activities, such as questioning the reliability of available information and forming a justified position about the climate change phenomenon. Outcomes from the study suggested that geography methodology units need to provide an opportunity for TESs to examine and clarify their personal beliefs about controversial geographical issues in connection with why it is important for such issues to be taught in schools, and to explore how they can use pedagogical decisions to make complex geographical issues accessible to students.

Education for sustainability (EfS) uses a systems-thinking approach to envisage a sustainable future and increase personal capacity to take part in decisions that improve local and global quality of life while being relevant to one's daily life (Bagoly-Simó et al., 2018). While EfS is not specific to geography education, the links to geography focus on sustainability, inquiry, fieldwork, scale, generationality, and interdisciplinary understanding. Bagoly-Simó et al. (2018) asserted that EfS is suitable for incorporation into geography to foster an understanding of citizenship and being a change agent. Araya Palacios et al. (2017) argued that fostering geographical thinking about EfS is important for developing personal capability to enact change — for example, by contextualising the local and immediate impact of tsunamis and flooding through geographical concepts of place, space, scale, and interconnection. Similarly, through an examination of the *Australian Curriculum: Geography* and sustainability, Casinader and Kidman (2018) contended that environmental education (EE) and EfS are most effectively developed through geography rather than science because of geography's emphasis on place-based analysis, human–environment interactions, and sustainability, together with its interdisciplinary nature and focus on inquiry-based learning and fieldwork.

To demonstrate the relevance of EfS to geography, Bagoly-Simó et al. (2018) incorporated EfS into the curriculum architecture of a Masters degree unit with an emphasis on a 'professional competence of teachers' framework and surveyed those who completed the unit at the end of the semester. Due to the German context of the study, not all students were going to be teachers, but all were intending to work in the field of geography or in education. The course developed an understanding of EfS through geographical content knowledge across physical and human domains, application skills through fieldwork, and pedagogical knowledge. Survey responses showed that content knowledge of EfS was acquired, although a greater emphasis on global EfS challenges would have been beneficial. The fieldtrip provided very specific information about EfS, and participants' personal values and beliefs about EfS developed, thereby increasing their preparedness to act on related issues and therefore be agents of change.

In England, climate change education, social and environmental justice, and sustainability are viewed as important, but not always adequately addressed, areas of learning in school-based geography and science education (Rushton, 2021). In a geography methodology setting, Rushton (2021) interviewed five TESs three times over a year and reviewed their written reflections about how their identity as a geography

teacher influenced their views about EfS and the teaching of EfS on professional experience. The findings revealed that the geography TESs believed EfS to be valuable to geography, and they taught about EfS on professional experience through stories, critical thinking activities, and encouraging students to make explicit links between EfS issues and their personal connections with the environment. TESs also noted the importance of creating a safe space in the classroom for students to discuss, share opinions, and ask questions about EfS-related topics. For a methodology lecturer, outcomes from the study prompted thinking about how to include a 'futuring approach', whereby TESs can interact with geography academics and geographers from the field around EfS, and how to enact a sustained approach throughout the methodology unit for TESs to reflect on their developing identity as a geography teacher within and beyond the context of EfS.

2.3.2.2 Geospatial technologies as a pedagogical tool

The use of geospatial technologies is reported to be important for effective teaching in geography because of inherent connections to geographical concepts: space, place, interconnection, scale, and change. Evidence from empirical studies in a geography methodology course context is emerging about how to build confidence in TESs' use of geospatial technologies, and how to prepare them to incorporate geospatial technologies into their teaching of geography (Harte, 2017). Such knowledge is important for geography education to build an understanding of the value of geospatial technologies overall, and to identify areas that need further attention in the preparation of TESs (Harte, 2017).

In England, Walshe (2017) worked with 16 TESs over a year in a geography methodology course that integrated ArcGIS tools into their program of study. The purpose was to determine how confidently the TESs engaged with geospatial technologies and how they understood the value of geospatial technologies in geographical teaching and learning. The TESs completed seven open-ended questionnaires and two semi-structured interviews. Overall, the findings showed that the TESs developed their spatial thinking and reasoning skills and understood the value of geospatial technologies in geography education. The findings were attributed to repeated exposure throughout the year and the opportunity to apply and practice their learning during professional experience. The TESs reported the geospatial technologies as being easy to learn, which increased their confidence in using them and contributed to their willingness to overcome technology issues for themselves and their students as

such issues arose. There was a recommendation for the sustained inclusion of geospatial technologies into geography methodology units because such learning provided an opportunity for the TESs to have a 'niche' understanding and contribute to the training of teachers in a school-based environment and learning culture of the school, which is also important for the development of identity and confidence of TESs once they move into the school setting.

Geography methodology units should prepare TESs to teach the subject in alignment with the knowledge focus and skillset required by professional geographers (Lee, 2019). In doing so, lecturers should ensure that the methodology unit shows TESs how to teach geography through a spatial awareness lens focused on distributions, relationships, and processes to show the interconnections between human and environmental factors (Lee, 2019). To achieve such a position, Lee (2019) sought to improve geographical awareness among 30 TES participants in South Korea through the sustained use of Story Maps over a semester. Story Maps are an ArcGIS-based geospatial technology that permit storytelling to occur on a given maps. The use of geospatial technologies such as Story Maps reinforces spatial understanding, spatial reasoning, and solution-finding skills not only as part of inquiry- and problem- or project-based instruction, but also as part of understanding the distinctive core of geography. The TES participants were explicitly instructed about the use of Story Maps, were involved in scaffolded learning activities with the lecturer to familiarise themselves with the use of Story Maps, and then created a Story Map to show the spatial arrangements, relationships, and processes between selected physical and human phenomena in South Korea. The TESs also had to keep a reflective journal about their experience of learning about and using Story Maps, and how their geographical awareness developed. Results showed an increased attachment to place through geographical storytelling, a deeper appreciation of the purpose of geographical inquiry in the teaching and learning of the subject, and a development of their teacher–subject identity. The latter reason revealed a connection to the work of Brooks (2016, 2017), whereas the former reasons connected to the distinctive core of geography. While evidence from the study overall suggested that the combined and sustained use of Story Maps and reflective journals have potential for developing spatial awareness among TESs, further investigations are required to track this over a longer period, such as in the study by Walshe (2017), which had a 12-month duration and a practical component in a teaching setting.

The next section explores the role of reflection and reflective thinking and introduces the conceptual frameworks of the present study.

Overall, a review of literature about transformation of pedagogical practice in geography education shows teacher subject identity, the incorporation of geospatial technologies, and the use of inquiry-based pedagogies including project, problem and game-based learning to be important areas of focus. Empirical research shows that one of the most influential transformative components on reflective practice, pedagogical practice, identity and agency of TES and ECT in geography is the development of identity as a subject-specialist teacher.

2.4 Role of reflection and reflective thinking

Reflection comprises thought and action, completed with the intent of connecting to an outcome (Dewey, 1933). It also requires careful consideration of beliefs, knowledge, time, experience, and contextual conditions (Dewey, 1933). According to Dimova and Loughran's (2009) interpretation of Dewey's work, reflection is meant to encourage thinking about practice, including pedagogical practice, in response to a problem, and it requires the application of thought after the act of thinking. As a result, reflection is viewed as a specialised form of thinking and understanding in education (Dimova & Loughran, 2009). However, despite Dewey's assertion that reflection is about thought and action, it is known that reflection can occur as a thought-only process, and it is not always enacted in a thought–practice manner (Dimova & Loughran, 2009).

The process of reflective thinking occurs when one is willing to ask questions and enter a situation of confusion, doubt, or hesitation to effectively engage in searching for an answer that will then prompt further thinking (Dewey, 1933). Learning occurs by doing. When practitioners enter a process of reflective thinking, they will transform their practice if reflection occurs in consideration of the broader context and with an intent to take action and apply the results of reflective thinking (Hatton & Smith, 1995; Miettinen, 2000; Thorsen & DeVore, 2013). Further, Miettinen (2000), Rodgers (2002) and Thorsen and DeVore (2013) stated that practitioners who wish to transform their practice need to be aware of the cyclical and ongoing nature of reflective thinking. New knowledge may emerge from thinking about the problem or from hypothesis testing, and acting as a result of reflection will either resolve the problem and provide a suitable strategy for application in future similar situations, or a new problem will arise that is

worthy of further contemplation (Miettinen, 2000; Rodgers, 2002; Thorsen & DeVore, 2013).

Dewey (1933) identified five phases to reflective thinking and acknowledged it as both time-consuming and emotional:

- (i) suggestion (identification of a problem)
- (ii) intellectualisation (theorising why the problem occurred)
- (iii) hypothesising (developing a hypothesis to solve the problem)
- (iv) reasoning (creating a logical judgement to justify a position)
- (v) testing thoughts through action (where the hypothesis is put into practice and the outcomes are considered in terms of a justified resolution, creation of new knowledge, or emergence of a problem).

Reflection is a cognitive and active process; it is known to be important for a practitioner to engage with if they wish to develop or transform their teaching practice. One way in which the depth or complexity of thinking about one's practice and resultant actions can be measured or assessed is through the development of reflective frameworks or models that are suitable for use with a range of practitioners, including TESs (Ryan & Ryan, 2013, 2015) or university lecturers employed in an ITEP (Lane et al., 2014). Such frameworks or models can assist with determining how a practitioner activates their theory–practice knowledge to solve a problem arising in the classroom or equivalent setting (Hennissen et al., 2017).

The next section connects the nature and importance of reflection and reflective thinking to an ITE context.

2.4.1 Reflection and reflective thinking in initial teacher education

During the late 1970s and early 1980s, policy requirements regarding the amalgamation of universities with Colleges of Advanced Education resulted in reflection being introduced as a key focus area in ITEPs (Mayer, 2014). Zeichner (2008) also suggested that the introduction of reflection into ITEPs was a response to research suggesting that TESs should become more thoughtful about their actions, decisions, and justifications about their practice in response to theoretical and contextual reasoning. The purpose was to facilitate the transformation of TESs into effective, contemplative teachers who can connect theory with practice (Zeichner, 2008).

Reflection is typically incorporated into ITEPs as part of the professional experience for TESs to meaningfully connect theory with practice (Darling-Hammond, 2017) by reviewing events, solving problems, making decisions, and planning for future actions. The purpose of reflection is to create change in personal beliefs and practices to improve students' learning outcomes (Duquette & Dabrowski, 2016; Pedro, 2005; Toom et al., 2015). Teacher educators are advised to model reflection and reflective practice during coursework to help TESs recognise the value and relevance in connecting these processes to their own teaching and learning (Loughran, 1996). When reflection activities are completed collaboratively, they provide a catalyst for developing a deeper understanding of the problematic and beneficial areas arising from participation in professional experience and completion of coursework activities (Brandenburg, 2008). Typically, professional experience placements are an authentic scenario through which TESs can engage with reflection and enact reflective practice by meaningfully connecting theory with practice (Darling-Hammond, 2017).

Theory–practice reflection can be used in ITEPs, including in professional experience, to help TESs develop capacity to meet the Australian Professional Standards for Teachers (APSTs) for their accreditation. Yeigh and Lynch (2019), in their critique of ITEPs, suggested that the establishment of research-focused school–university partnerships would help TESs develop their professional practice in guided explicit connection with the APSTs. However, Bradbury et al. (2020) cautioned against this based on results from their research with TESs and their mentor teachers during professional experience. The authors noted the contestability of the APSTs being used as either a formative tool of ongoing development or a summative tool for accountability in their exploration of reflective practice against the standards for TESs during professional experience. They recruited 80 secondary education TESs and their mentor teachers to a study conducted during professional experience where they used 'conversation cards' as reflection prompts about each enacted lesson. The 'conversation cards' had questions directly connected to the APTs, and the intent was to provide support for engagement with theory–practice reflection. Results show that while theory–practice reflection using conversation cards did build confidence among the TESs in their use of professional language and their ability to autonomously plan and self-reflect during professional experience, there needed to be structured and focused time for TESs and their mentors to engage in reflective conversations, and the questions needed to be less formal in their phrasing.

Opportunities for TESs to engage with reflection in response to theory and then enact reflective practice are important inclusions in ITEPs. Stenberg et al. (2016) suggested that one way in which such opportunities can occur is through a purposefully designed theory–practice reflection-focused professional experience. By exploring the effect of a theory–practice reflection intervention study on professional experience, Stenberg et al. (2016) determined that purposefully designed theory–practice reflection activities promote a transformation of pedagogical practice among TESs and contribute to the development of a shared understanding between the teacher educator and the TES to help foster theory–practice reflective discussions. The study found that TESs were more likely to try new pedagogical approaches in response to being able to make more robust connections to theory in their reflective portfolios compared with those undertaking a more conventional professional experience.

Reflective practice, such as that demonstrated in the study by Bradbury et al. (2020), can help TESs become practitioners who can solve problems (Toom et al., 2015), challenge their personal beliefs, and make decisions about future action to improve student learning outcomes (Duquette & Dabrowski, 2016). For example, in studies conducted by Eckersley et al. (2017) and Strangeways and Papatraianou (2016), it was discovered that when TESs make their own connections between theoretical understanding and practical knowledge, they develop capacity to think and act like a teacher and identify with the role. This enhances their ‘classroom readiness’ and development as a teacher (TEMAG, 2015). If theory–practice reflection occurs in a subject-specific context, then critical engagement with subject knowledge occurs, which allows the practitioner to analyse their pedagogical and professional practice in terms of policy recommendations, curriculum documents, existing context, and reflexive problem-solving capabilities (Butt, 2018). Overall, reflection and reflective practice enable TESs to understand, analyse, adapt, and respond to context, including ethical dilemmas, and contribute to changes that will support student learning (Black et al., 2000; Zhu, 2011).

Ultimately, engagement with reflection on pedagogy enables TESs to view teaching as a complex and unpredictable activity for which there are multiple contexts to consider and various solutions to be found (Adler, 1991; Zhu, 2011). Regular engagement with reflection and reflective practice facilitates the transformation of TESs into effective, contemplative teachers who can (i) connect theory with practice (Loughran, 1996; Saric & Steh, 2017); (ii) understand, analyse, adapt, and respond to context, including ethical dilemmas (Black et al., 2000; Dervant, 2015; Dimova & Loughran, 2009); and (iii)

contribute to changes that will support student learning and improve their educational outcomes (Mathew et al., 2017; Sellars, 2012).

Overall, a review of literature about reflection and reflective practice in an initial teacher education setting shows the connection between reflection and pedagogy, and the necessity for reflective practice to become embedded in TES practice as they transition into the profession. However, the literature review shows there is a lack of research about how strategies of reflective practice gained from an ITEP and professional experience transfer into the daily work of TES and shape their identity and agency as they transition into their early-career years.

The next sections focus on the conceptual frameworks used in the present study: the *Teaching and Assessing for Reflective Learning* (TARL) model (Ryan & Ryan, 2013, 2015); and the *Professional Standards for the Accomplished Teaching of School Geography* (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)

2.4.2 Conceptual framework: Teaching and Assessing Reflective Learning model

Reflective frameworks can be one-dimensional or multidimensional. One-dimensional reflective frameworks typically focus on the depth of thinking or cognition and include hierarchical levels from a factual recount of events through to deep, critical, multifaceted reasoning whereby solutions are sought to reconstruct and transform practice (Crichton & Valdera-Gil, 2015; Gelfuso & Dennis, 2014). For example, *The Four Level Framework for Reflective Writing* (Lane et al., 2014) is a one-dimensional framework conceptualised around cognition to assess the quality of TESs' reflective writing. Multidimensional reflective models or frameworks also include the depth of reflection in areas such as identity, beliefs, emotions, and time. Consequently, multidimensional frameworks can provide greater scope for structuring and determining reflection among TESs than one-dimensional frameworks (Beauchamp, 2015; Maaranen & Stenberg, 2017).

The TARL model (Ryan & Ryan, 2013, 2015) is a multidimensional framework used to indicate the depth of reflective thinking and action over time. To assess the depth of reflection, a categorical dimension (cognition) may be represented by the '4Rs Model of Reflective Thinking' (Ryan & Ryan, 2013, 2015). The 4Rs are reporting and responding, relating, reasoning, and reconstructing. They identify hierarchical levels that teachers can use to guide their reflective thinking and are described in Table 2.1. The model also incorporates a developmental dimension, referred to as experience or course phase, to

show the focus or subject matter of the reflections over time. Figure 2.1 shows the depth of reflection as a categorical dimension (cognition) on the vertical axis and a developmental dimension on the horizontal axis (Ryan & Ryan, 2013, 2015). The TARL model is customisable and allows the insertion of replaceable scales of thinking in both dimensions according to what is most appropriate for the study; for example, Bloom's Taxonomy could replace the 4Rs in the vertical dimension. The model has been applied in a longitudinal study in an ITE context and with ECTs (Adie & Tangen, 2015; Bursaw et al., 2015), and it is shown to be effective in promoting reflective practice among ECTs.

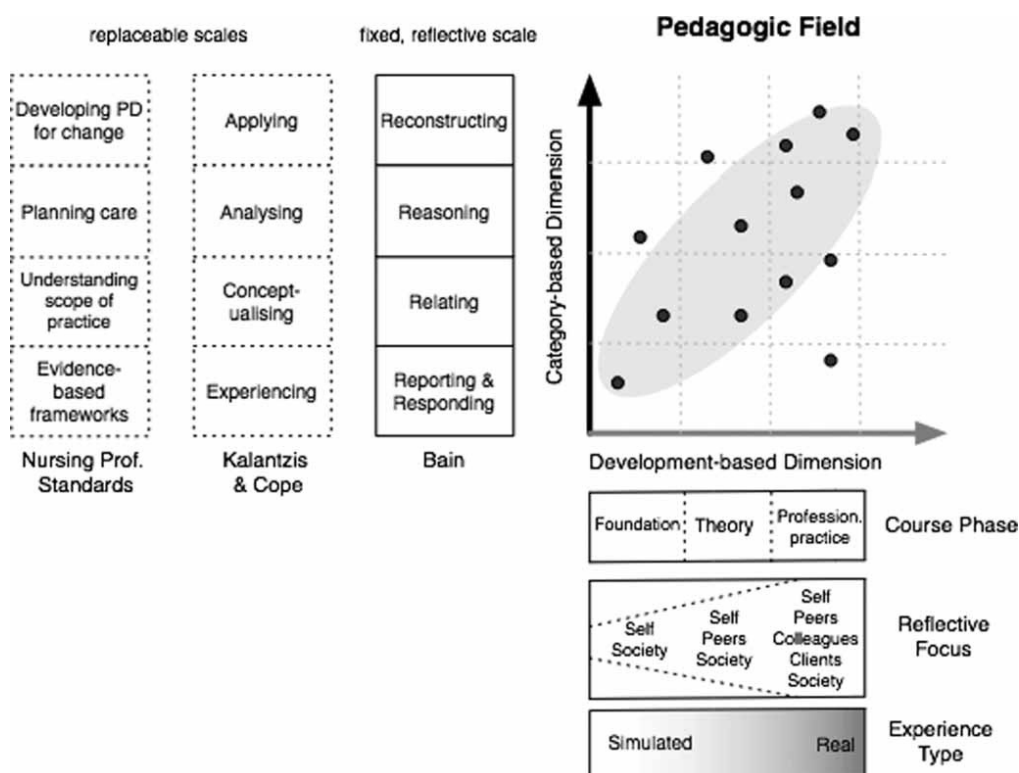
Table 2.1

The 4Rs Model of Reflective Thinking (Ryan & Ryan, 2013, 2015)

The 4R reflective scale	Description
Reporting and responding	An observation, opinion or brief report about an event or issue (e.g. a lesson or the act of reflection).
Relating	A connection is made between the event or issue (e.g. a lesson or the act of reflection) and the practitioner's own skills or experience or discipline knowledge to provide an understanding of purpose or importance (e.g. to improve).
Reasoning	An explanation of significant factors (e.g. lack of student engagement or pedagogical approaches) and a range of perspectives (e.g. a student or supervising teacher) in relation to the event or issue (e.g. a lesson or the act of reflection).
Reconstructing	A change in response to theory and practice is developed so the event or issue (e.g. an activity from a lesson) has become reframed or reconstructed, ready for the practitioner to deal with in the future. It is clearly stated what this change of understanding or practice looks like.

Figure 2.1

The Teaching and Assessing for Reflective Learning model (Ryan & Ryan, 2013, 2015)



2.4.3 Conceptual framework: Professional Standards for the Accomplished Teaching of School Geography

The GEOGStandards are the outcome of an Australian empirical research project managed by the University of Melbourne titled *Strengthening Standards of Teaching through Linking Standards and Teacher Learning: The Development of Professional Standards for Teaching School Geography, 2007–2010*.

The GEOGStandards were developed over three years, in collaboration with experienced specialist teachers of geography across Australia. The purpose of the standards is to provide a tool for teachers' self-reflection about their pedagogical practice in geography, and to initiate collaborative discussion and reflection as part of their professional learning (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010). Part of the strength in creating such standards lies within them being created *for* the profession of geography teachers *by* the profession or expert community from geography education (Bourke et al., 2012). A strength in having a set of standards specific to the teaching of geography is that it provides value and an identity to the subject at a time when public perception about the discipline and the profile of geography education in schools and at universities is diminishing (NCGS, 2018).

In Australia, prioritisation of the GEOGStandards in empirical studies and theoretical work is limited. At the time of writing, two empirical studies are known to reference the GEOGStandards, although they are not integral to the research. Coleman (2018) investigated the pedagogical practice of secondary geography teachers who were early adopters of geospatial technologies, whereas Reitano and Harte (2016) explored the development of pedagogical content knowledge (PCK) among TESs during professional experience. Both studies used the PCK construct as the theoretical framework. Another study provided a discourse analysis focusing on the GEOGStandards in comparison with the APSTs to determine their regulatory or developmental nature in response to the transformation of teacher quality and professionalism (Bourke et al., 2012). The present study resurrects interest in the GEOGStandards; however, instead of focusing again on experienced specialist teachers of geography, the study focuses on TESs as they move into their early-career years. In doing so, the study contributes to scholarship in the field of GER.

Table 2.2 identifies nine evidence-based GEOGStandards as demonstrated by specialist, experienced geography teachers from schools across NSW, South Australia and Victoria (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010).

The next section summarises the gaps in research.

Table 2.2

Professional Standards for the Accomplished Teaching of School Geography
(Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)

Standard	Overview
1. Knowing geography and the geography curriculum	As the teacher: understand the discipline, including concepts and skills; understand the curriculum; understand that geography draws from the social sciences, physical sciences, and humanities; and make connections with other curricula and learning areas.
2. Fostering geographical inquiry and fieldwork	Allow students to carry out: a range of structured and open-ended inquiries; and undertake inquiry in the field, selecting and using geographical tools.
3. Developing geographical thinking and communication	Encourage and support students' understanding of spatial reasoning; conceptual interdependencies, interconnections, and assemblages; real-world contexts at a range of scales; and lived experience as a personal geography.
4. Understanding students and their communities	Use local community contexts and personal geographies to connect, enhance, and enrich conceptual and perspective-focused learning.
5. Establishing a safe, supportive, and intellectually challenging learning environment	Facilitate students becoming active participants in their learning by creating a need to know and creating conditions for students to question complex geographical ideas.
6. Understanding geography teaching — pedagogical practices	Teachers: have extensive understanding of pedagogical content knowledge; encourage students to gather information from a variety of sources; use fieldwork; and introduce a range of tools to students.
7. Planning, assessing, and reporting	Plan, monitor, and assess geographical learning through a range of formal and informal methods; recognise achievement and provide direction for improvement; and use diagnostic assessment to inform teaching practice.
8. Progressing professional growth and development	Engage with professional learning communities and recognise that geography is an evolving subject that requires regular updating of content knowledge.
9. Learning and working collegially	Actively engage with the professional community; share expertise; build a culture of professional improvement; and promote geographical education.

2.5 Gaps in the research

The literature review identifies several gaps in the research to be addressed by the present study. Australian scholarship recommends that future research regarding transition into the profession should focus on understanding the challenges and opportunities faced by TESs as they leave ITEPs, enter the profession, and transition into their early-career years (Mason & Poyatos Matas, 2015). A research gap arises in response to the need for TESs to reflect on theory and practice as they complete professional experience and transition into the profession (Ovens et al., 2016; Stenberg & Maaranen, 2020a, 2020b; Stenberg et al., 2016). There is also a dearth of research understanding the effect and management of out-of-field teaching in an early-career context, particularly in geography education. The conduct of longitudinal studies to focus on the TES experience and management of transition into the profession as they move into their early-career years is also underdeveloped, and such a gap is also evident within a geography education context.

The present study uses the GEOGStandards as a conceptual frame to understand the TES context as they move into their early-career years. In reviewing the literature to understand the purpose and effect of the GEOGStandards, it was evident that a lack of empirical research exists. The effect of the GEOGStandards as a reflective tool for pedagogical and professional practice in secondary geography classrooms is empirically unknown.

In geography education overall, there is a need for more research into understanding the outcomes of teaching practice on the practitioner as an educator (Catling, 2017; Lambert, 2015). In addition, few studies have been conducted on the implications for the future of geography education in schools and ITE contexts, and few longitudinal, interdisciplinary, or multidisciplinary studies with a pedagogical lens (Butt, 2015; Solem & Boehm, 2018).

2.6 Conclusion

This chapter examined the challenges and opportunities related to transition, and the transformative influences on pedagogical practice in geography.

The process of transitioning into the profession was shown to be complex, uncertain, and an under-researched area for TESs and ECTs. The complexities of transition were presented as challenges and opportunities for the pedagogical practice of TESs. Such challenges include precarious employment, responsibilities and workload, knowing the

attributes and desires of a TES population, and responding to the demand for online and blended learning in response to COVID-19. Each has implications for policy, course design in ITEPs, and leadership and mentoring strategies in schools.

The chapter reported TESs' transformation of pedagogical practice in geography through the development of their identity as a subject specialist teacher, the exploration of geography's distinctive core in response to grand challenges, and the use of geospatial technologies. Attention was given to geography methodology units in ITEPs as an influence on the practice of secondary geography TESs. In response to identification as an under-researched area overall, attention was given to understanding the development and transformation of pedagogical practice by focusing on the practitioner rather than student learning outcomes.

The work of Dewey was explored to show how reflection and pedagogy, as a conceptual frame, can shape educational approaches to examine teaching practice. The conceptual frames of the present study were identified through the TARL model (Ryan & Ryan, 2013, 2015) and the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010).

The next chapter describes the theoretical framework for the study, which draws on Archer's reflexivity theory.

Chapter 3: Theoretical Framework

3.1 Introduction

The previous chapter reviewed empirical studies and policy documents for the interdisciplinary contexts of geography education and initial teacher education to discern and deliberate what is known and what needs to be known about the transition into the profession and the transformation of pedagogical practice. Pedagogy and reflection were also introduced as the conceptual frameworks of the present study.

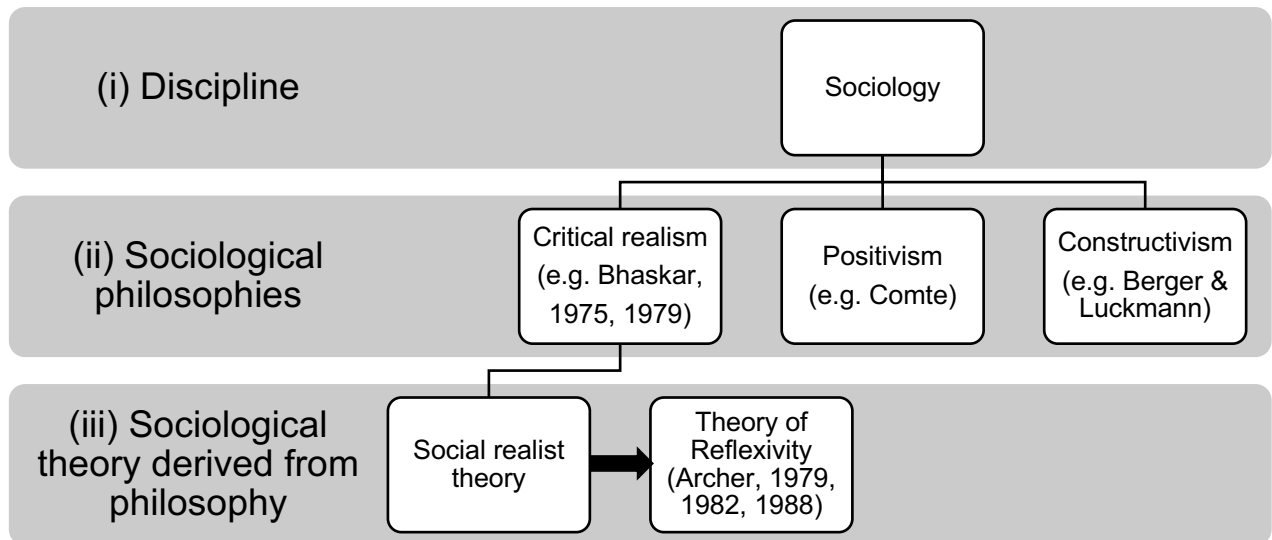
In the current chapter, attention turns to Margaret Archer's theory of reflexivity (1979, 1982, 1988) as the theoretical framework for the present study. The chapter explicates the background, nature, and rationale for selection of the theory. It opens with an overview of sociology and critical realism as the discipline and philosophy from which Archer's reflexivity theory emerges. From here, the chapter explains the nature of reflexivity theory and justifies its application to the current interdisciplinary research contexts of geography education and ITE. The chapter identifies how reflexivity theory enables an explanation for how and why the relationships, trends, or uncertainties arise in the data (Johnson & Christensen, 2017; Ravitch & Riggan, 2017). Such identification is further elaborated in Chapter 4. The chapter closes with a focus on how Archer's reflexivity theory informs the current research design and connects with the conceptual frameworks of the study.

3.2 Sociology, critical realism, and the emergence of Archer's theory of reflexivity

The relationship between the discipline of sociology, the sociological philosophy of critical realism, and the emergence of Archer's reflexivity theory as a realist social theory is shown in Figure 3.1. An explanation of the relationships follows.

Figure 3.1

Sociology, critical realism, and the work of Archer



3.2.1 Sociology

Figure 3.1 identifies the pathway between sociology as a discipline, its philosophies, and the emergence of reflexivity theory.

The following paragraphs cover part (i) of Figure 3.1 by addressing the nature, purpose, and influential scholars of sociology, including Archer. Sociology is known as the study of society; its purpose is to develop an understanding of the data and patterns of everyday life across place and time (Beilharz & Hogan, 2012). The paradox of sociology is that while everything in society seems to remain the same (morphostasis), it also changes (morphogenesis) (Archer, 1982; Beilharz & Hogan, 2012). This paradox is understood through the long-term investigation and monitoring of societal structures, culture, and human action or agency (Archer, 1982; Beilharz & Hogan, 2012).

Influential scholars from the discipline of sociology who were instrumental in the development of social theories include Max Weber, Karl Marx, and Emile Durkheim (Morrison, 2006). Durkheim's important publication, *The Rules of Sociological Method* (1903), is known as a complete explanation of the nature and purpose of sociology together with rules for methodological use in sociological studies (Brooks III, 1996; Platt, 1995). Despite translational nuances, the scholarship of Durkheim (1858–1917) is both influential and controversial in shaping sociological thought due to a deterministic emphasis on social structures and the absence of human agency (Durkheim, 1982b).

Durkheim suggested that societal structures are items of influence upon people both individually and collectively; therefore, a change to people's lives in any given society could not easily occur because a person is born into society, and life is shaped by such societal structures (Alvesson & Skoldberg, 2018; Brooks III, 1996; Durkheim, 1966, 1982a; Platt, 1995).

Given the popular narrative of Durkheim's view of culture and the absence of human agency as a transformative influence on societal change, there was an opportunity for critical realism to emerge by connecting ontologies and epistemologies through causal mechanisms (Bhaskar, 1975, 2008; Fletcher, 2017). Bhaskar is reported to be the critical realist scholar who used retroductive reasoning to explain world ontologies and distinguish between epistemologies and ontologies (Banifatimeh et al., 2018; Fryer, 2020). Whilst Archer notes Bhaskar's work from 1979 and 1989 about the transformative nature of social action as an important development in the field of critical realism, she claims it is on the 'wrong side' of reflexivity because Bhaskar's identification of social action as a causal mechanism to connect world ontologies and epistemologies, depends on the existence of a shared objective interest and habit as the motivational force for taking action (Archer, 2010b). Archer believed the work of Bhaskar missed the spontaneous aspect and reactions of a person, and the regular interplay between self, context and action – the structure-agency problem (Archer, 2010b). Archer referred to Durkheim's 'contextual continuity', or absence of agency and culture in the process of societal change over time and place, as an opportunity to develop reflexivity theory (Konferencje UKSW, 2016). The missed opportunities in the work of Bhaskar provided scope for Archer to introduce the role of personal or agentic reactions as a transformative causal mechanism to both the dynamic and stable influences of society and prompted Archer to develop reflexivity theory (Archer, 2010b; Banifatimeh et al., 2018). Therefore, Archer's work on reflexivity theory responded to, and also extended, the work of Durkheim and Bhaskar through the identification of a structure–agency problem. Agency is important for TESs to become active stakeholders in their own learning and transformation (Martin, 2004; Watulak, 2018). Therefore, through the adoption of reflexivity theory, agency becomes a focus of the current study due to its influence in the way TESs interpret, contemplate, and respond to the process of entering and transitioning into the profession.

Archer is a sociologist of education with an interest in the characteristics of education systems — particularly the 'why and how' of processes of change, including the effect of society on education and the outcomes of education on societal structures and

operation (Archer, 1979). Her doctoral and post-doctoral research explored the structural and cultural differences between education systems in England and France, and her research revealed that human agency accounts for stability (morphostasis) or change (morphogenetic) in educational systems (Archer, 1979; Archer & Morgan, 2020). Consequently, Archer devised a theory of reflexivity to demonstrate the existence of a morphostatic–morphogenetic approach (MMA) in society and systems that challenge and respond to Durkheim’s view about there being an absence of culture and human agency as a transformative influence in society, and responds to Bhaskar’s view that people and structures of society are separate influences in the formation, continuation and development of society (Archer, 2010b; Brock et al., 2017; Konferencje UKSW, 2016). In doing so, Archer made an important contribution to the discipline of sociology and sociological philosophy of critical realism through her critique of and action about the structure–agent problem: that attention to human agency, alongside structure and culture, is necessary for a meaningful account to occur regarding social reality and its transformation (Archer, 1979; Archer & Morgan, 2020; Konferencje UKSW, 2016).

3.2.2 Critical realism as a philosophy of sociology

This section addresses the philosophies of sociology with particular attention given to critical realism as the relevant sociological philosophy for reflexivity theory (Archer, 2020; Archer & Morgan, 2020). Part (ii) of Figure 3.1 identifies three philosophies of sociology: critical realism, positivism, and constructivism. Critical realism takes a realist–subjectivist position whereby theorists seek to explain the world and create change. Positivism takes a realist–objectivist stance whereby theorists confine themselves to understanding society based on scientific data from experiments. Constructivism adopts an irrealist–subjective stance whereby theorists believe that an understanding of society or the world is constructed and there are multiple ways to construct such knowledge (Alvesson & Skoldberg, 2018; Fryer, 2020).

Critical realism is a sociological philosophy attributed to the work of Roy Bhaskar (1975), whereby ontology (realities) and epistemology (how we know about such realities) are combined into a realist and subjective view of the world (Fryer, 2020; Vandenberghe, 2014). A critical realist position argues that realities are understood through contextual and emerging causal mechanisms; therefore, critical realism is helpful for analysing social problems and offering possible solutions for social change (Alvesson & Skoldberg, 2018; Archer, 2020; Fryer, 2020). In critical realism, knowledge

and understanding of reality is theory-laden and subjective, not theory-dependent and objective (Fletcher, 2017). Therefore, in critical realism, ontologies and epistemologies are understood in three ways:

- (i) Empirical — those events that are experienced and observed (lived experience). However, the effects of empirical events may or may not be observable. Empirical events can be a transformative causal mechanism. In the current study, an example of empirical events relates to participants' experience and observations of completing a final year of study and practice in an ITEP, followed by entering and transitioning into the teaching profession. During this time, ideas about and the enactment of pedagogical practice in geography develop and transform. While all participant contexts differ, the empirical event is the same for shaping their ontologies and epistemologies of this experience.
- (ii) Actual — those events that are known to occur but not experienced; where such events occur independent to the person, and an understanding of actual events is different to those that are experienced. In the current study, an example of an actual event is the existence of and preparation for a high-stakes external examination to conclude senior secondary (Stage 6) study. In NSW, Australia, senior secondary study (Stage 6) of geography culminates in a written examination as part of the Higher School Certificate (HSC) credential. Participants know that preparation of students for HSC geography is demanding on the time, practice, and emotional labour of teachers because it occurs at schools where they either complete professional experience or are employed. However, beginning teachers generally do not teach senior secondary (Stage 6) geography or prepare students for the high-stakes examination.
- (iii) Real — those events that cause the lived-through empirical event to occur. Real events are transformative causal mechanisms, and in critical realism they are integral to understand how real events are connected to the actual and empirical events (Alvesson & Skoldberg, 2018; Fletcher, 2017). In the current study, a real event that connects actual and empirical events for all participants concerns a response to the COVID-19 pandemic. Other real events that are important in understanding the connection between actual and real events include teaching out-of-field and taking on leadership opportunities.

Research in critical realism explains ontology (reality) through causal mechanisms and retrodution (theories and inferences) (Alvesson & Skoldberg, 2018; Fletcher, 2017; Fryer, 2020). It is the causal mechanisms and inferences that provide the tendencies — not inevitable fixed conditions — for events or experiences to occur, which in turn are said to influence and change what is known to be reality (Alvesson & Skoldberg, 2018; Fryer, 2020). In the current study, a connection to critical realism is appropriate because causal mechanisms, such as the transition into the profession, are a transformative influence on the development and enactment of pedagogical practice during a time of transition into the teaching profession.

3.2.3 Realist social theory and the work of Archer as an outcome of critical realism

This section explains realist social theory as an outcome of critical realism philosophy. As shown in part (iii) of Figure 3.1, Archer's theory of reflexivity is a realist social theory emerging from the critical realist tradition in sociology (Archer, 1995).

While critical realism emphasises the influential role of human agency and social structures in the construct of reality, it is realist social theory that acknowledges a reciprocal causal relationship or interplay that exists between human agency and social structures to cause societal transformation (Newman, 2020). Realist social theory requires one to account for a sense of self and identify concerns to pursue action for change in response to the given social and cultural context.

It was Archer who developed this position into a theory whereby the causal mechanisms of structure, agency, and culture are understood to be separate yet related properties — not conflated — which are integral to understanding societal transformation (Archer, 2020; Archer & Morgan, 2020; Brock et al., 2017). Further, Archer added to realist social theory through the conceptualisation of time as an important dimension to understanding ontology and epistemology through the nature and effects of structure, agency, and culture (Archer, 1995). When the dimension of time is acknowledged through cycles, then a generative or variable process of change — a morphogenetic cycle — become evident (Archer, 1995, 2010b), which challenges earlier ideas about there being universal societal contexts (Archer & Morgan, 2020). Therefore, an MMA, evident in Archer's reflexivity theory accounts for both social change and social stability because it examines the structural, agential, and cultural causal mechanisms. Such mechanisms incorporate human relationships, human

activities, and human ideas (Archer, 2010b; Archer & Morgan, 2020; Konferencje UKSW, 2016).

In summary, Archer's theory of reflexivity represents an MMA to explain processes of change or stability in education as a societal system (Archer, 2010b; Archer & Morgan, 2020; Konferencje UKSW, 2016). Archer developed her theory in response to (i) observations about structural and cultural differences between British and French education systems; and (ii) a gap in understanding about why and how differences between such systems occurred and what it was that maintained their distinctiveness (Archer & Morgan, 2020). Reflexivity theory seeks to explore which transformative causal mechanism (or emergent property) requires the most attention according to the problem being investigated: structure, agency, and culture (Archer, 2020).

Archer's theory of reflexivity is used in the current study to examine the ontologies (realities of the participants), epistemologies (subjective contexts to explain the participant realities), axiologies (researcher values and biases), and methodologies (data-generation procedures) (Creswell & Poth, 2018) regarding the nature and effects of the transformative influences on pedagogical practice in the secondary geography classroom as TESs transition into the profession. The next section explores Archer's theory of reflexivity in further detail.

3.3 Theory of reflexivity (Archer, 1979, 1982, 1988)

This section explains how reflexivity theory (Archer, 1979, 1982, 1988) makes evident the relationships between structure, agency, and culture as transformative causal mechanisms. Structure, agency, and culture as transformative causal mechanisms are known as emergent properties (Archer, 1982). Each emergent property can provide a separate understanding of its influence on ontologies and epistemologies in cycles of change (morphogenesis) or stability (morphostasis). However, the influences of emergent properties also need to be viewed in relation to each other to build a holistic understanding of the relevant cycle (Archer, 1988, 2020). In *Social Origins of Educational Systems* (Archer, 1979), questions about the characteristics of educational systems were posed to generate an understanding of the nature, development, and change or stability in these systems over time. Human agency emerged as a key characteristic of change or stability in the education system (Archer, 1979). In the present study, reflexivity theory addresses a structure–agent problem in education about transition into the profession and the transformation of pedagogical practice by explaining how emergent properties work in relation to each

other. Participants consider a recurring question: 'What makes your geography lesson geographical?', and their responses are explored in response to additional questions such as 'Why?', 'At what time?', 'Where?', 'Who?', and 'With what outcome or consequence?' (Archer & Morgan, 2020).

It is suitable to adopt reflexivity theory as the theoretical framework for the current study because the study is situated in an educational context. Further, there is a need to understand the influences of changing educational contexts, systems, and activities on TEs as they exit university, identify entry points into the teaching profession, and continue their transition into the profession.

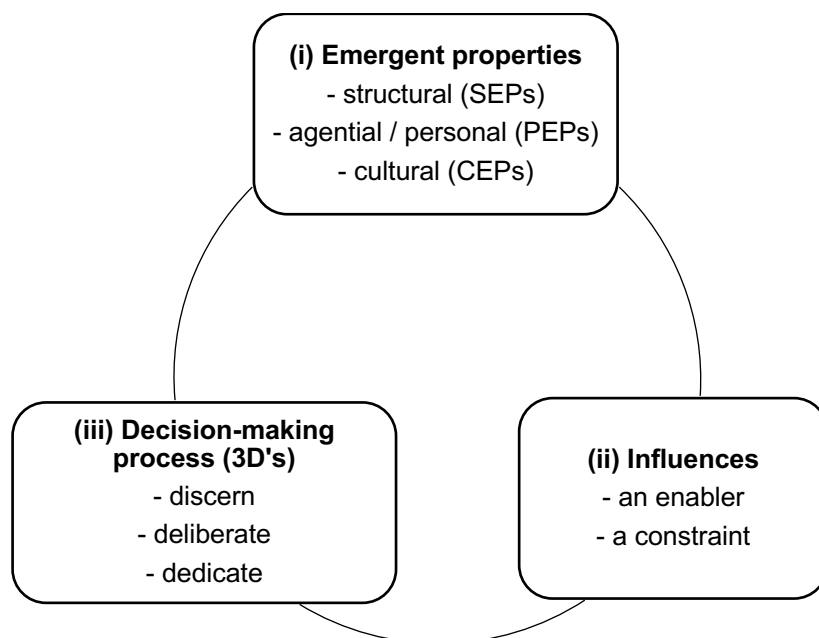
Cycles of time are necessary to understand how emergent properties interplay with each other to generate morphogenetic or morphostatic cycles (Archer, 1995, 2010b; Archer & Morgan, 2020) and explore how people manage change, choice, and decision-making processes in a variety of contexts (Archer, 2010a, 2010b; Archer & Morgan, 2020; Ryan & Carmichael, 2016). Morphogenesis refers to the agility and fluidity of processes, beliefs, and structures that shape society and circumstance. In contrast, morphostasis refers to the encouragement of rigidity and preservation of existing processes, beliefs, and structures that shape society and circumstance (Archer, 2010b). Typically, morphogenesis occurs at a slow pace due to prevailing fears about change, although morphogenetic creep into society, such as in education systems, is becoming dominant (Archer, 2017). Therefore, it is crucial for educators, particularly TEs, to continuously reflect on the educative phenomenon or their own pedagogical practice, and weigh up possibilities according to influence and context to then take appropriate action (Ryan & Carmichael, 2016).

Reflexivity is defined as the 'bending back' of thought to stimulate inner conversation and create distance between self, circumstance, and the phenomenon requiring thought and action (Archer, 2010a). The inner dialogue or internal conversation is not observable in most instances; however, it is self-monitoring, self-aware, and changes over time. The inner dialogue is also contextualised by three emerging properties — structural, agential/personal, and cultural — to help one determine the most appropriate action for future practice (Archer, 2010a; Konferencje UKSW, 2016). Therefore, Archer's reflexivity theory can be understood as iteratively progressive cycles of identification, contemplation, and action whereby internal conversation allows clarification, evaluation, and re-evaluation of decisions so that resultant action will elicit impactful transformative practice (Archer, 2012; Konferencje, UKSW, 2016).

Figure 3.2 diagrammatises my interpretation of the elements of Archer's reflexivity theory for the current study. An explanation of each element follows.

Figure 3.2

An interpretation of Archer's theory of reflexivity (Archer, 1979, 1982, 1988)



3.3.1 Emergent properties and their influence

This section explains the nature and influence of emergent properties in connection with the present study. In Figure 3.2, the circular representation indicates an ongoing process of reflexivity whereby participants move within and between (iii) the 3D process of discernment, deliberation, and dedication of action to ascertain (ii) the nature of influences arising from the (i) emergent properties with the intent of transforming their pedagogical practice. The type of influence occurring from each emergent property and actions taken may change over time as TESs transition into the teaching profession and are exposed to different school contexts.

Item (i) of Figure 3.2 identifies the emergent properties: structural, agential/personal, and cultural. Emergent properties are not hierarchical or conflatable; the effect of their presence and interplay will differ over time to cause change or stability in response to a given situation and context (Archer, 2020; Archer & Morgan, 2020). Prioritisation given to each emergent property will depend on its influence as an enabler or constraint (see item (ii) in Figure 3.2). Sometimes an emergent property can both enable and constrain practice.

SEPs include empirical evidence, rules, procedures, policies, and other structures to provide consistency and guidance to the conduct of activities (Archer, 2010b, 2017; Caetano, 2015a). In the current study, examples of SEPs include the *Kindergarten to Year 10 Geography* syllabus (New South Wales Education Standards Authority [NESA], 2015), participant timetables, and the *Professional Standards for the Accomplished Teaching of School Geography* (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010). This is further detailed in Section 3.4.

Agential or personal emergent properties (PEPs) refer to personal values and beliefs, they are powerful influences and often cause a person will react in response to the strength of their feelings or belief systems (Archer, 2010b, 2017; Caetano, 2015a). In the current study, an example of a PEP is participants' personal beliefs about the importance of incorporating maps and other geographical tools into geography lessons. This is further detailed in Section 3.4.

CEPs refer to behaviour and practice associated with place, time, and people (Archer, 2010b, 2017; Caetano, 2015a). In the current study, an example of CEPs is the value placed on geography by students, school leaders, or colleagues in the school department where geography is taught. CEPs also refer to the willingness of school leaders and teachers to engage with collegial and supportive processes to foster a sense of belonging in the department or school community. This is further detailed in Section 3.4. The next subsection focuses on the 3D process of inner dialogue.

3.3.2 The 3D process or process of inner dialogue

This subsection explores the tripartite process of reflexivity that occurs in response to the emergent properties. Item (iii) of Figure 3.2 identifies the 3D process: discernment, deliberation, and dedication. Internal dialogue or conversation is an important part of discernment, deliberation, and dedication because it assists a person to develop as a reflexive practitioner (Archer, 2010a; Konferencje UKSW, 2016). Reflexivity occurs when the inner dialogue focuses subjectively on one's reality by assessing concerns and practice and, in doing so, arrives at an action that allows one to play their desired role in the given context and shape change (Archer, 2003). In the present study, an inner dialogue focuses on the influence of PEPs, SEPs, and CEPs, and the 3D process; its purpose is to develop capacity among TEs in their consideration, navigation, and taking of action regarding the educational phenomenon in question (Willis et al., 2017). Participants' inner dialogue is captured in verbal form in response to a recurring question: 'What makes your geography lesson geographical?'

My inner dialogue as a researcher is voiced in textboxes dispersed throughout Chapter 5 to show recognition of my positionality as a researcher and my engagement with a reflexive process.

An outline of the 3D process is presented below and is further detailed in Section 3.4:

- (i) Discernment is the recognition and identification of a phenomenon or area of practice requiring further thought.
- (ii) Deliberation is the thought process surrounding the identified area of practice. It encompasses the prioritising of choices and decisions emanating from discernment around the emergent properties. This stage requires reasoning about the options and alternatives for action before moving forward with a response.
- (iii) Dedication is the implementation of appropriate action in response to identified priorities and decisions made in the deliberation phase. Actions of dedication arise from the results of an inner dialogue around the discernment and deliberation processes (Archer, 2012).

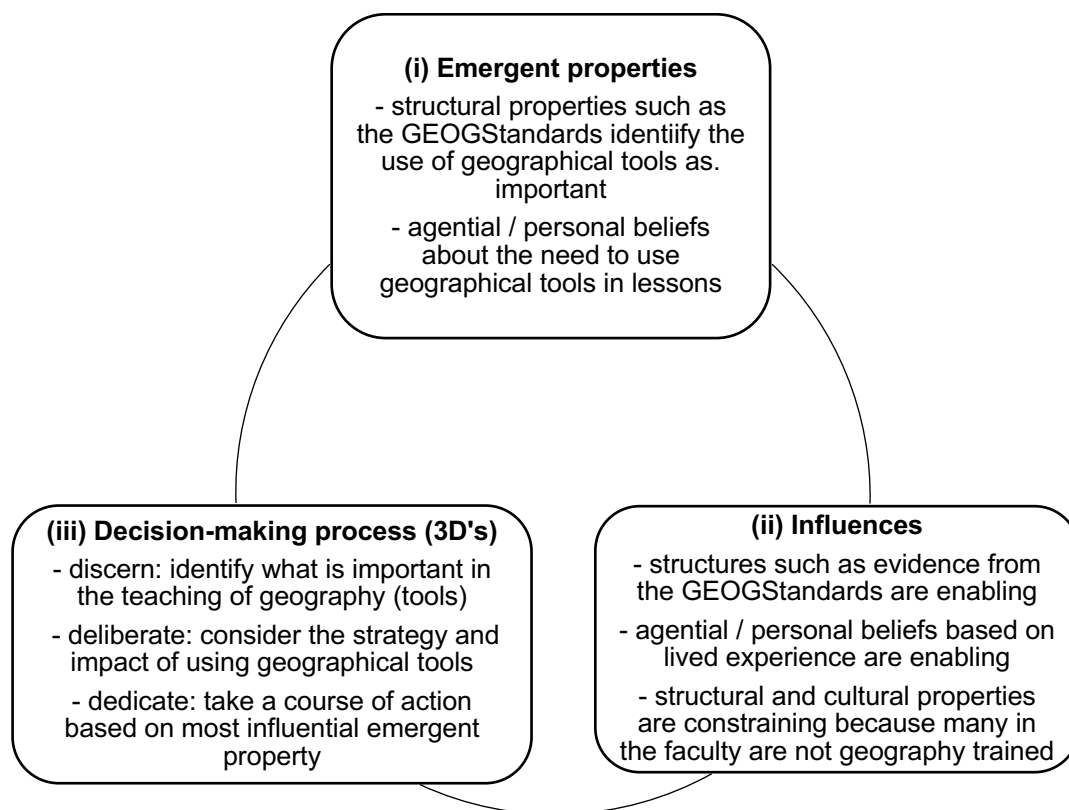
Although the present study does not include analysis about modes of reflexivity for reasons of manageability, to complete the explanation of reflexivity theory, a brief description of modes is given. Modes of reflexivity refer to the ways in which individuals engage their inner dialogue depending on context and lived experience (Archer, 2012; Konferencje UKSW, 2016). The modes of reflexivity are autonomous, communicative, meta, and fractured (Archer, 2012). Autonomous reflexivity is a sustained, self-contained inner conversation that leads straight to action. Communicative reflexivity not only requires confirmation of initial thoughts about the internal dialogue by checking-in with others, but also being able to act without further externally sourced input or assistance. Meta reflexivity is a personal critique and self-monitoring internal dialogue about one's reflections. Fractured reflexivity is characterised by distress and disorientation, which interrupts internal conversation and therefore results in no purposeful action being taken (Archer, 2012; Konferencje UKSW, 2016).

3.4 Application of reflexivity theory to the current study

Figure 3.3 is an extension of Figure 3.2 to show how reflexivity theory (Archer, 1979, 1982, 1988) is interpreted in response to the current study regarding transition into the profession and the transformation of pedagogical practice in the secondary geography classroom. An explanation of each element follows.

Figure 3.3

An interpretation of reflexivity theory related to the current study (Archer, 1979, 1982, 1988)



In Figure 3.3, the circular representation shows the reflexive process about pedagogical practice for research participants in the current study. The participant identifies the emergent properties by their name (Item i) and by their influence (Item ii), and then considers and takes action as appropriate (Item iii) according to the emergent property of most influence on their pedagogical practice.

As the participant transitions into the profession, the influence of emergent properties upon pedagogical practice and the decided actions may change. It is the influence of emergent properties and action taken that generates either a morphogenetic or morphostatic effect on pedagogical practice in the geography classroom.

Participants become familiar with reflexivity theory throughout the present study and articulate emergent properties that either enable and/or constrain their pedagogical practice, together with an action plan. A participant may identify themselves as holding strong personal values and beliefs about the need to regularly integrate geographical tools and skills (e.g. maps, photographs, and/or geospatial technologies) into their lessons. Such values and beliefs may be based on their experience of participating in

and learning from the geography methodology course. Such a belief is an example of a personal/agential emergent property with an enabling influence (Items i and ii, Figure 3.3). However, when on professional experience or when employed at a school, the influence of school department programming decisions may place a structural constraint on participants' beliefs about pedagogical practice. For example, geographical tools and skills may be taught in isolation from the content at the end of a unit of work rather than during a unit of work. In contrast, participants' beliefs about the use of geographical tools and skills in geography lessons may be supported by an enabling structural emergent property; for example, 'Developing geographical thinking and communication' (GS3) in the professional standard for teaching geography (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy 2010):

To develop geographical thinking and communication, accomplished geography teachers: support students to think spatially and use maps, visual images and new technologies including geographical information systems, to obtain, present, analyse and evaluate information. (GEOGStandard 3)

Overall, a participant uses reflexivity theory to identify emergent properties that enable and constrain their pedagogical practice in the geography classroom. By engaging with their inner dialogue or 3D process to determine which emergent property has the most influence on their practice, the participant can develop a responsive action plan (Item iii, Figure 3.3). The deliberation process and dedication of action will differ among participants due to teaching context and individuality of each participant (Konferencje UKSW, 2016). The depth of reflection evident in the conceptual framework *Teaching and Assessing for Reflective Learning* model (Ryan & Ryan, 2013, 2015) determines the reflexive capacity of each participant over time as they transition into the profession (see Chapter 2 for further explication).

The inner dialogue or 3D process about the influence of emergent properties in response to pedagogical practice during a geography lesson could occur as a verbal reflection about the:

- (i) pedagogical choices and decisions for a geography lesson in response to the emergent properties (discernment)
- (ii) influence of emergent properties and determination of possibilities for the most appropriate future practice (deliberation)
development of possible actions and commitment to an action plan about how to maximise the enabling emergent properties and/or mitigate the

constraining emergent properties. Action is the springboard for morphogenesis or morphostasis of practice and informs the next iteration of inner dialogue (dedication) (Archer, 2012; Brownlee et al., 2017).

Interpretation of data through the lens of Archer's reflexivity theory reveals how a reflexive process of 'bending back' thought in cycles contributes to the transformation and/or stability of pedagogical practice, contextualised within the geography classroom from the experience of one who is entering and transitioning into the profession.

Archer identified reflexivity as being an internal dialogue that allows individuals to take action to shape their ontology (reality) by considering their epistemology (knowledge about how their ontology occurs) (Archer, 2003). By engaging in reflexive processes — acknowledging the emergent properties as enablers and/or constrainers and then taking appropriate action in response to the 3D process — the ontologies and epistemologies of each participant reveal whether their ultimate concerns about pedagogical practice in the geography classroom and identification of self as a geography specialist teacher either changes or remains the same as they transition into the profession (Archer, 2003).

The next section provides a rationale for using reflexivity theory as the theoretical framework in the present study.

3.5 Rationale for using Archer's theory of reflexivity

The rationale for adopting Archer's theory of reflexivity as the theoretical framework for the present study is based on its emergence from an educational context. As a theory derived from realist social theory, it accepts the existence of transformative causal mechanisms (emergent properties) and the ability of human agency to influence change (morphogenesis) or maintain stability (morphostasis) in a given system (Archer, 2013).

The current study seeks to understand the morphogenetic or morphostatic outcomes of reflexive pedagogical practice from the interplay between and influences of SEPs, PEPs, and CEPs on:

- (i) the experience of transitioning from teacher education student to an early-career teacher
- (ii) the enactment of pedagogical practice in the geography classroom.

The transformative outcomes will be understood by cyclically probing the reflective inner dialogue of TESs (through the 3D process, see Figures 3.2 and 3.3) and exploring how such dialogue becomes conceptualised and manifested into action (Archer, 2013). The cyclical actions will determine the extent of transformative pedagogical practice in the geography classroom and assist in understanding the development of a reflexive practitioner (Archer, 2013). A reflexive practitioner develops and transforms over time because of sustained and cyclical engagement with cycles of thinking and action; they dualistically consider competing physical and non-physical contexts or constraints (e.g. classrooms and relationships) when they are reflecting on and responding to the way a teaching day has been managed (Ryan & Bourke, 2013; Ryan & Carmichael, 2016). Overall, reflexivity is an evolving, complex process of interpretation, reinterpretation, and reconstruction (Ryan & Bourke, 2013; Ryan & Ryan, 2013).

In an Australian education context, the application of and theorising about Archer's reflexivity theory is championed by education scholars in various contexts, including schools (Ryan & Barton, 2019; Ryan & Loughland, 2020; Willis et al., 2017), ITE (Brownlee et al., 2017), and higher education (Ryan, 2012, 2015). For example, Brownlee et al. (2017) drew upon reflexivity theory — in particular, the 3D process — to theorise about ways in which TESs acquire, develop, justify, and change personal knowledge (epistemic cognition) of their classroom practice. The authoring team suggested that TESs develop their practice as professionals and move beyond focusing on test preparation because of reflexive processes being explicitly incorporated into workshops.

Overall, Ryan (2015) positioned reflexivity as a means by which practitioners develop belief in and understanding of themselves as active agents in developing their practice and therefore becoming responsible for their own learning. This point is of interest to the current study, in which the practitioners are TESs who are transitioning into the teaching profession, and little is known through the literature regarding what informs their pedagogical practice and how it develops and transforms over time in a geography education context. The rapidly changing nature of society and its educational systems yields uncertainties; therefore, educators need to continuously bend back their thinking to understand self and practice in relation to context. In doing so, ideas and actions can

be effectively and appropriately applied to create new knowledge or experiences and ultimately transform teaching practice (Archer, 2010a, 2013; Ryan, 2015).

Archer's theory of reflexivity is a suitable theoretical framework to adopt for the current study due to a focus on:

- (i) the educational activities of people (Archer, 1979)
- (ii) explaining how components of society works in relation to each other, as well as why, at what time, where, and with what outcome or consequence (Archer & Morgan, 2020)
- (iii) accounting for processes of change educational contexts, systems and activities that are experienced or influenced by teacher education students as they exit university and enter into the profession (Archer, 1979)
- (iv) understanding how individuals (teacher education students) manage competing influences upon their pedagogical practice and identity as a teacher as they transition into the profession (Archer, 2012).

The next section connects Archer's reflexivity theory to the two conceptual frameworks and shows how the theory informs the research design of the current study.

3.6 Connecting the theoretical framework with the research design and chosen conceptual frameworks

This section contextualises some of the points made in Section 3.4 to show how reflexivity theory, as the theoretical framework for the present study, informs the research design and provides a point of connection between pedagogy and reflection as the conceptual frameworks (Creswell & Poth, 2018; Ravitch & Riggan, 2017). This research focuses on understanding the processes of transition into the profession and the transformation of pedagogical practice in the secondary geography classroom. To understand the processes of transition and transformation, it is necessary to have a timeframe divided into cycles so potential developments in pedagogical decisions and enactment, together with developments in reflective capacities, can be monitored. Therefore, the research is conducted longitudinally using a qualitative reflexive methodology to gain a deep understanding of context-specific transformative influences on pedagogical practice over time. In addition, there are two conceptual frameworks that inform the current study:

- (i) reflection, with reference to the TARL model (Ryan & Ryan, 2013, 2015).
- (ii) pedagogy, with reference to the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)

Table 3.1 identifies points of connection with the research design and conceptual frameworks of the present study. Elaboration of the research design occurs in Chapter 4.

Table 3.1

How Archer's theory of reflexivity informs the research design and connects to the conceptual frameworks

Reflexivity theory (Archer, 1979, 1982, 1988)	Research design of the current study	Conceptual framework
Cycles of interplay between emergent properties to determine the nature of morphogenesis or morphostasis	Reflexive cycles occur across three phases in a longitudinal study (18 months, from June 2019 to December 2020)	Morphogenesis or morphostasis in pedagogical practice for geography, as evident in the <i>Professional Standards for the Accomplished Teaching of School Geography</i> (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)
Engagement with an inner dialogue or 3D decision-making process about the nature and influence of emergent properties	As above	As above, plus the depth of reflection demonstrated over time as evident in the <i>Teaching and Assessing for Reflective Learning</i> model (Ryan & Ryan, 2013, 2015) to reveal reflexive capability of the practitioner
The power of agency to shape change and create a way forward to manage areas of concern, to subjectively address the structure–agent problem	Qualitative methodology with a reflexive approach; qualitative methods are applied cyclically and individually to allow for depth of understanding to occur about epistemological ontologies	

The use of reflexivity theory in the present study will build empirical understanding about the emergent epistemologies of TES during their time of transition into the teaching profession. Use of reflexivity theory in the present study will demonstrate how TESs (and as they become ECTs) engage with reflective practice about the structures and contexts they work within to make decisions about their pedagogical practice in

connection with the GEOGStandards. The bending back of thought about emergent properties, influences, and decision-making in reflexivity theory makes it a suitable theoretical framework to adopt for the present study. The theory is used to address the lack of empirical evidence about emergent epistemologies related to conditions which influence the identity and practice of TES as they complete an ITEP, enter and then transition into the teaching profession.

3.7 Conclusion

This chapter explicated the nature, purpose, and rationale for using reflexivity theory (Archer, 1979, 1982, 1988) as the theoretical framework for the present study. By connecting the theoretical framework with the research design and conceptual framework, it provides a link to Chapter 2 and an entry point into Chapter 4, where the methodology of the study is outlined.

Chapter 4: Methodology

4.1 Introduction

The previous chapter justified and explicated reflexivity theory (Archer, 1979, 1982, 1988) as the theoretical framework for the study. This chapter opens with an overview and justification of a longitudinal qualitative study with a reflexive approach as the chosen research design to understand the experience of transitioning into the teaching profession and a transformation of pedagogical practice in the secondary geography classroom. The chapter then outlines the recruitment process, the participants, and ethical concerns. Next, the research procedures and methods of data generation are described. The chapter concludes with a description of the procedures for data analysis.

4.2 Longitudinal qualitative study with a reflexive approach

The following research question frames the current study and requires a capture of experiences from a distinct participant group over a period of time: How does transition into the teaching profession influence a transformation of pedagogical practice in the secondary geography classroom?

The research question invites an examination of structures, processes, and individual experiences to understand what it is that becomes an individual's experience of place and events as part of everyday life in a given context (Cope & Hay, 2021; Winchester & Rofe, 2016). In seeking an answer to the research question, I designed the study to include a sustained use of theory–practice reflection activities with TESs who are transitioning from an ITEP into the teaching profession. Theory–practice reflection activities are contextualised around the examination of pedagogical practice in geography, a priority area for GER (Lambert, 2015). The present study sits at the intersection of research for two disciplines:

- (i) geography — in this instance, GER — as part of the human geography domain, which seeks to contextually understand human experiences, relationships, and practice to design a better future (Winchester & Rofe, 2016; Cope & Hay, 2021)
- (ii) education — most specifically within ITE — to understand how theory–practice reflection transfers into the daily practice of TESs beyond professional experience (Stenberg et al., 2016; Stenberg & Maaranen, 2020a, 2020b).

The study responds to a call for longitudinal, theory-building, and interdisciplinary GER research (Solem & Boehm, 2018), to have an impact on educational studies overall (Lambert 2010; Solem & Boehm, 2018) and to investigate the quality of ITE in geography (Bednarz et al., 2013; Solem & Boehm, 2018). The current study uses a qualitative methodology with a reflexive approach to understand transition and transformation in response to participant experience and researcher positionality in the production of knowledge (Alvesson & Skoldberg, 2018; Catungal & Dowling, 2021; Dowling, 2016; Winchester & Rofo, 2016).

4.2.1 Longitudinal nature of the study

The research period for data-generation opportunities in the present study spans 18 months and contains three phases. The key protocols of the longitudinal research that inform the design of the current study include the conduct of repeated research activities over time with multiple data-generation instruments and making comparisons over time with the same group of participants (Johnson & Christensen, 2017; Neale, 2019).

Participant experiences focus on the process of transformation and transition, and experiences are captured and interpreted through descriptive and exploratory observations and dialogue. To generate trustworthy, rigorous, and credible data and strengthen conclusions derived from the data, strategies such as regular observations of participants over a prolonged period and an invitation for them to 'member-check' the interpretation of data occurred (Korstjens & Moser, 2018; Stratford & Bradshaw, 2016, 2021).

Longitudinal studies in GER are under-represented in the literature compared with research in the fields of mathematics education and science education (Solem & Boehm, 2018).

4.2.2 Qualitative design and reflexive approach

The research question and focus of the present study call for an exploration of how the process of transition into the teaching profession influences a transformation in pedagogical practice. Understanding transition and transformation is contextualised within the secondary geography classroom.

Participant reflections surrounded their own teaching practice in the secondary geography classroom with a chosen class(es). The research question is broad and

open, yet intensively explores ‘how’ and ‘why’ in response to opinions and experiences of a specific real-world context, which enables an in-depth understanding and ‘thick description’ of the phenomenon to occur (Korstjens & Moser, 2017; Stratford & Bradshaw, 2016, 2021). The research theme is more deeply understood through iteratively harnessing the in-depth insights gained from participants who are living the phenomenon (Moser & Korstjens, 2017). Therefore, qualitative research is appropriate for the focus of the current study, and the key areas to emphasise with the TES participants in their reflections include:

- their experience of and rationale for beliefs about transitioning from a TES to an ECT in the profession (Ovens et al., 2016)
- the nature and effect of influences on their pedagogical practice (Lambert, 2015)
- the nature of and reasoning for their decision-making processes regarding appropriate action(s) to take in response to the influences on pedagogical practice
- an understanding of how their transformation of pedagogical practice occurred over time as a result of taking action during professional experience and throughout their first year of teaching (Lambert, 2015; Solem & Boehm, 2018).

There are two purposes to developing an understanding of the influences of transition on the transformation of pedagogical practice among TESs. One purpose is for each TES to identify and consider the possible implications for their future practice. Another purpose is for each TES to act upon the various implications as appropriate to their context in the reflexivity process. Such implications relate to the:

- (i) nature and influence of individual beliefs and practice (PEPs) of TESs, which are expressed and/or enacted during their transition from being a TES to a graduate teacher
- (ii) nature and influence of structures and processes (SEPs) the TESs have to work with during their transition from being a TES to a graduate teacher
- (iii) nature and influence of cultural context (CEPs) on TESs’ enactment of teaching practice during their transition from being a TES to a graduate teacher.

An exploratory, open-ended approach to data generation is used to understand participant experience of transition and transformation over time. This is achieved through the use of researcher observation notes, open-ended questions in semi-structured interviews, and open-ended questions in social labs.

The present study adopts a reflexive approach characterised by interpretation and reflection (Alvesson & Skoldberg, 2018) whereby I scrutinise myself and the research process. This is done by actively engaging in self-reflection to examine, monitor, and control areas of potential bias, predispositions, and interpretations of the research decisions and data interpretation (Catungal & Dowling, 2021; Dowling, 2016; Johnson & Christensen, 2017; Korstjens & Moser, 2018). Consideration of context and circumstances occurs through the lens of Archer's theory of reflexivity (see Chapter 3) and becomes the focus of interpretation and reflection (Alvesson & Skoldberg, 2018; Archer, 2010a, 2010b, 2012). 'Interpretation' means my self-reflection to foreground the central importance of the research problem to the researcher and relevant research-related community (Alvesson & Skoldberg, 2018). Archer's reflexivity theory calls for awareness of emergent properties as important influences on choices made about pedagogical practice in the secondary geography classroom. Therefore, the participants and I engage with theory–practice reflection at multiple levels of depth to effectively interpret transition into the profession and transformation of pedagogical practice (Alvesson & Skoldberg, 2018; Archer, 2012). I take notes during lesson observations and from audio-recordings, where I reflect on participant responses during or after our semi-structured interviews based on statements made by participants in response to multiple factors (Dowling, 2016). My reflections are captured in textboxes throughout Chapter 5 and these reflexive accounts are important for documenting my positionality as an influence on the way both myself and the participant group experience transition because we are all known to each other. Reflexivity is important because I am closely connected to the leadership of and advocacy for geography education at the local, state, and national levels. A reflexive approach in the present study adds to the protocols of developing trustworthy and credible qualitative research (Korstjens & Moser, 2018; Stratford & Bradshaw, 2016, 2021). See Section 4.8 for further information about the credibility and trustworthiness of the current research.

In the present study, a qualitative methodology with a reflexive approach was chosen to build a detailed picture of pedagogical practice in a secondary geography classroom (Baxter, 2016; Solem & Boehm, 2018). The design develops an in-depth understanding of context and individual experience to broaden the academic understanding of a

research phenomenon or contribute to solving an associated problem (Baxter, 2016; Stratford & Bradshaw, 2016, 2021). A deep and rich investigation of participant experience in response to context occurs through several data-generation activities at multiple points of time throughout the study (Johnson & Christensen, 2017). I spent considerable time with each participant to obtain important and unique evidence about personal journey of transition into the teaching profession and its transformative influences on pedagogical practice (Easton, 2010; Gerring, 2017). A reflexive approach assists with scrutiny of researcher bias because I am actively engaged in geographical education and journeying with participants in a process of transition and transformation (Catungal & Dowling, 2021; Dowling, 2016).

4.3 Recruitment of research participants

The focus of the present study includes transition of TESs into the teaching profession and its transformative influences on pedagogical practice in the secondary geography classroom. Such foci necessitate a specialised research participant group to understand their lived experience and allow descriptive insights to emerge (Neale, 2019). As a result, recruitment of research participants occurred through purposive sampling according to the following criteria: undergraduate; final year of study in an ITEP at the same university; and current enrolment in a geography methodology unit.

Recruitment of participants occurred during Semester 1 2019. Only 19 out of 37 Australian universities offer geography methodology units within ITEPs (NCGS, 2018), and just five universities offer such a course in the metropolitan area where I was based. Of those five universities, which were chosen for budgetary and logistical manageability, the potential research participant pool was further reduced due to:

- A candidature of fewer than five in one geography methodology unit: A small group is unsuitable for recruitment purposes because a minimum of five participants is required for a viable study, and uptake was more likely to be less than 70% (Johnson & Christensen, 2017).
- Failure of a geography methodology cohort to respond after twice being approached by the researcher: It is recommended that no more than two requests are issued to the same potential participant or participant group (Neale, 2019).
- The researcher was a tutor of one geography methodology unit: Reluctance to recruit from this group occurred in response to perceptions of coercion and bias (Johnson & Christensen, 2017).

During early Semester 1 2019, a small participant group ($n = 3$) from one university agreed in writing to join the study. However, on the day of the first social lab, two of the participants withdrew from the study. Therefore, it was no longer viable to proceed with the remaining participant.

For the study to proceed without further restructuring or amendment to the proposed timeline, recruitment of a new participant group was made from a geography methodology unit that I taught during Semester 1 2019. My advice about relationships and trust being important to securing and sustaining a participant group with minimal attrition further reinforced the decision to proceed with recruitment from the class I taught (Guillemin et al., 2018; Korstjens & Moser, 2017; Neale, 2019). A positive rapport already existed between myself and the TESs in the geography methodology unit because not only had I taught them in the geography methodology unit for six weeks, but I had also previously taught them in various courses over the years of their studies in the ITEP. To maintain research integrity and reduce perceptions of bias and coercion, I ceased involvement with the geography methodology unit during Week 6 of Semester 1 2019, which was before the recruitment process occurred for this participant group.

I liaised with the newly appointed geography methodology tutor to distribute notifications about recruitment to the study. The new tutor was not known to the TESs and could therefore disseminate information about the study. I provided the tutor with written notifications about the study to post as announcements on the learning portal, and also provided the tutor with consent forms for distribution during one designated geography methodology class.

At the time of recruitment, all participants were full-time students completing their final year of study in a four-year Bachelor of Arts, Bachelor of Education (Secondary) (BABEd) degree.

In the BABEd degree, TESs must choose an academic major in the discipline of their first teaching subject; they are also encouraged to undertake study in a second teaching subject. Academic majors are taught by academics and researchers from the discipline, for example, in the Faculty of Arts or Faculty of Science and Engineering. TESs also complete study about educational theory and practice with academics from the School of Education. In addition, they learn to apply subject content knowledge to design learning experiences and embed technology to meet curriculum, assessment, and reporting requirements.

Subject methodology units occur in the final year of study and are taught by education academics with the relevant subject specialisation. The subject methodology units provide an opportunity to examine syllabus documents, consider implications for teaching the subject, and emphasise pedagogical practice. *Geography in the Secondary School 1* and *Geography in the Secondary School 2* are the geography methodology units, each with a one-semester duration.

Additionally, in the BABEd degree, TESs undertake professional experience in two separate placements: 20 days in third year and 60 days in their final year, but at a different school to the previous placement. There are opportunities for TESs to complete professional experience in local, regional, and international settings. Before joining the current study, two participants completed part of their final-year professional experience requirements in Chile.

4.4 Research participants

The research participants were five purposefully sampled TESs from one metropolitan university in NSW, Australia. The sample was small, although typical for qualitative research. A cohort of five participants is viable to document specific findings in detail (Johnson & Christensen, 2017), and a decision was made to proceed because the intent of the present study was to analyse meaning in specific contexts and not generalise the findings or show them as representative (Korstjens & Moser, 2017; Stratford & Bradshaw, 2016, 2021). Gender identification of participants was not required. One participant chose to withdraw from the study upon gaining employment for 'Phase 3: Positioned in schools', because the teaching load for 2020 did not include geography.

Four participants identified geography as their academic major and specialist teaching subject. One participant identified geography as their academic minor and second teaching subject. Participants were given the opportunity to choose their own pseudonym in response to suggestions from Neale (2019) about ways to sustain relationships with participants and view them as people rather than just participants.

A profile for each participant is presented in Appendix A, and a summary is presented in Table 4.1. Participants appear in alphabetical order according to pseudonym.

Table 4.1

Summary of research participants and schools encountered at each phase of research

Name	Subject major	Phase 1: Preparation	Phase 2: Profession entry	Phase 3: Positioned in schools
Anna	History	Metropolitan, Catholic, all-girls	No engagement with schools	Regional, independent, co- education. Temporary full-time contract for 2020
Emily	Geography	Metropolitan, Catholic, all-boys	Same school as Phase 1 Temporary full- time 4-month contract	Same school as Phase 1 Permanent full-time contract from 2020
Grace	Geography	Metropolitan, independent, all- boys (transitioning to co-education)	Multiple metropolitan independent, co-education Daily casual relief and full- time 3-month contract	Metropolitan, independent, co- education. One of the Phase 2 schools Temporary contract for 2020
Karen	Geography	Metropolitan, government, co- education	Multiple metropolitan government, co-education Day-to-day casual teaching	Metropolitan, government, co- education. Different to Phases 1 and 2 Permanent full-time contract from 2020
Matt	Geography	Metropolitan, independent, all- boys	Metropolitan, independent, co-educational Short-term contract	Same school as Phase 2 Temporary full-time contract for 2020 Withdrew from the study upon commencement of employment

4.5 Ethical concerns

Ethical concerns addressed before and during the conduct of all of the data-generation activities related to obtaining active and informed consent, protecting anonymity and confidentiality, and providing the right for participants to withdraw from the study at any time. The original ethics approval number was granted on 18 February 2019 (Reference No: 5201937236998), and the variation to ethics was granted on 10 May 2019. Ethics approval from the NSW Department of Education (government or public schools) was received on 10 May 2019; such approval is an additional requirement if research is to be conducted in the government school system.

4.5.1 Consent, withdrawal, and confidentiality

To meet active and informed consent requirements, all participants provided written consent to join the study before the commencement of 'Phase 1: Preparation'. In longitudinal studies, informed consent is an ongoing process (Neale, 2019); therefore, at the beginning of each research phase, participants were reminded about the aims of the study and assured of their right to withdraw at any time without provision of a reason. The right to withdraw was also reiterated verbally at the commencement of each data-generation activity within each research phase.

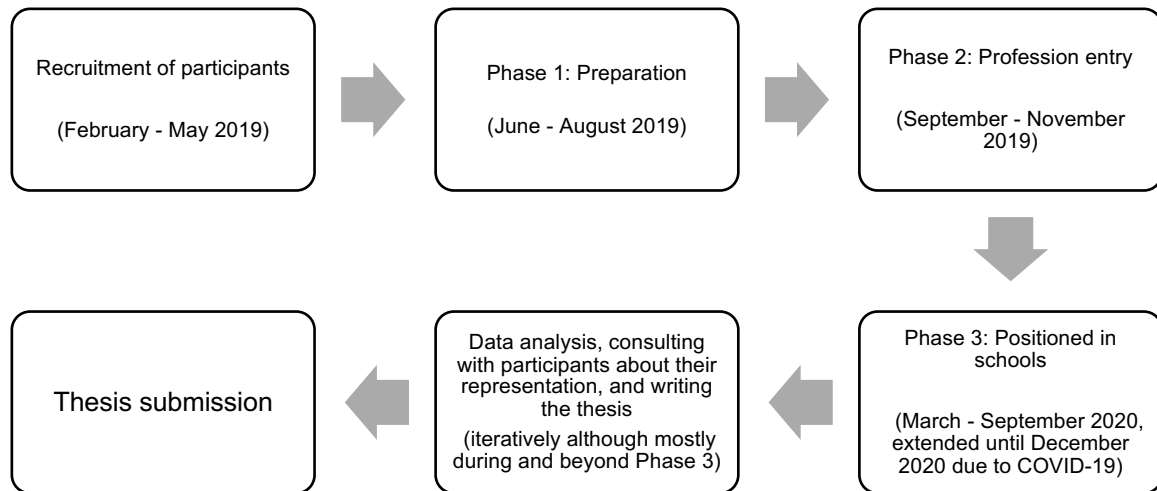
All participants chose their own pseudonym for de-identification purposes. Schools were identified only according to schooling sector, gender structure, and whether they were in a metropolitan or regional location of NSW.

4.6 Research phases and data generation

There are three phases in the present study, with each phase representing an important period in a process of transition from being a TES in an ITEP to being a teacher positioned in a school. An outline of the research procedure for the present study is shown in Figure 4.1, and a discussion of the phases follows.

Figure 4.1

Overview of the research procedure



The three research phases are outlined below:

- (i) Phase 1: Preparation (June–August 2019): Phase 1 occurred in the month before, and during, the months when the participants completed professional experience (each at a different school).
- (ii) Phase 2: Profession entry (September–November 2019): Phase 2 immediately followed from Phase 1 when each participant successfully completed professional experience requirements, were still completing the final weeks of the ITEP, and had received provisional accreditation to teach. This time can be characterised by insecure, casualised, and sporadic employment where the daily or short-term temporary and contractual nature of the work does not provide a living wage (Millar, 2017; Mindzak, 2019). Precarious employment in the education sector is typically understood to be both normalised and increasing, particularly in Western nations such as Canada and Australia, and among practitioners who are entering the profession (Melville et al, 2019; Mindzak, 2019). Precarity is characterised by a lack of work-based identity, particularly by young people (Millar, 2017). Precarity is also understood as a time of social vulnerability where loss of existing relationships and exposure to new people and new situations can lead to the realisation that uncertainty becomes a condition of living (Millar, 2017; Mindzak, 2019).

- (iii) Phase 3: Positioned in schools (March–September 2020, extended to December 2020 due to COVID-19-related disruption): A short gap exists between the end of Phase 2 and the commencement of Phase 3 because, in Australia, the school year ends in December and the summer break occurs during January. The school year commences at the end of January, so starting Phase 3 in March gave participants time to find full-time employment at one school.

Data generation occurred during each phase, as shown in Table 4.2. Detail about each phase and its data-generation activities follow.

Table 4.2

Phase of the study and opportunities for data generation

Phase	Time	Opportunities for data generation
Phase 1: Preparation	June–August 2019	One social lab for the whole participant group, conducted prior to commencing professional experience Two lesson observations and two semi-structured interviews with each participant, plus one semi-structured interview with the supervising teacher of each participant
Phase 2: Profession entry	September–November 2019	One social lab for the whole participant group, conducted between completion of professional experience and completion of ITE studies
Phase 3: Positioned in schools	March–September 2020 This phase was extended to December 2020 in response to COVID-19 disruptions to research	Three lesson observations and three semi-structured interviews with each participant, plus one semi-structured interview with the Head Teacher who supervises each participant An adjustment to conduct of research occurred in response to COVID-19 disruptions (see Sections 4.6.3 and 4.6.4) One social lab for the whole participant group, conducted as a conclusion to the study

4.6.1 Phase 1: Preparation

‘Phase 1: Preparation’ covered the period from prior to the final professional experience through to its completion. It included the following data-generation activities:

- (i) Social Lab 1 (June 2019): The whole group met with me at the university where I was based prior to the commencement of professional experience (see Section 4.6.1.1). My role was to facilitate discussion and reflection about the complex challenge of teaching geography in a secondary school context.
- (ii) Lesson observations and school visits (July–August 2019): I visited each school twice where the participant attended for professional experience (see Section 4.6.1.2).

A summary of the data generation for Phase 1 is presented in Table 4.3, and a discussion follows.

Table 4.3

Summary of data generated during Phase 1: Preparation

For participant	Data generation	Permitted or not permitted ¹
Anna, Emily, Grace, Karen, Matt	Social Lab 1 (audio and visual recording)	Permitted
Anna	Researcher attendance at school to conduct lesson observations	Not permitted
	Recording of lessons (audio and visual)	Not permitted
	Researcher observation notes during lessons being taught	Not permitted
	Audio-recording of post-lesson semi-structured interview with participant at the school	Not permitted
	Audio-recording of post-lesson semi-structured interview with participant outside the school and outside of school hours	Permitted
Emily, Grace, Matt	Researcher attendance at school to conduct lesson observations	Permitted
	Recording of lessons (audio and visual)	Permitted
	Researcher observation notes during lessons being taught	Permitted

¹ All data generation activities were permitted by university and school education ethics procedures and agreed to by participants. Activities not permitted relate to school refusal although ethics clearance existed

For participant	Data generation	Permitted or not permitted ¹
	Audio-recording of post-lesson semi-structured interview with participants at the school	Permitted
Karen	Researcher attendance at school to conduct lesson observations	Permitted
	Recording of lessons (audio and visual)	Not permitted
	Researcher observations notes during lesson being taught	Permitted
	Audio-recording of post-lesson semi-structured interviews with participant at the school	Permitted

4.6.1.1 Social Lab 1

Social labs are a space for discussing complex challenges (McKenzie, 2015), and in the present study one social lab occurred in each research phase. The conduct of the social labs became a method of data generation and a transformative learning experience for me and the participants (Ryan et al., 2019). Dialogue, active listening, and the interchange of ideas are key features and demands of participating in a social lab; in the current study, the purpose of this interaction was to identify features of transformative practice (McKenzie, 2015; Ryan et al., 2019).

Social Lab 1 aimed to provide a dialogic and collaborative reflective space for participants to build their professional identity and develop trust and rapport between each other and with me as a researcher, and in doing so, foster a sense of belonging among the whole group (Neale, 2019; Ryan et al., 2019). I sought to encourage a sense of belonging among the participant group to develop support for each other and potentially minimise attrition (Neale, 2019).

Social Lab 1 occurred on 11 June 2019 for a duration of 2 hours and 25 minutes; all participants attended. Seating was arranged around one large desk in a semi-circular layout to facilitate discussion (see Appendix B). The interactive whiteboard screen was positioned at the base of the semi-circle to enhance screen visibility for participants.

Social Lab 1 was designed to:

- (i) establish participants' current understanding of the nature of pedagogical practice in geography in connection with the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010); this understanding was

intended to create a foundation from which the transformation of practice could be determined as participants transitioned from being a TES to a teacher throughout the course of the study

- (ii) introduce participants to reflexivity theory (Archer, 1979, 1982, 1988), the emergent properties, influences that enable or constrain practice, and the 3D decision-making process to develop informed plans for action
- (iii) provide an opportunity for participants to explore how they might predict or anticipate their future action and responses to such enabling or constraining influences.

There were four parts to Social Lab 1: familiarisation, considering our practice; creating goals for our practice; and conclusion. Table 4.4 outlines each part of Social Lab 1 and should be read in conjunction with Appendix C which identifies the activities in full.

Table 4.4

The four parts of Social Lab 1 and key activities

Parts of the social lab	Key activities
Part 1: Familiarisation	<ul style="list-style-type: none"> (i) Input from researcher about the timeline of the study and an overview of the social lab. (ii) Participants invited to comment and ask questions.
Part 2: Considering our practice	<ul style="list-style-type: none"> (i) Participants consider, share, and rank in order of importance their ideas about the distinctive pedagogical features of a geography lesson (Appendix C, Activities 1 and 2). (ii) Participants reflect on the <i>GEOGStandards</i> (Hutchinson & Kriewaldt, 2010), identify the standards that they feel are most important to their practice, align the standards to their responses from Activity 1, and share ideas as part of the group discussion (Appendix C, Activities 3 and 4). (iii) Participants introduced to reflexivity theory and invited to reflect on and share with the group a range of personal, structural, and cultural properties they believe will potentially have an enabling or constraining influence on their teaching practice while on professional experience (Appendix C, Activities 5 and 6).
Part 3: Creating goals for our practice	<ul style="list-style-type: none"> (i) Participants individually reflect on their ideas about teaching geography and develop up to three goals to work towards during professional experience; the focus is on their pedagogical practice in geography (Appendix C, Activity 7).

Parts of the social lab	Key activities
	<ul style="list-style-type: none"> (ii) Participants identify when and how they would know the goal had been achieved (Appendix C, Activity 8). (iii) Participants share their goals with the group. (iv) Due to time constraints and repetition with previous activities, the researcher decided to omit Activities 9 and 10 (Appendix C). (v) Participants write about their decision-making processes related to the activities of the social lab (Appendix C, Activity 11).
Part 4: Conclusion	<ul style="list-style-type: none"> (i) Researcher thanks participants for their time and outlines the next steps of the research. (ii) Participants invited to comment and ask questions.

4.6.1.2 School visits, lesson observations, and researcher observation notes

The purpose of conducting school visits was to complete lesson observations and semi-structured interviews separately with the participants. The lesson observations and semi-structured interviews were also an opportunity for me to develop researcher observation notes. The aim of conducting school visits was to develop a deeper understanding of the influences on and transformation of the participants' pedagogical practice. The contexts of understanding such influences were framed around participants being in the final year of an ITEP (course phase), school culture, and learning from the geography methodology unit.

As shown in Table 4.3, there were some variances in the permissions granted for data generation. It was necessary to adjust the lesson observation process for Anna because observations and recordings were not permitted for her classes. The adjusted process for Anna was for her to email me a completed and detailed lesson plan for the chosen class prior to the lesson commencing. I would annotate the lesson plan in response to the lesson observation protocol (Appendix E) and write down questions that arose as a result of reading through the lesson plan. Anna would annotate the lesson plan after she completed the lesson in response to the semi-structured interview questions that were made available to her (Appendix F). Once the school day had concluded, at an agreed time Anna and I met face-to-face at either a café or the university to complete a semi-structured interview about the lesson plan and its annotations that occurred prior to and after the lesson enactment. Comments from the

annotated lesson plans developed by me and Anna were also incorporated into the dialogue and probing questions as appropriate.

For the lesson observations, I asked participants to nominate one class to be observed twice during professional experience. Emily, Grace, and Karen requested that I observe two different classes on the same day of each visit. I agreed to the request because it allowed the participant a voice in the process, which facilitated the development of trust. Anna also wanted to discuss how she differentiated and conducted the same lesson with two classes. Participants stated that it would allow them to showcase and consider their pedagogical practice in the geography classroom according to different factors, such as student learning needs in an extension and a learning support context.

As I observed the participants teach, I wrote personal thoughts, questions, and observations about their pedagogical practice using the lesson observation protocol I developed in accordance with the teaching standards for geography; the standards are presented in Appendix D and the lesson observation protocol is outlined in Appendix E. The observed lessons were not consecutive. Lessons were typically spaced about five to seven days apart between late July 2019 and the end of August 2019. The rationale for focusing on the same class related to associated influences of enablement or constraint upon practice such as timetabling (an SEP). Lesson observations provided an opportunity for me to see how the participants enacted their ideas for each lesson compared with their ideas expressed in Social Lab 1 and the lesson plans. Lesson observations also provided a context for discussion in post-lesson semi-structured interviews, so it was important for me to observe alignment or discrepancy between the ideas expressed in Social Lab 1, the lesson plan, and the lesson enactment so I could pose probing questions where appropriate. Finally, the lesson observations provided me with a point for noticing participants' pedagogical practice and reflecting on my own experience and practice as a geography educator.

Post-lesson semi-structured interviews occurred with Emily, Grace, Karen, and Matt at the school on the same day as the lesson observations, usually immediately following the lesson. Anna was interviewed beyond the school location. Immediately before recording commenced, I informed the participants about the purpose of the semi-structured interview, showed them the schedule of questions (Appendix F) and left the paper on the table to be viewed as required, indicated that additional questions may be asked, and stated that they could withdraw from the semi-structured interview at any time or not respond to all questions if preferred. Verbal permission was sought to

proceed with the audio-recording. Responses from the semi-structured interviews were audio-recorded and transcribed by the researcher.

During the semi-structured interviews, I invited participants to share what they understood to be the distinctive features of a geography lesson and how these features were demonstrated in their pedagogical practice throughout the lesson. I also invited Anna, Emily, Grace, Karen, and Matt to share how their understanding of distinctive features of a geography lesson were evident in their planning considerations, how they understood the lesson to connect with the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010), and their ideas for what to keep the same or do differently should they teach this lesson again with the same class. I also posed additional probing questions and scenarios to encourage participant elaboration on key points as they arose. Throughout our dialogue, I made further notes about or commented on areas of alignment or discrepancy that emerged between our views on the pedagogical focus of the lesson. Often the discrepancy was explored through further probing questions. The semi-structured interviews encouraged each participant to reflect on:

- (i) the influences of PEPs, SEPs and CEPs on their pedagogical practice
- (ii) their enactment of the decision-making process regarding pedagogical practice in their next geography lesson.

I compiled additional researcher observation notes in a combination of written, diagrammatic, and verbal audio-recorded form. For example, some personal reflections on the research process and personal learning were developed after the semi-structured interviews. As a researcher, I am in a period of transition from being a school-based leader in geography education to an aspiring academic in geography education; I was involved in the design and delivery of a geography methodology unit. Consequently, I was aware that I might anticipate and perceive influences of enablement or constraint ahead of their actual existence or acknowledgement by the participant. Therefore, researcher observation notes were a way for any bias to become evident in response to my beliefs, career experience, and educational interest (Bourke, 2014), and to become a prompt for discussion with my supervisors to minimise potential bias.

Following 'Phase 1: Preparation', the second phase of the study, 'Phase 2: Profession entry', commenced. During Phase 2, four participants chose to seek employment while

concluding their university studies, whereas one participant chose not to seek employment at this time.

4.6.2 Phase 2: Profession entry

Phase 2 occurred between September and November 2019 and covered the time between the end of the final professional experience placement and the completion of study in the ITEP. Phase 2 could represent an uncertain or ‘precarious’ time for participants in terms of their identity, nature of employment, and wellbeing related to the need to balance the competing demands of time for work, life, and study (Gillet-Swan & Grant-Smith, 2018; Grant-Smith et al., 2018). Phase 2 included the following data-generation activity:

- (i) Social Lab 2 (November 2019): The whole group met with the researcher at the university when the participants were engaged in both the final weeks of their university studies and provisional employment in schools.

Table 4.5 provides a summary of the data generated during Phase 2, and a discussion follows.

Table 4.5
Summary of data generated during Phase 2: Profession entry

For participant	Data generation	Permitted or not permitted ²
Anna, Emily, Grace, Karen, Matt	Social Lab 2 (audio and visual recording)	Permitted

4.6.2.1 Social Lab 2

Social Lab 2 occurred around five months after Social Lab 1 and was conducted on 13 November 2019 at the university where I was based. It lasted for a duration of 2 hours and 20 minutes, and all participants attended. There were two seating arrangements: a whole group semi-circular layout as implemented in Social Lab 1 to facilitate discussion; and an individual workstation for each participant to encourage individual reflection (see Appendix B). As with Social Lab 1, Social Lab 2 aimed to provide a dialogic and collaborative reflective space for the participants to build their

² All data generation activities were permitted by the university and school education ethics procedures and agreed to by participants. Activities not permitted relate to school refusal although ethics clearance existed

professional identity, share experiences, and continue to develop feelings of trust, rapport, and belonging with each other as a group and with me as a researcher (Neale, 2019; Ryan, et al., 2019).

Social Lab 2 was designed to help participants identify a changed or confirmed understanding of pedagogical practice in geography. The activities allowed them to investigate the nature and effect of actual influences on pedagogical practice from the PEPs, SEPs and CEPs compared with those anticipated previously. In addition, the participants could discuss the implications of their decisions for pedagogical practice within and beyond geography classrooms. Finally, during Social Lab 2, the participants could determine whether their goals regarding pedagogical practice in geography would remain the same or be adjusted for Phase 3.

Several activities in Social Lab 2 were the same as in Social Lab 1 to identify changes in participants' understanding over time and discern any transformation of practice. Social Lab 2 continued to explore participants' ideas about pedagogical practice, enabling and constraining influences, and goal setting. However, ideas were explored in the context of participants transitioning from a TES to a teacher. Participants were asked to reflect on their responses in Social Lab 1, their experiences from Phase 1, and their current experiences in Phase 2 to identify changes or transformations in their thinking regarding pedagogical practice in the geography classroom. Due to the possibility of this time being uncertain or 'precarious' for the participants regarding their identity and employment status (Melville et al., 2019; Millar, 2017; Mindzak, 2019), it was important to capture their experience in this early period of transition.

There were four parts to Social Lab 2: familiarisation; considering our practice; creating goals for our practice; and conclusion. Table 4.6 outlines each part of Social Lab 2 and should be read in conjunction with Appendix G, which identifies the activities in full.

Table 4.6*Four parts of Social Lab 2 and key activities*

Note: All italicised activities are visible thinking routines (VTRs) from the Harvard Graduate School of Education, *Project Zero Thinking Routine Toolbox* <https://pz.harvard.edu/thinking-routines>; Ritchart et al. (2011)

Parts of the social lab	Key activities
Part 1: Familiarisation	<ul style="list-style-type: none"> (i) Participants complete an individual warm-up VTR (Appendix G, Do Now Activity). (ii) Input from researcher about the timeline of the study and activities of Social Lab 2. (iii) Participants invited to comment and ask questions.
Part 2: Considering our practice	<ul style="list-style-type: none"> (i) Participants consider, share, and rank in order of importance their ideas about the distinctive pedagogical features of a geography lesson (Appendix G, Activities 1 and 2); Activity 2 was an adaptation of 'Think Pair Share'. (ii) Participants reflect on and share how their ideas and responses from Activities 1 and 2 have changed or transformed from Social Lab 1. The VTR used was 'I used to think, Now I think' (Appendix G, Activity 1A). (iii) Participants reflect on the GEOGStandards to identify the standards most important to their practice, align the standards to their responses from Activity 1, and share ideas as part of the group discussion (Appendix G, Activities 3 and 4). (iv) Participants reflect on and share how their ideas and responses have changed or transformed from Social Lab 1. This activity was based on the VTR 'I used to think, Now I think' (Appendix G, Activity 3A). (v) Participants complete a 'Tug for Truth' in response to a pedagogically focused proposition (Appendix G, Activity 5). (vi) Participants reflect on and share how their ideas and responses changed or transformed from Social Lab 1. The VTR used was 'I used to think, Now I think' (Appendix G, Activity 5A). (vii) Participants return to the warm-up VTR, 'Do Now Activity' and annotate in response to transition into the profession (Appendix G, Activity 6).
Part 3: Creating goals for our practice	<ul style="list-style-type: none"> (i) Participants individually reflect on their ideas and experiences about teaching geography and review their goals from Social Lab 1. Participants craft their goals for the following year, which may include or adjust some of

Parts of the social lab	Key activities
	the goals from Social Lab 1 (Appendix G, Activity 7, white Post-it Notes).
	(ii) Participants further annotate their goals to identify when and how they will know the goal has been achieved (Appendix G, Activity 7, blue Post-it Notes).
Part 4: Conclusion	(i) Researcher thanks participants for their time and outlines the next steps of the research.
	(ii) Participants invited to comment and ask questions.

The conclusion of ‘Phase 2: Profession entry’ (November 2019) coincided with time close to the end of the school year. ‘Phase 3: Positioned in schools’ was scheduled to commence in mid-March 2020 between Weeks 4 and 6 of Term 1 2020. It was important for the transitional element of the study to capture participants’ experience close to the beginning of the school year and then again during Term 2 2020 (April–June 2020) and Term 3 2020 (July–September 2020).

In February 2020, the COVID-19 pandemic reached Australia and caused a disruption to the schedule and enactment of planned research for Phase 3. The disruption is outlined in Section 4.6.3.

4.6.3 COVID-19: interruption to research

The COVID-19 pandemic was identified in Australia during February 2020, and government restrictions, such as social distancing, were implemented to help ‘flatten the curve’ and minimise transmission of the virus. Such restrictions commenced during March 2020. On 23 March 2020, all schools adopted home-based learning, and a fully online delivery of lessons commenced. At the same time, classes at the university also became fully online. Moreover, from 18 March 2020, restrictions were placed on all university research activities such that in-person data collection was postponed.

The data-generation activities for Phase 3 were scheduled to occur in Term 1 (February–April 2020), Term 2 (May–July 2020), and Term 3 (July–September 2020), with the first data-generation activity to commence on 19 March 2020. Although during Term 3 2020 and Term 4 (October–December 2020), schools were operational in a face-to-face context, school leaders did not agree to research being conducted on school grounds, and university directives also meant that data-generation activities did not proceed as planned.

Although school visits and lesson observations were not allowed to occur, the key foci of the study regarding transition into the teaching profession and transformation of pedagogical practice meant that it was important for me to capture the participants' experience during Term 1 2020 without compromising the original methodology and intent of the study. Research was permitted via online technologies, so each participant joined the researcher for a 30-minute individual semi-structured interview (Appendix H) via telephone or Google Hangouts during the April school holiday break at the end of Term 1 2020.

Schools maintained home-based online learning from late April until mid-May 2020. From 18 May 2020, schools gradually transitioned back to face-to-face teaching. However, some schools, including where one participant (Emily) was based, experienced pauses in their teaching when students or teachers were diagnosed as either COVID-19 positive or close contacts of a COVID-19 positive case, and therefore had to isolate in accordance with COVID-safe directives and procedures. The university still required face-to-face research to be paused, whether it was on-campus or off-campus.

By July 2020, university directives and school-based decisions meant that data-generation activities such as lesson observations were still not able to proceed as planned, so I conducted another round of individual semi-structured interviews (Appendix H), this time using Zoom. The semi-structured interviews had a one-hour duration and occurred during the July school holiday break at the end of Term 2 2020.

In August 2020, university restrictions on face-to-face research were still in place; however, the Head Teacher of one participant (Karen) agreed that there was scope to audio-record the lessons while lesson observations could not occur. Upon discussion with the rest of the participant group regarding the likelihood of being able to audio-record three of their lessons, two more participants (Emily and Grace) gained approval to proceed in this way. It was not possible for one participant (Anna) to audio-record three lessons because her timetable did not contain a geography teaching load for Terms 3 and 4. However, Anna wished to remain in the study. Therefore, three out of four participants (Emily, Grace, and Karen) proceeded to audio-record their chosen lessons with the chosen class(es) for Terms 3 and/or 4, and one participant (Anna) chose three lessons from Term 2 2020 to discuss retrospectively with the researcher in the semi-structured interviews. Anna experienced a tumultuous year with her teaching load; there were several unexpected changes throughout the year, and she was

teaching out-of-field for much of the time. Geography only appeared on her timetable for a whole term during Term 2 2020.

One participant (Emily) commenced the audio-recordings in mid-August (Term 3) and completed the remaining audio-recordings in October and November (Term 4). One participant (Grace) commenced and completed three audio-recordings during late Term 4 (late November to mid-December). One participant (Karen) was permitted to complete three audio-recordings; however, the lessons during Term 4 were conducted using an online learning platform for students to engage in a problem-solving and project-based unit of work where students were individually working at their own pace, so the audio-recordings were not useable.

On 26 November 2020, the university permitted the resumption to face-to-face research pending approval from the Faculty Associate Dean of Research. On 7 December 2020, approval was gained to conduct the final social lab on 16 December 2020 at the university where I was based. COVID-safe procedures were adhered to, including time restrictions, the use of hand-sanitiser upon entry and exit to the room, and being seated for the duration of the social lab while maintaining individual work stations at a minimum distance of 1.5 metres apart.

4.6.4 Phase 3: Positioned in schools

Phase 3 formed the largest component of the study and was scheduled to occur between March and September 2020. I was scheduled to meet the participants both individually and as a group during this phase. However, the COVID-19 pandemic coincided with all of Phase 3 and disrupted the planned research as identified in Section 4.6.3. Consequently, the original plan for the timeline and the nature of the data-generation activities required adjustment.

Table 4.7 outlines the original plan for Phase 3 and the necessary adjustments arising in response to the pandemic requirements. Overall, the adjustments to the Phase 3 research activities occurred in response to:

- (i) a requirement for schools to move to online home-based learning between March and May 2020
- (ii) a university mandate for all face-to-face research to be paused between mid-March and late November 2020
- (iii) a need to maintain the integrity of longitudinal data generation by repeating the process conducted in the corresponding part of 'Phase 1:

Preparation'. The focus of such data-generation activities in Phase 3 was to develop an understanding of the transformative influence of transition on pedagogical practice compared with Phase 1.

Table 4.7

Original plan for Phase 3 and COVID-19-related adjustments

Original timeframe	Original plan	COVID timeframe	COVID-19 adjustment
March–July 2020	Three lesson observations with the same class for each participant and three semi-structured post-lesson interviews	March–July 2020	No lesson observations in person or online
			One semi-structured interview via telephone or Google Hangouts or Zoom with each participant in April and July 2020
		October–December 2020	Up to three lessons to be audio-recorded by each participant and emailed to Susan with a lesson plan; only two participants were successfully able to audio-record their lessons
			Up to three semi-structured interviews with each participant to discuss lessons or a lesson plan(s)
September 2020	One social lab at the university to conclude data-generation activities for the present study	December 2020	One social lab at the university to conclude data-generation activities for the present study

Table 4.8 provides a summary of the data generated during Phase 3, and a discussion follows.

Table 4.8*Summary of data generated during Phase 3: Positioned in schools*

For participant	Data generation	Permitted or not permitted ³
Anna	Researcher attendance at school to conduct lesson observations	Not permitted
	Researcher observation notes during lesson observations	Not permitted
	Recording of up to three lessons (audio only)	Permitted but no suitable lessons available
	Recording of semi-structured interviews outside of school hours (audio and visual)	Permitted
Emily	Researcher attendance at school to conduct lesson observations	Not permitted
	Researcher observation notes during lesson observations	Not permitted
	Recording of up to three lessons (audio only)	Permitted
	Recording of semi-structured interviews outside of school hours (audio and visual)	Permitted
Grace	Researcher attendance at school to conduct lesson observations	Not permitted
	Researcher observation notes during lesson observations	Not permitted
	Recording of up to three lessons (audio only)	Permitted
	Recording of semi-structured interviews outside of school hours (audio and visual)	Permitted
Karen	Researcher attendance at school to conduct lesson observations	Not permitted
	Researcher observations notes during lesson observations	Not permitted
	Recording of up to three lessons (audio only)	Permitted but not useable due to project and individual-paced nature of lessons
	Recording of semi-structured interviews outside of school hours (audio and visual)	Permitted

³ All data generation activities were originally permitted by university and school education ethics procedures and agreed to by participants. During COVID-19 in 2020 there was a university mandate to pause face to face research, in addition to national CV19 restrictions.

For participant	Data generation	Permitted or not permitted ³
Anna, Emily, Grace, Karen	Social Lab 3 (audio and visual recording, and face to face conduct due to an easing of national COVID-19 restrictions and lifting the university mandated pause to research in December 2020)	Permitted

4.6.4.1 Semi-structured interviews (adjusted plan)

Between March and July 2020, the adjusted plan for Phase 3 included one semi-structured interview with each participant at the end of Term 1 (April 2020) and at the end of Term 2 (July 2020). During Term 4 (October–December 2020), I completed up to three semi-structured interviews via Zoom with each participant. Appendix H contains the questions for the semi-structured interviews conducted during this research phase.

Prior to each semi-structured interview, I emailed participants the interview questions. If we were meeting via Zoom, I also posted the questions in the chat facility. Some questions included use of the language from reflexivity theory and the GEOGStandards to encourage participants to specifically make the links between theoretical elements and their teaching practice (Maaranen & Stenberg, 2017; Stenberg, et al., 2016). The focus of the semi-structured interviews in April 2020 and July 2020 was to explore:

- (i) how teaching in the time of a pandemic affected the participant in terms of their transition into the teaching profession
- (ii) how teaching in the time of a pandemic contributed to transformative pedagogical practice in geography.

Although it was not possible for lesson observations to occur during Phase 3, during the July 2020 semi-structured interview, I invited the participants to draw upon and share examples from a geography class that would have been observed had the pandemic not occurred. However, the participants chose only to talk about the transition into the teaching profession and broad changes to their practice rather than focus on a specific geography class.

4.6.4.2 School visits and lesson observations (adjusted plan)

Three participants (Emily, Grace, and Karen) gained approval to audio-record up to three lessons with their chosen class(es). One participant (Anna) could not complete audio-recordings of her lessons with a chosen class because she was no longer

teaching geography; however, she was permitted to retrospectively discuss geography lessons from Term 2 2020 and show the content of her lessons from Canvas, the school's learning portal.

Emily, Grace, and Karen emailed me their lesson plan and audio-recording file on the days they made the recording. I listened to the audio-recording, wrote notes, and annotated the lesson protocol (Appendix E). We then agreed upon a suitable time for a semi-structured post-lesson interview to occur via Zoom. One participant (Emily) commenced the audio-recordings in early Term 4 and concluded them by early November 2020. One participant (Grace) commenced and completed the audio-recordings during late Term 4 2020 (early December 2020). Karen's lessons occurred during November and December 2020; however, after the first lesson it was obvious that the audio-recordings for the second and third lessons would be unusable because of the online problem-solving and project-based nature of the work, whereby each student was to work individually and at their own pace. For the remaining lessons, Karen discussed the nature and showed content of the lessons from Google Classroom, the school's learning portal.

4.6.4.3 Social Lab 3 (adjusted plan)

Social Lab 3 occurred 13 months after Social Lab 2 on 16 December 2020 for a duration of 2 hours and 36 minutes. Social Lab 3 was conducted face-to-face at the university where I was based. All participants who remained in the study attended Social Lab 3.

The seating arrangement had to adhere to COVID-safe procedures: one participant per desk or workstation at a distance of 1.5 metres from each other (see Section 4.6.3). Workstations were arranged in a circle to facilitate discussion (see Appendix B).

Several activities in Social Lab 3 were the same as in Social Labs 1 and 2 to identify changes in participants' understanding over time and discern any transformation of practice. Participants were invited to reflect on and acknowledge their success from 2020 and use such acknowledgements in response to reflexivity theory (Archer, 1979, 1982, 1988) and the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2020) to inform the development of aspirational and achievable goals with realistic action plans for the following year.

Social Lab 3 aimed to consolidate the experiences of transition and transformation in a dialogic and collaborative reflective space, and affirm the rapport, trust, and belonging

developed between myself and the participant group (Neale, 2019; Ryan, et al., 2019). The intent of Social Lab 3 was also to identify opportunities for change, as well as widen perspectives and sharpen ideas about being part of the teaching profession and developing pedagogical practice (McKenzie, 2015). I asked the participants to reflect on their experiences of 2020 and project ideas into the ‘what next’ stage of their teaching practice to identify areas of transformative teaching practice. Overall, Social Lab 3 continued to explore participants’ ideas about pedagogical practice, influences that enabled and constrained their practice, and decisions for goal setting. However, ideas were explored in the context of participants having transitioned from being a TES to becoming a specialist teacher of geography. Appendix I shows the activities conducted during Social Lab 3.

Overall, the purpose of the final social lab was to:

- (i) consolidate what participants learnt about how emergent properties either enabled and constrained pedagogical practice and related decision-making choices in the secondary geography classroom
- (ii) clarify and confirm how and why the decisions they made and enacted in response to emergent properties contributed to their transformation of practice throughout the study
- (iii) encourage the ‘bending back’ of thought and continued dialogue to develop the skills of reflexivity.

Social Lab 3 was divided into four parts: familiarisation; the year in review; considering our practice; looking back, looking forward, taking action; and conclusion. Table 4.9 outlines the nature of each component and should be read in conjunction with Appendix I, which identifies the activities in full.

Table 4.9

Four parts of Social Lab 3 and key activities

Note: all italicised activities are VTRs from the Harvard Graduate School of Education, *Project Zero Thinking Routine Toolbox* <https://pz.harvard.edu/thinking-routines>; Ritchart et al. (2011)

Parts of the social lab	Key activities
Part 1: Familiarisation	<ul style="list-style-type: none"> (i) Input from researcher regarding the timeline of the study and the activities of Social Lab 3. (ii) Participants invited to comment and ask questions.

Parts of the social lab	Key activities
Part 2: The year in review	<ul style="list-style-type: none"> (i) Participants complete a Generate, Sort, Connect, Elaborate VTR to capture their reflections on 2020 (Appendix I, Activity 1). (ii) Participants use their responses from Activity 1 to identify the most enabling and constraining influences on their pedagogical practice, their enacted strategies for managing each influence, and their possible action for when such influences are encountered again (Appendix I, Activity 2).
Part 3: Considering my practice	<ul style="list-style-type: none"> (i) Participants consider, share, and rank in order of importance their ideas about the distinctive pedagogical features of a geography lesson (Appendix I, Activities 3 and 4). Activity 4 was an adaptation of 'Think Pair Share'. (iii) Participants reflect on the GEOGStandards to identify the standards most important to their practice, align the standards to their responses from Activity 3, and share ideas as part of the group discussion (Appendix I, Activities 5 and 6). (iv) Participants use their responses from Activities 5 and 6 to identify the most enabling and constraining influences upon their pedagogical practice, their enacted strategies for managing each influence, and their possible action for when such influences are encountered again (Appendix I, Activity 7).
Part 4: Looking back, looking forward, taking action	<ul style="list-style-type: none"> (i) Participants reflect on their involvement in the research over the previous 18 months to complete <i>A triangle, A square and A Circle</i>: three learnings; three areas of resonance; and three areas still being pondered (Appendix I, Activity 8). (ii) Participants craft actionable goals for the year ahead in response to their reflections on their achievements and experiences from the first year of teaching together with their teaching and career aspirations as a specialist geography teacher (Appendix I, Activity 9).
Part 5: Conclusion	<ul style="list-style-type: none"> (i) Researcher thanks participants for their time and outlines the next steps of the research. (ii) Participants invited to comment and ask questions.

Social Lab 3 marked the end of 'Phase 3: Positioned in schools' (December 2020) and therefore formed the conclusion of the data generation for the present study. The data-generation opportunities were enacted as planned in nature and timeframe for Phases 1 and 2. Due to the COVID-19 pandemic, there were some adjustments to the nature and timeframe of data generation for Phase 3. However, despite the disruptions, Phase 3 still concluded within 2020 and captured the participants' experience of transitioning into the profession and doing so during a globally disruptive event.

Transitioning into the teaching profession during a pandemic could not have been anticipated at the time of planning (late 2018) and commencement of the longitudinal study (early 2019). Continuation of the longitudinal research, albeit in a slightly adapted way from the original plan, enabled an important contribution to be made to understanding the iterative and complex process of teaching and teacher education during unprecedented times (Carrillo & Assunção-Flores, 2020).

4.7 Data analysis

Data analysis occurred deductively. Deductive codes were drawn directly from the theoretical framework (Archer, 1979, 1982, 1988) and the two conceptual frameworks (Hutchinson & Kriewaldt, 2010; Kriewaldt, 2010; Ryan & Ryan, 2013, 2015). I completed a preliminary analysis using memos while I immersed myself in the data by repeatedly listening to the audio-recorded material, transcribing the dialogue, and reading the transcripts.

Prior to data analysis occurring, I listened multiple times to all audio-recorded dialogue from the social labs and semi-structured interviews to immerse myself in and become familiar with the data. I listened to the dialogue in chronological order of the study. That is, I listened to Social Lab 1 first, followed by the first post-lesson semi-structured interview with Grace, followed by the first post-lesson semi-structured interview with Emily and so on. For Phase 1, there was more than nine hours of dialogue.

As I listened to the audio-recorded dialogue I wrote memos to make meaning of the data or make a 'first stab' at interpreting the data (Cope, 2021) in connection with the theoretical and conceptual frameworks — for example 'enabling', 'personal belief', 'inquiry', or 'reporting'. I decided to use memos as a quick, informal note-taking process to help me organise, explore, and reflect on the possible connections between and groupings of participants' experiences (Cope, 2021).

Once I felt comfortable with the data, I transcribed all audio-recorded dialogue from the social labs and semi-structured interviews because they were the consistent data sources for each participant. Video recordings of lessons from Phase 1 and audio-recordings of lessons from Phase 3 were not transcribed or used in the data analysis process because they were not available for all participants (see Tables 4.3, 4.7, and 4.8). I chose to transcribe all dialogue verbatim to provide the best possible record of the interview with the name of each speaker preceding each text as appropriate (Dunn, 2016). I also chose to transcribe all dialogue rather than employ an external

transcription service because it gave me another opportunity to further immerse myself in the data as a preliminary form of analysis before commencing a coding process (Dunn, 2016).

I transcribed the dialogue in the chronological order of the study. That is, I transcribed all data from Phase 1 first, followed by Phase 2, and concluded with Phase 3. After transcribing each phase of data, I read each transcript from each phase three times. I first read them for the overall narrative of the participants' experiences about transition and transformation of pedagogical practice in conjunction with reflexivity theory as the theoretical framework. I repeated the process by reading for an understanding of pedagogical practice in conjunction with the GEOGStandards. I repeated the process a third time by reading for an understanding of reflection in conjunction with the TARL model (Ryan & Ryan, 2013, 2015).

Due to the small size of the participant group, I was mindful of not being able to make generalisations across the group, and also that I needed to deeply understand the relationship between experience and context for each participant (Copy & Hay, 2021). For the deductive coding process, I set up an Excel spreadsheet for each participant. The tabs along the bottom identified the date associated with each semi-structured interview. For example, Emily has her own spreadsheet, and each tab along the bottom had a code such as 'PL1 Y9GT 07082019' to indicate post-lesson interview 1, Year 9 gifted and talented, and the date of the observation and interview. The tabs were in chronological order. I also set up an Excel spreadsheet for the social labs, with tabs along the bottom to identify the date associated with each event, for example, 'Social Lab 1 11062019'.

The horizontal columns and vertical rows were identified in the same way in each participant and social lab spreadsheet. The horizontal columns identified the time-stamp (column A), dialogue comment/transcript (column B), speaker (column C), and theme (column D). Following on from column D were the categories for deductive codes: Emergent Property (column E), Enable or Constrain (column F), GEOGStandards (column G), 3D process (column H), 4R Cognition (column I), and Time/Course phase (column J). The vertical rows gave a time bracket for the relevant transcribed comment (e.g. 0:30'–1.05'). Quotes of importance that were suitable for use in Chapter 5 were highlighted.

Deductive codes were drawn from reflexivity theory and the conceptual frameworks of the GEOGStandards and the TARL model. The themes (column C) were derived from the literature. The following tables identify the codes.

Table 4.10

Examples of deductive codes drawn from reflexivity theory (Archer, 2010a, 2010b, 2012)

Column E (spreadsheet) Emergent property	Column F (spreadsheet) Enable or constrain	Column H (spreadsheet) 3D process
PEPs — subject, 'I love geography and want to share that with my students and help them to love geography as well'	Enable	Deliberate — making a connection but not articulating a plan or strategy for action
SEPs — timetabling, 'Teaching geography in a French classroom is a constraint'	Constrain	Discern — reporting an issue or item and not making a connection or a plan or strategy for action
CEPs — colleagues, 'collaboration and support in the faculty, they ask me for help, I feel respected and they allow me to change and adapt existing units so I keep creating resources for us to use'	Enable	Dedicate — articulating a plan or strategy for action

Table 4.11

Examples of deductive codes drawn from the Professional Standards for the Accomplished Teaching of School Geography (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)

Column G (spreadsheet) GEOGStandards	Example
GS1 (Knowing geography and the geography curriculum)	Content Syllabus including name of units Case studies Integration of tools and skills
GS2 (Fostering geographical inquiry and fieldwork)	Asking questions Inquiry or inquisitive Fieldwork Outside the classroom or take students outside

Column G (spreadsheet) GEOGStandards	Example
	Visible thinking routines including name of specific activities
GS3 (Developing geographical thinking and communication)	Skills Tools (or names of specific tools such as maps and photographs) Concepts (or names of specific concepts) Geospatial technologies
GS4 (Understanding students and their communities)	Differentiation Case studies Relevance Social media
GS5 (Establishing safe, supportive, and intellectually challenging learning environments)	Classroom management Inclusivity Creative Engaging
GS6 (Understanding geography teaching — pedagogical practice)	Inquiry-based learning Explicit instruction
GS7 (Planning, assessment, and reporting)	Scope and sequence Plan my own lessons Test or summative assessment Formative assessment Google Classroom or Canvas Project-based learning
GS8 (Progressing professional growth and development)	Conference Mentoring Professional association Accreditation PhD participant group
GS9 (Learning collegially)	Discussion or dialogue Collaboration or with others Relationships

Table 4.12

Examples of deductive codes from the Teaching and Assessing for Reflective Learning Model (Ryan & Ryan, 2013, 2015)

Column I (spreadsheet) 4Rs Cognition	Example	Column J (spreadsheet) Time/Course Phase
Reporting and responding: state a point without elaboration, connection, or future action	'I learnt to use and teach over Zoom'	As designated by the model: Professional experience for Phase 1 of the study Foundation for Phase 2 and 3 of the study
Relating: making a connection to a similar or known item or issue	'I feel constrained by teaching commerce because I've never been prepared for that'	
Reasoning: making connections and thinking about why it is or is not important, but without articulation of a future plan or strategy for action	'I want to increase my collaboration with staff and explore professional development opportunities ... but it is long hours ... and it won't make me a better teacher if I'm burnt out and tired'	
Reconstructing: articulating a plan or strategy for future action	'It's the contrast between my last prac and this prac, I'm so over-resourced its overwhelming ... I'm trying to teach away from the Canvas site and be creative and create my own resources'	

Credibility occurs through the combined strategies of prolonged engagement with and observation of the participants to build trust and deeply engage with the focus of the research. Multiple timepoints for data generation in context enable rich description and discussion of the themes, issues and implications of the research for each participant (Neale, 2019). Participants' beliefs and experiences are explored individually through in-depth open-ended questions focused on 'how' and 'why' to analyse meaning in specific contexts rather than be representative of a population and phenomenon. Additionally, member-checking occurs where each participant is invited to review and provide feedback on the researcher's interpretations and conclusions drawn from the generated data (Johnson & Christensen, 2017; Korstjens & Moser, 2017; Moser & Korstjens, 2018; Stratford & Bradshaw, 2016, 2021; Winchester & Rofe, 2016).

Transferability occurs through the development of thick descriptions whereby behaviour, experience, and context are described to enhance meaningfulness to readers from outside the study (Korstjens & Moser, 2017, 2018).

4.8 Conclusion

This chapter outlined the justification for the longitudinal qualitative reflexive case study approach adopted in this study and then presented the method of research. The longitudinal qualitative reflexive methodology chosen for the present research will help to build empirical understanding about the emergent epistemologies about conditions which influence identity and practice of TES during their completion of an ITEP and entrance and transition into the teaching profession. The next chapter presents the research findings, in chronological order of phases and organised around emergent properties of reflexivity theory.

Chapter 5: Results

5.1 Introduction

This chapter presents the results for each participant according to three research phases: Preparation (June–August 2019); Profession entry (September–November 2019); and Positioned in schools (February 2020–December 2020). There are five participants in Phases 1 and 2: Anna, Emily, Grace, Karen, and Matt; however, Matt withdrew from the study for Phase 3.

Results are presented in the order of phases. Within each phase, the participants reflect on their practice in response to theory: GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) and reflexivity theory (Archer, 1979, 1982, 1988). The emergent properties of Archer's reflexivity theory provide an organising frame to show how participants are either enabled or constrained in their pedagogical practice for geography during their time of transition into the profession. The emergent properties are personal (e.g. values, beliefs, knowledge), structural (e.g. processes, evidence from theory or empirical studies, policy, and syllabus documents), and cultural (e.g. behaviours and practice associated with time, people, and place).

The categorical or cognitive levels of reflection according to the '4Rs', together with the developmental levels of 'course phase' from the TARL model (Ryan & Ryan, 2013, 2015), are used to determine the nature of individual participants' reflections over time. For the 4Rs' categorical or cognitive dimension, participants' reflections are assessed at '*reporting and responding*', '*relating*', '*reasoning*', and '*reconstructing*' across Phases 1–3 of the study. For the 'course phase' developmental dimension, all participants are situated at the level of '*Professional Experience*' in Phase 1 because it represents the final stages of an ITEP and a time when participants would emphasise learning from the field (Ryan & Ryan, 2015). In Phases 2 and 3 of the study, all participants are situated at the '*Foundation*' for 'course phase' because they are embarking on a new profession (Phase 2) and are novices at the beginning of their career (Phase 3) (Ryan & Ryan, 2015). As the present study adopts a reflexive methodology, I also include some of my internal dialogue or reflective observations in textboxes throughout the chapter. The purpose of such accounts is to acknowledge my positionality as a researcher and demonstrate my active engagement with the reflexive process because my presence in the study may influence the way both myself and the participant group report and interpret our time of transition.

5.2 Phase 1: Preparation (June–August 2019)

Data-generation activities for Phase 1 were a social lab, lesson observations, and post-lesson interviews. Each participant attended the social lab, and lesson observations were made for all participants, except Anna, and an alternative solution was enacted (see Section 4.6). Post-lesson interviews were conducted with each participant.

5.2.1 Social Lab 1 (June 2019)

At the time Social Lab 1 was conducted, the participants were at varied stages of completion in professional experience. Emily, Grace, and Matt had recently commenced professional experience, while Karen had only completed one observation visit, and Anna was waiting to be placed in a school. As a result, participants' responses about SEPs and CEPs were sometimes anticipative or drew more heavily on their previous professional experience in schools or from their participation in the geography methodology unit during Semester 1. Photographs of the room layout for Social Lab 1 are available in Appendix B, and activities conducted during this social lab are outlined in Appendix C.

5.2.1.1 Personal emergent properties as ways of thinking and knowing about pedagogical practice

This section reports on the PEPs noted by participants as either an influence of constraint or enablement to their actual or anticipated practice. Anna *reported* 'personal bias' as a PEP that constrained her pedagogical practice. Anna was a history major, which meant that her exposure to geographical learning was limited to the core geography discipline units during her first year of study; a one-semester unit in her second year of study called 'Human Society and Its Environment', which focused on Australia-centric content knowledge about history, geography, civics, and citizenship; and the geography methodology units in her fourth year of study. During a *deliberation* process, Anna reflected at the level of *relating* because she connected her personal beliefs about geography to her previous experience:

I see geography as a subject that pilfers from other subjects, it pilfers from history, science, maths, philosophy ... I don't always have complete confidence that I know the material and skills well enough to teach someone else. (Activity 2, 5)

Anna then pinpointed her enabling PEP as a ‘belief in relationships with students’ and being able to use inquiry-focused pedagogies to help build relationships. Anna connected her beliefs to a purpose or desired outcome, which demonstrated her ability to reflect at the level of *relating*: ‘inquiry-based learning, and project-based learning helps my practice because it helps me get to know the kids which is really important to me’ (Activity 5).

Relationships were also *discerned* by other participants as an enabling PEP. For example, Emily talked about ‘my nurturing personality’ as an attribute she believed ‘enable[d] me to do my job well ... it goes back to relationship building’. Karen wrote ‘relationships with students’ as the most important enabling property for her teaching practice. Her reflection remained at the level of *reporting* because she did not connect her beliefs to previous experience, existing knowledge, personal skills, or desired outcomes:

my personal enabler ... the importance of student–teacher connection, I think before even looking into things that could help with teaching geography, I really need to have a connection with students. When you have that, it enables you to do a lot of things. (Activity 5)

Emily is a mother to a young child, and she is also a career-change teacher, having worked as an executive assistant in the finance sector for more than a decade. Upon becoming a mother, Emily decided to become a specialist teacher of geography because the subject was an area of personal interest. In written form, Emily *reported* her ‘content knowledge’ as a personal emergent property of constraint. During the group discussion, she identified this concern in response to the breadth of geography spanning the sciences and social sciences to form the domains of physical and human geography. Emily reflected on her limited content knowledge in physical geography as being a constraint on her practice. In doing so, she reached a level of *relating* to articulate how her idea arose in response to her underlying beliefs about age: ‘I lack confidence in physical geography ... because of my age, I should know more and that’s a pressure I put on myself in the classroom’ (Activity 5).

Grace and Matt identified the subject as a PEP to enable their practice. In written form, the participants were only required to *report and respond* to the question about the influence of emergent properties on their practice; for example, Grace expressed a ‘love of geography’ and Matt identified his ‘passion for the environment and subject’.

Grace demonstrated an ability to reflect on her beliefs at the level of *relating* because she made a connection between herself and others:

I guess I love geography, and I want to share that with my students and help them to love geography as well. (Activity 5)

Matt also reflected at the level of *relating*. Although Matt believed that his personal beliefs about geography both enabled and constrained his practice, he believed his ‘passion’ would reveal a bias in his focus if he was required to teach other subjects:

[It would] affect my attitude towards other subjects because I always bring it back to geography! I’m too passionate about it and it clouds my judgement. (Activity 5)

During a discussion about the geography methodology unit from the first semester (sometimes referred to as ‘TEP’ or Teacher Education Program) and how the unit developed their understanding of pedagogical practice in geography, the participants articulated their beliefs about the influence of group discussions on shaping their ideas about how to teach geography. Grace believed that the methodology unit ‘really helped me think about how I’m going to run my geography lesson’. Anna, Emily, Karen, and Matt *reported* their agreement with Grace’s statement, and Karen added to the comment, saying ‘... same [as Grace] ... I get a lot from discussions in TEP’. Anna also valued the discursive element of the unit:

I think the discussion with other geography students has been the instigator of where I get ideas from ... it has been a lot of discussion in that [TEP] class that helped to develop my understanding. (Activity 11)

5.2.1.2 Structural emergent properties as ways of thinking and knowing about pedagogical practice

This section reports on the SEPs noted by the participants as either an influence of constraint or enablement to their actual or anticipated practice. At the beginning of Social Lab 1, the participants identified, ranked, and explained their ideas about the distinctive features of a geography lesson and linked them to the GEOGStandards (Activities 1–4, Appendix C). Table 5.1 shows the distinctive features of a geography lesson, which is connected to the GEOGStandards identified by the participants.

Table 5.1

*Distinctive features of a geography lesson and connection with the GEOGStandards
(Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)*

Participant (alphabetical)	Distinctive feature(s) of a geography lesson, ranked in order of importance	Connection of distinctive feature(s) to GEOGStandard(s)
Anna	Forward focus	GS4 Understanding students and their communities
	Language — a specific dialect around the concepts	GS1 Knowing geography and the geography curriculum
	Nature of the material	GS1 Knowing geography and the geography curriculum
	Geographical skills and tools	GS2 Fostering geographical inquiry and fieldwork
Emily	Relevance with the local, global, and beyond	GS4 Understanding students and their communities
	Use of visual images such as photographs	GS3 Developing geographical thinking and communication
	Connection to the environment	GS1 Knowing geography and the geography curriculum
Grace	Content delivered as geographical concepts	GS5 Establishing a safe, supportive, and intellectually challenging learning environment, and GS6 Understanding geography teaching
	Geographical skills	GS3 Developing geographical thinking and communication
	Geographical tools	GS3 Developing geographical thinking and communication
Karen	Content	GS1 Knowing geography and the geography curriculum
	Inquiry and skills	GS2 Fostering geographical inquiry and fieldwork
	Geographical language and the spatial dimension using micro to macro scales and case studies	GS3 Developing geographical thinking and communication, and GS5 Establishing a safe supportive and intellectually challenging learning environment
	Discussion of people and place	GS1 Knowing geography and the geography curriculum
Matt	Inquisitive and creative	GS1 Knowing geography and the curriculum, and GS3 Developing geographical thinking and

Participant (alphabetical)	Distinctive feature(s) of a geography lesson, ranked in order of importance	Connection of distinctive feature(s) to GEOGStandard(s)
		communication, and GS6 Understanding geographical teaching
	Hands-on, lived experience and critical analysis	GS1 Knowing geography and the curriculum, and GS3 Developing geographical thinking and communication, and GS6 Understanding geographical teaching — pedagogical practice

Anna wrote her distinctive features in a different order to how she spoke in the group discussion. As Anna verbally *deliberated* her written choices, a new order emerged that demonstrated *reconstruction* of her understanding about the distinctive features of a geography lesson:

My three reasons, actually I've got four that I thought of later. The number one for me is language. A lot of what we do could be transferred into other subjects such as science or history. We talk about people and things being tied to place and environment ... a particular way of using language which confirms it for me as being geographical. Second is skills ... lessons should have at least one geography skill ... reading a climate graph or looking at a map. Third, I'm going to say my other one now as being first, a forward focus, thinking about how this disaster happened and what we can do to prevent it in the future, there is always this looking forward aspect — we know the climate changed so what are we doing about it? The last one is the nature of the material ... because content can be shared [between subjects] in a way the other's [reasons] are not. (Activity 2)

Anna *discerned* a future or 'forward focus' and 'geographical tools and skills' as being 'unique to geography' because she could 'relate inquiry and fieldwork [GS2] to my [use of] skills'. Anna said understanding students (GS4) was a 'priority for quality practice' and for making learning relevant to student experiences, their learning needs, and surrounds:

if you don't understand students and their communities, you're not going to succeed because students won't listen to you because it isn't relevant to them ... so a forward focus has to be relevant to their lives, and you have to know about their lives to be relevant. (Activity 4)

Building relationships

I thought Anna would connect ‘forward focus’ and ‘geographical tools and skills’ to geographical thinking and communication (GS3). However, when I heard Anna explain her thinking about connections between GEOGStandards and distinctive features of a geography lesson, I realised the strength of her personal emergent properties about building relationships with students and wondered if her ‘ways of thinking and doing’ might compensate for her previously noted ‘lack of familiarity’ with, or ways of knowing about, geographical content.

Emily’s reflections stayed at the level of *reporting and responding* during group discussion. She reported geographical thinking and communication (GS3) as the ‘number one’ GEOGStandard most important to her practice and also as being ‘relevant to all three [distinctive features] of mine’. Emily did not elaborate further other than to express a preferred order for her other choices: ‘then I chose GS4; finally, I picked GS1’.

Becoming aware of my own bias as a researcher

I thought Emily would connect her pedagogical practice to either progressing professional growth and development (GS8) or learning and working collegially (GS9). I was surprised neither standard featured in her choices because I remembered Emily attended a state-based professional association conference earlier in the year and she had already spoken in the social lab about her intention to attend the national professional association conference in coming months. As I made these observations about Emily, I realised GS8 and GS9 were my ‘number one’ GEOGStandards — the standards that personally and structurally enabled my practice. Even though Emily and I are a similar age and both career-changers, my career-change remains in education and my experience in geography education is more extensive than Emily’s. Also, I am deeply immersed in the work of professional associations — of course I anticipated Emily’s choices and hoped they would be related to GS8 or GS9!

Grace made links between ‘content delivered as concepts’ and a safe, supportive, and challenging learning environment (GS5), as well as understanding geographical teaching (GS6). When asked to elaborate, Grace reflected on a recent lesson taught during her professional experience to provide an example contextualised by a ‘current event at a local scale’. Throughout her deliberation, Grace demonstrated an ability to reason because she used details to show how teaching content through concepts, tools, and skills becomes distinctive to geography and makes it relevant to students:

At the beginning of my lesson last Thursday, we had that big east coast low which caused snow up in Katoomba and caused a lot of rain. The boys were doing ‘Water in the World’ and asking why we have water restrictions when we have 5 cm of rain in 3 hours. So, I got up a synoptic chart and a choropleth map of rainfall in NSW and showed them this is where the rainfall fell — it is in the coastal strips not where the dams are. Weather is relevant for the rest of their lives; if they learn nothing else, they can read a weather map and see how weather affects your daily life. (Activity 2)

Karen agreed with Grace’s idea about relevance in geography teaching compared with other subjects such as ‘maths, English or even history ... I think there is a greater focus on learning how to make it relevant in geography’ (Activity 2). When asked to elaborate further about the connection made between ‘geographical language and spatial dimension’ with a supportive and intellectually challenging learning environment (GS5), Karen drew on her enabling PEP about relationships to reflect at the level of *reasoning*. Karen felt that a safe, supportive, and challenging learning environment (GS5) was ‘the base of everything’ to help students connect syllabus content with real-life and personal experience to help them understand ‘why they are learning the content, using the concepts like interconnections with spatial dimensions, to see how they can link it to their life and the bigger world’ (Activity 2).

Matt connected all of his *reported* ideas about distinctive features of a geography lesson to a group of three GEOGStandards focused on knowing the curriculum (GS1), geographical thinking and communication (GS3), and understanding pedagogical practice (GS6). Matt’s *deliberation* was at the level of *relating* because he referred to existing knowledge and a desired outcome:

Inquisitive, the why of what’s going on, that is a key geographical aspect. Then experience based, what do the students know, then tie that in with the theory. That brings about greater level of understanding and depth of knowledge.

Hands-on geography enables kinaesthetic learning. You can walk around, look at things, touch things, make models, using hands-on materials enables a better understanding of geography to occur. (Activity 2)

Participants also reflected on other structural influences that enabled or constrained their pedagogical practice. They focused on evidence from professional readings accessed during the methodology class, together with syllabus content and organisation as an enabling influence, and school-based decisions about timetabling and programming, often as an influence of constraint.

An enabling influence mentioned by Anna, Grace, and Karen about ways to teach geography — particularly teaching through inquiry — related to their knowledge gained from readings and approaches modelled in pedagogy-focused units in the ITEP, including the geography methodology unit. Anna, Grace, and Karen reached reflective levels of *relating* because they connected to existing knowledge or previous experience. Anna and Karen both referenced readings about inquiry-based learning as a structural enabler. For example, ‘the more I read about it, I get more comfortable and settled with it, I love it’ (Anna), and ‘inquiry-based learning research, that’s an enabler. I’m not the best at it in terms of my ideal so being able to look at research and discuss it enables me to further learn’ (Karen). Grace drew upon her in-class experience in the geography methodology unit: ‘the geographical pedagogies we have been using, the inquiry-based learning processes with explicit instruction are good approaches’.

Anna and Grace referred to the syllabus; Anna *related* the geography syllabus as being both an enabler and constraint to her pedagogical practice — she found it to be clear in terms of what she needed to teach, although she felt there was a lot to cover. Grace reflected on the syllabus in connection with the methodology unit. She *reasoned* that going ‘through the syllabus’ and having evidence-informed approaches modelled during class was important for the development of her pedagogical ideas:

Until you [Susan] went through the syllabus with us in Week 2, I had no idea about it. It really shaped my understanding about how to teach geography. Also, the idea of integrating skills and content is now one of my goals and that has come from being in the geography method class where you [Susan] showed us how to teach skills and content together, the idea that the two are inseparable. I want to work on that. (Activity 11)

The GEOGStandards do guide practice

Participant comments about teaching content using concepts, tools, and skills made me realise the influence and relevance of key messaging about pedagogical practice in the geography methodology class. I was grateful for the GEOGStandards. The GEOGStandards helped show me the way when I designed the geography methodology unit. Now, the provision of time for participants to explicitly reflect on the GEOGStandards appears to help them as they consider personal ideas about pedagogical practice.

Anna, Emily, and Karen continued to talk about the enabling influence of the geography methodology unit. They believed the class helped confirm their ideas about the distinctive features of a geography lesson and how to teach the subject. During group discussion, Emily and Karen reflected at the level of *relating* because they made a connection with existing knowledge and personal experience, for example the ‘concept wheel ... and discussions in the method class’ (Karen) and ‘readings, and then I go ‘Ah that’s what it’s called, there is a term for what I’m doing’ (Emily). Anna *reasoned* through her reflection in response to underlying factors about her ‘know[ing] nothing’ about geography:

I don’t have much personal experience with geography. The first time I did an intensely geographical lesson was in the geography methodology class because I didn’t do geography for the HSC and my geography units at university were very abstract, like de-centring the human. It’s interesting but I didn’t think about the practicality of geography teaching until I was in the methodology class.
(Anna, Activity 11)

Grace, Karen, and Emily *related* the timetabling decisions of their professional experience schools as a constraint on their practice. Concerns were raised about ‘not having a permanent classroom — I feel like it limits me in my lesson planning’ (Emily), and ‘students always missing classes due to extracurricular activities ... you can’t really progress far sometimes’ (Karen), or teaching in classes not equipped with resources for geography, such as ‘in a French classroom ... no geography materials, no ability for me to put their work up on the walls. It just really constrains my ability to teach them’ (Grace).

Matt identified the faculty Scope and Sequence documents as a constraint to integrating geographical tools and skills. He reasoned that the school-based program of learning for geography was driven by the schedule of geography assessments, which limited his ability to teach geographical skills in a relevant way:

It constrains [my] creativity, particularly for skills, because I find the school are like 'we're doing this skill in Week 2', and I'm like 'great, I wanted to do it another time when it actually fits in', but because of the test coming up, I have to stick to their plan. I found that difficult ... and I can't make it engaging and interesting'.

(Activity 5)

Resolving the familiar and unfamiliar

I was familiar with some of the 'professional experience' schools and intrigued by the participant comments. Some participant comments did not always align with my understanding of known school contexts, and I found myself wishing for lesson observations to commence quickly so I could hopefully determine possible situations that might be prompting such comments. I found it challenging to remain facilitative and not be participative during this discussion. I kept reminding myself there will be opportunities to return to these comments and arising contextual situations, if relevant, in our post-lesson semi-structured interviews.

However, some participant comments did align with my lived experience as a geography teacher and more recently as a teacher educator at university. I knew the frustration and constraint of constant movement between classrooms, which is not only physically tiring but also emotionally draining because of fears about being late to class, or not having a key resource available, or not being able to change desk configurations to suit what is planned for the lesson. I also knew the frustration and constraint of 'missing' lessons and students, which presents challenges for completing a tightly scheduled program of learning. All are learning moments to inform and transform pedagogical practice, but they are not easy moments to face and navigate overall, especially when you are new to the profession and new to a place of teaching.

5.2.1.3 Cultural emergent properties as ways of thinking and knowing about pedagogical practice

This section reports on the CEPs noted by participants as either an influence of constraint or enablement to their actual or anticipated practice. Anna and Emily identified relationships with colleagues, such as having ‘a good supporting faculty’ (Emily), as an enabling CEP. Anna reflected on her previous professional experience to reflect at the level of *relating* because she connected faculty support to individual progress:

The school culture was about mentorship ... the good side is if there is someone who is willing to invest in you, then it makes all the difference, you can just so rapidly improve... and I appreciate their investment. I do think it has made me a better educator. (Activity 11)

Karen and Matt focused on the value placed on geography within the faculty. Matt felt that the faculty culture at his school was positive because of ‘all the resources available, and an outdoor space to book lessons for doing rainforests’. Karen had only completed an observation visit at her professional experience school, so she hoped her faculty would value the teaching and learning of geography:

... a strong faculty belief in geography, in the relevance of geography, and having an interest in the subject ... a faculty that wants to be there and doesn’t see geography as a second subject or that they have to teach geography but would prefer to be teaching something else. (Activity 5)

In contrast, Emily felt that her school community did not value geography, which was ‘perceived as a non-subject’, and she found this to be an ‘annoying’ influence and a constraint on her teaching practice. When questioned further, Emily *related* to the group that she felt she had to ‘constantly fight for the right to bring geography up’ because other faculties devalued geography by ‘push[ing] geography down ... it is not a STEM subject’. Emily said some of her students regularly told her, ‘My dad won’t care because it’s only geography’.

Grace identified resourcing as a ‘contradictory’ but constraining CEP. She acknowledged that it was difficult at a previous school because she was told to create all resources herself and had ‘nothing to use, no direction, no program, no Scope and Sequence, no textbook’. However, Grace also found it challenging at her current professional experience school because of a strong sharing culture around resources.

Overall, Grace demonstrated the ability to reflect at the level of *reconstructing* because she considered two different teaching contexts to reach a decision about how to develop her own practice, even in the positive situation of having many resources available:

It's the contrast between my last prac and this prac where I was under-resourced, and now I'm so over-resourced it is overwhelming ... I'm trying to teach away from the Canvas site because it is just so full of resources — which is amazing — but I'm trying to be creative and create my own resources and put my flair into the teaching ... it is a good problem to have but the idea of trying to put my own spin on it [all the resources on Canvas] is hard. (Activity 5)

5.2.1.4 Setting goals for teaching a distinctive geography lesson

This section reports on a set of goals as written by the participants (Activities, 7, 8, 11, Appendix C). The goals were to guide participants' practice during their placement in schools for professional experience. Goal setting provided another opportunity for participants to connect and reflect on theory with practice in the geography classroom. Goals were established in written form for personal reflection; participants were not expected to elaborate on the goals in the group discussion. The goals were for the participants and me to reflect on during the post-lesson interviews and when setting the focus areas for future phases of the study.

Table 5.2 outlines the goals for each participant, with a focus on their pedagogical practice in the geography classroom during Phase 1.

Table 5.2

Participant goals for their pedagogical practice in the geography classroom and alignment with researcher identified GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)

Participant	Goals
Anna	Integrate a skill into a lesson with sophistication and purpose (GS1, GS3)
	Complete a full sequence of lessons in geography with clear intent and connections between lessons (GS1)
	Have at least two building lessons for geography skills; for example, a skill is taught and then a skill is used and explained (GS1, GS3)
Emily	Incorporate more drama, movement, and energy into my Year 9 geography classes (GS4)
	Encourage at least 75% of my Year 9 lower-ability students in my geography class to create work on a regular basis (GS4)
Grace	Integrate the teaching of skills and content into all lessons, especially with Year 8 geography (GS1, GS3)
	Use creative modes of teaching to engage students well in learning activities but not sacrificing classroom management, especially with Year 8 geography (GS4, GS5)
Karen	For Year 10 geography, know the students' names and how they learn, and know their strengths and weaknesses (GS4)
	For Year 10 geography, complete a topic using project-based learning (GS1, GS2)
	In Year 10 geography, successfully differentiate a skill (GS1, GS3, GS4)
Matt	Incorporate the syllabus clearly and obviously; provide time for students to make links to the syllabus (GS1)
	Provide time within each lesson for students to individually assimilate theory and practice and then communicate it (GS3)

5.2.2 Lesson observations (July–August 2019)

This section reports on lesson observations and discussions in the post-lesson semi-structured interviews. The focus is on how the participants planned and enacted their geography lessons together with a discussion of the influences on their practice. Questions for the post-lesson semi-structured interviews are listed in Appendix F. Each participant, except Anna,⁴ was observed at least twice during their final professional

⁴ It was not possible to observe Anna's lessons (see Section 4.6.1.2)

experience placement. There was an interval of one week to one month between each observation. Some participants asked for two different classes to be observed twice, although the requirement was only for one class (see Table 5.3 and Section 4.6.1.2). As soon as practicable following the lessons, each participant was interviewed individually and asked to reflect on the distinctive features of their geography lesson and the influences on their practice. Results are reported for each participant, in alphabetical order, as a synthesis of the lesson observations and post-lesson interviews.

Table 5.3

Contextual information about the lesson observations

Participant	Class	Syllabus area	Key activities across two lessons
Anna	Year 10 (learning support and gifted & talented ⁵)	Human Wellbeing	Inquiry focus; Interpretation of photographs, media; Debate via 'Tug for Truth'; Women's rights in Australia and India focused
Emily	Year 9 (learning support and gifted & talented)	Sustainable Biomes	Inquiry focus; Interpretation of maps, diagrams, media; Terminology; Debate via 'Circle of viewpoints'; Amazon rainforest focused with personal action and beliefs
Grace	Year 8 (learning support)	Water in the World	Inquiry focus; Interpretation of maps, diagrams, media; Construction of annotated diagram; Use of terminology; Sydney focused
Grace	Year 10 (mixed ability)	Changing Places	Inquiry focus; Virtual reality; Interpretation of maps, media, statistics to identify patterns and trends; Collaborative data construction; Sydney focused
Karen	Year 10 (mixed ability)	Environmental Management and Change	Inquiry focus; Interpretation of maps, diagrams, media; Terminology; Debate via 'Think Pair Share' and 'True for Who?'; Amazon rainforest focused with personal action and beliefs
Matt	Year 8 (learning support)	Place and Liveability	Inquiry focus; Use of terminology; Interpretation of maps, diagrams, statistics; Game and project-based learning; Local area focused with links to previous unit of work

⁵ Anna wrote a single lesson plan with separate adaptations for a gifted and talented class and a learning support class.

Pedagogical practice in four schools was observed to focus on the use of learning intentions and visible thinking routines (VTRs) drawn from *Project Zero Harvard's Thinking Routine Toolbox* (<https://pz.harvard.edu/thinking-routines>; Ritchart et al., 2011).

Table 5.3 shows the class(es), syllabus area, and key activities of the lesson enacted by each participant.

5.2.2.1 Anna's practice: the power of inquiry

Anna's lesson plans reflected the GEOGStandards she identified during Social Lab 1 about features of a distinctive geography lesson and goals set for professional experience (see Tables 5.1 and 5.2). An emphasis on inquiry was implemented through Anna's decision to enact a 'Tug for Truth' from *Project Zero Harvard's Thinking Routine Toolbox*. Her use of VTRs was influenced by a whole-school organisation professional learning focus and was an enabling influence on Anna's pedagogical practice:

I really like the thinking routines; they are very helpful for informing deep and critical thinking. Also, I'm part of a professional development group that was specifically looking at Cultures of Thinking Routines ... it was from that group, we were looking at 'Truth' routines and I thought 'maybe I can use this [Tug of Truth]', so it informed my pedagogical practice. (Post-lesson interview 1)

Anna is a history-specialist teacher, and in the first post-lesson interview, she shared her belief about how this is a constraint on her pedagogical practice in geography: 'my lack of training in geography became more apparent [compared with teaching history] because I feel less trained in terms of "thinking geographically"'. However, my lesson observation notes indicated that the lesson plans were 'tied to place, within and beyond India', and the activities allowed students to 'develop their understanding about spatial variations and connections through exploring human wellbeing in different places'. During post-lesson interviews, Anna identified knowing the geography curriculum (GS1), inquiry-based learning (GS2), understanding student communities (GS4), and providing a safe and supportive learning environment (GS5) as the relevant GEOGStandards for both lessons. When I suggested geographical thinking and communication (GS3) to Anna, she reflected on her process of thinking about history to manage the feeling of being 'less trained' to geography. In doing so, Anna demonstrated an ability to *reason*:

When I think about what it means to think historically, I think ‘well, it means to look at ideas, insert it into moments of time and have a context ... I can easily access that point. In some ways I take that learning and insert it into thinking about geography ... and I think I’m taking concepts and ideas into a physical space instead of a moment in time, it becomes a physical location — in this instance, India. (Post-lesson interview 1)

Anna was ‘already familiar with Year 10 because I have been teaching them history’. Knowing her students meant that Anna ‘already had an idea about which girls needed extra assistance or could be extended’ and she felt ‘better prepared’ because ‘I was able to differentiate according to their capabilities’. For example, in Anna’s lesson plan, the jigsaw readings were selected according to ‘differing abilities’ and scaffolded for interpretation with the learning support needs class. In Anna’s written reflections on the lesson plan, she recorded not needing to ask her supervising teacher for guidance in selecting readings for the mixed-ability class. However, Anna noted the importance of knowing her students for effective differentiation:

Differentiation worked well, but I was able to apply it from previously working with this class. (Lesson plan annotations from Anna)

To prepare for ‘Tug for Truth’, students were placed in small groups at workstations with whiteboards to discuss and write their key points about the proposition that ‘Women’s wellbeing in India has improved in the last decade’. Students developed a justified, coherent position about the proposition to share with the class in the upcoming ‘Tug for Truth’ debate. A ‘Tug for Truth’ spectrum of ‘agree, neutral, disagree’ was drawn on the whiteboard, and students physically positioned themselves at the relevant point to present their argument. As more reasons were presented, students could adjust their position with justification. Anna’s written annotations on her lesson plan revealed the success of ‘Tug for Truth’:

The Tug for Truth was highly successful. All students contributed in some form. Using follow-up questions like, ‘What makes you say that?’ and ‘How do you see this in practice?’ and ‘What evidence do you have?’ extended student thinking. Students developed an understanding about the complexity of wellbeing, noting that in some aspects wellbeing had improved, and not in others. (Lesson plan annotations from Anna)

Enabling evidence structures allowed Anna to design lessons in accordance with her personal beliefs about using inquiry in her pedagogical practice to help build relationships with students in geography. Therefore, as mentioned in Social Lab 1, Anna would be able to relate inquiry to the use of geographical tools and skills in a geography lesson:

I think this topic lends itself well to inquiry because there is no right or wrong answer about wellbeing in India ... wellbeing is complex ... they [students] applied it in their own context, which I loved when they did bring that out. (Post-lesson interview 1)

Anna focused the lessons about human wellbeing in India and Australia to build towards a 'Tug for Truth', which allowed her to achieve two goals established in Social Lab 1. For example, in our post-lesson interviews, Anna reported that she integrated skills into a lesson 'without panic ... and it was purposeful', and she also completed a connected sequence of lessons.

Learning from my participants to reconstruct my practice

By the time Anna and I met for the first post-lesson interview, I had already observed Emily and Karen incorporate visible thinking routines into their pedagogical practice for geography and was reflecting on my own practice. I had not yet reached the level of reconstructing. Anna explained the nature and purpose of 'Tug for Truth' thoroughly in both post-lesson interviews, so during our second meeting I told Anna I wanted to 'try something out in my own practice that I've seen from one of the participant group'. After trialling the 'Tug for Truth' in a general curriculum and pedagogy-focused unit for third-year students, I emailed Anna to thank her for inspiring my pedagogical practice:

the Tug for Truth worked brilliantly with six tutorial groups ... thank you for the inspiration ... a nice circle of life moment of me learning from you and implementing it in my practice. (Email to Anna, 17 October 2019)

5.2.2.2 Emily's practice: maps, patterns, and terminology

Emily's lessons plans and enactment had a clear focus on each GEOGStandard she identified in Social Lab 1 (see Tables 5.1 and 5.2). She included a strong focus on the use of terminology such as 'elevation', 'altitude', and 'permafrost', and demonstrated sustained use of her knowledge of geography and the curriculum (GS1). In Social Lab 1, Emily mentioned feeling personally constrained by her lack of confidence with physical geography topics. However, 'Sustainable Biomes' has a physical geography foundation, and two months after Social Lab 1, Emily now identified confidence in her content knowledge: 'I felt I did know it ... I didn't have to refer back to anything or read off the board'.

The first observed lesson examined the spatial distribution of biomes and climate zones. Emily used a combination of geographical tools and skills to help the students interpret and communicate information about distribution patterns and relationships between climate zones, latitudes, and biomes. In doing so, there was a distinct emphasis on geographical thinking and communication (GS3). During the first post-lesson interview, Emily reported that 'talking about the concepts of space, place, environment, interconnection, and sustainability' made it geographical, as well as 'looking at a world map, vegetation, and different types of landforms and landscapes'.

Emily emphasised the use of visual images and made connections to the environment as distinctive features of a geography lesson. For example, Emily sourced a video from the Bureau of Meteorology, used Google Maps alongside choropleth maps about vegetation to determine location, and used other resources such as PowerPoint slides from colleagues. By the second lesson observation, Emily realised the need for relevancy with her teaching of Sustainable Biomes. She reflected during the post-lesson interview that even though the burning Amazon rainforest was 'not happening here in Australia ... I'd be silly to completely ignore it'. As a result, Emily decided to build a 'Circle of Viewpoints' lesson around biome productivity and sustainability with the Amazon:

The current situation with the Amazon is very topical; it is all over the news and I feel Year 9 are at the maturity where they can have those conversations with their parents ... and it connects to Sustainable Biomes ... and I just thought, you know what, I'm meant to be making it [Sustainable Biomes] relevant ... and if it was my child [in my class], I'd be thinking, 'why is the geography teacher not

talking about the Amazon right now?', so that was the reason for my choice today. (Post-lesson interview 2)

Emily adapted the 'Circle of Viewpoints' from the *Project Zero Harvard's Thinking Routine Toolbox* into a moveable debate where students were invited to consider 'two sides of the coin' regarding legal, environmental, economic, and personal views about implications arising from the burning Amazon rainforest. Emily said she 'had never done a debate with these students', so she sought advice from her supervising teacher, who reminded Emily to prompt geographical thinking with a question: 'What if the Amazon burns down?' I saw Emily conduct this lesson twice: once with a gifted and talented class and once with a learning support needs class. Emily thought her learning support needs class 'participate[d] more and had a lot more energy in the room'. She noted being able to 'unpack it together' and was 'blown away' by the way these students 'formed their argument and used debating techniques', which I also wrote down in my notes. From my observations, students in the learning support needs class responded well to the scaffolded and chunked information from Emily because 'they needed her input and could do the practical and performative activity'. Emily noted a very 'different vibe' with the gifted and talented class. She thought the students would be more interested in the media and news:

The higher-ability boys, a very different vibe. I felt they didn't have as much background knowledge about it, which really surprised me. Being more academic, I thought they would have more interest in the media and news, but maybe not. They did use a lot more geographical language, but the debate fell flat on its face because nobody was willing to get out of their seat and move ... no-one really wanted to stand up, but they all egged each other on ... and I didn't think they were succinct in their responses as much as the first group. (Post-lesson interview 2)

Emily believed there were several distinctively geographical features of each lesson, including her knowledge of geography and the curriculum (GS1), using concepts and resources to prompt thinking so students could communicate responses in the debate (GS3), and knowing her students (GS4). Emily referred to 'using geographical terminology ... videos to show both sides of the argument ... images and statistics ... graphs, charts, maps, and patterns'.

Responding in a way that is important to you

During the lesson observations, I wrote a lot about Emily's frequent and purposeful use of geographical terminology. I noticed when students used the right colloquial expression, such as 'high up', she prompted them further, 'Is there a specific word to use?' to elicit use of geographical terms such as 'altitude' or 'elevation'. When I shared my observation with Emily about it being a distinctive feature of her lessons, she had not realised it was a distinctive part of her practice.

I also recorded in my notes how 'impressive' it was to see she changed her previously submitted lesson plan 'to incorporate the burning Amazon rainforest as a summation of Sustainable Biomes'. I believed she enacted an important feature of geography teaching she was very passionate about:

[Emily] saw something topical, relevant, and made it meaningful to students by providing support through a variety of resources, talking about it together, and then getting them to choose their preferred position out of the choices given.

Although it was not my role to provide feedback about the lesson — more to facilitate discussion — I remembered Emily spoke in the social lab about liking the moment when she realises her practice has a name or is identifiable in some way. I waited until Emily had discussed what she saw as the distinctive features of her geography lesson, then decided to share my observations. I was pleased I did because Emily was nervous about me observing her lessons. I could not be sure Emily's supervising teacher noticed the same things about the way she taught geography, and Emily had demonstrated effective pedagogical practice in alignment with the GEOGStandards.

5.2.2.3 Grace's practice: applying the content using skills

Grace had an enduring emphasis on two areas of professional practice for Year 8 and Year 10: to use geographical tools and skills to teach content; and to establish a safe, supportive learning environment for students to ask questions and discuss grand challenges such as water distribution and scarcity, and migration. After Grace's final lesson observation, I noted: 'very geographical and very thorough ... masterful classroom management ... confidence and classroom presence has definitely increased'.

Year 8 was a learning support needs class. In the first post-lesson interview, Grace said that the lesson needed to be very 'structured, using lots of different strategies to keep them engaged and focused'. For example, Grace started with a jigsaw activity where students had to reconstruct the process of the water cycle to form an annotated diagram. Then they watched a short video to consolidate learning and ensure the diagram was completed correctly before pasting it into their books. To make the lesson more geographical, Grace initiated a class discussion about the current rainfall using choropleth maps and the most recent 24-hour synoptic chart from the Bureau of Meteorology. Grace reflected on her lesson as being 'really geographical' due to the content and way in which it was taught:

For geography, we are applying information ... choropleth maps of Australia's rainfall: 'Where is it falling?' 'Where are our dams located and what implications does that have?' By looking at the patterns and correlations between that data ... [we can] say, 'this is our location of rainfall, this is our location of dams, now look at the location of people' ... I think what made the lesson geographical is the content with the use of choropleth maps for average rainfall, maximum and minimum rainfall, and the mapping of dams. Using those skills to help teach content made it a really geographical geography lesson. (Post-lesson interview 1)

Grace felt very enabled by her faculty, saying they 'use resources I've created, which is really nice and supportive'. Her supervising teacher 'allows me to try what I want with the classes ... and his feedback is something I can implement next time, and it has always helped to improve my practice'.

5.2.2.4 Karen's practice: 'I want to make it relevant'

Karen had an inquiry focus framed by a proposition to prompt thinking and questioning: 'I would prioritise economic success over environmental protection'. Each lesson followed a similar structure. They began with an adapted VTR, 'Think Pair Share', from the *Project Zero Harvard's Thinking Routine Toolbox*. Students reflected individually on the proposition, then spoke about their ideas with another student to determine similar or different viewpoints, and then shared their responses as part of the class discussion. Students' responses from 'Think Pair Share' formed the foundation for developing their justifications about a series of related propositions in the 'True for Who?' activity. Karen began each lesson this way because she wanted her students to consider environmental issues broadly and to be sure of their own views before embarking on further learning:

... the beginning of the lessons were not to be about the Amazon. I wanted it to be about their ideas on the environment, what they've learnt and knew from before. I wanted them to have ownership of their beliefs about environmental issues such as waste and air pollution before going on to the Amazon. (Post-lesson interview 1)

In the 'True for Who?' VTR, students could take on viewpoints other than their own; however, I observed that 'the personal views [of students] were really encouraged'. Karen incorporated maps, diagrams, and media into the lesson by showing them on the interactive whiteboard to prompt discussion and help students understand how the complex global issue of climate change affected them personally. Karen reported being constrained by the lack of technology available:

I was gobsmacked there was no [other] technology ... I had no idea how to create a geography lesson without using technology ... and my supervising teacher kept reminding me about how to make a lesson accessible for students without a laptop ... it really made me think. (Post-lesson interview 1)

There were three assembly points in three corners of the classroom: Point A (agree), Point B (disagree), and Point C (neutral). Students were asked to move to the assembly point that corresponded to their response to a question or proposition. During both lessons, the chairs and tables were pushed towards the edge of the classroom so students could walk around the room and position themselves near a point or option most aligned to their own worldviews — true, false, uncertain, I do, I don't. Examples of

propositions included, 'I make my consumer choice based on environmental factors' and 'I care about climate change but still want to use fossil fuels'.

When students physically positioned themselves near the point that most aligned with their thinking, Karen invited them to verbally share their justification with the class. From listening to the students' responses, they spoke about their personal beliefs and actions on environmental issues such as waste and air pollution, in conjunction with the burning of the Amazon rainforest, which occurred during August 2019 when the lesson observations took place.

Karen invited some students by name to share their response, and at other times it was a general invitation to speak. Karen reflected during the interview that 'depending on the question, I chose the students who I knew would put forward an answer but not hate being asked'. As our discussion continued, I mentioned to Karen that there was one student who was 'always at point A'. Karen said this student always 'challenged everything ... but it's fine, it creates some discussion points, and he gets his opinion across'. In the second post-lesson interview, we discussed my observation about the emphasis on student views, and Karen related her decision-making process about making 'True for Who?' become true for them:

it was really important to bring it back to the students ... get them to think about their own beliefs and life experience. If you don't, you're kind of missing out on a whole aspect of geography, about using student knowledge and beliefs and bringing that into a lesson. If you don't do that, they won't feel like it's a personal topic they can have an opinion on, and then it feels like a fact to learn. Then geography becomes boring. (Post-lesson interview 2)

Karen's pedagogical practice was predominantly enabled by her PEP of developing relationships with students, and an SEP of emphasising inquiry using VTRs. In the second post-lesson interview, Karen identified geographical thinking and communication (GS3) as 'the one that came out most', followed by creating a safe, supportive challenging learning environment (GS5), and understanding students and their communities (GS4).

Knowing what is important in your pedagogical practice

I agreed with the GEOGStandards Karen identified overall, yet I also saw her planning and enactment of the lesson as having a good understanding of the content and knowing where it fit, which related to knowing geography and the curriculum (GS1). I noted geographical thinking and communication (GS3) to be particularly evident, and that I couldn't split GS5 and GS3 because in my view geographical thinking and communication (GS3) for the given topic needed to have a safe, supportive environment (GS5). During the post-lesson interview, as a summary of the three GEOGStandards evident in the conduct of her lesson, I said to Karen:

You let them have their personal views regardless of how controversial, and you could always bring it together to synthesise it and connect it to something covered in class already or to another real-life event. It is not easy to do that, and [to do so] you have to have a good understanding of the content and be really clear about the purpose of the lesson.

Karen reasoned that knowing the students helped her to 'put the statements in a way I knew would work for them'. When I asked Karen how long she had been teaching the students, she said, 'I've been their geography teacher from the get-go'. Therefore, a possible structural constraint of timetabling turned out to be an enabling influence because Karen commenced professional experience at the same time Year 10 commenced their geographical learning:

I think it really helps that I have been their regular teacher since they started geography ... they just swapped to geography ... I took them for their first lesson in geography and my supervising teacher hasn't actually taught them yet ... I think it has really helped me to build the relationship. (Post-lesson interview 2)

Karen believed her students were 'willing to openly discuss and put their beliefs out there ... it was good', and the activities 'made them have thinking time ... to get deeper into their beliefs about ... things they didn't immediately know the answer to'. Karen also spoke about the importance of student behaviour to successful conduct of the lesson:

They didn't have to be geographically correct, but they knew they could not stop others from saying things or say other people's ideas are rubbish ... they had to really think about their views.

5.2.2.5 Matt's practice: 'The heart of why we do geography is to understand the world we live in'

Matt's lesson plans reflected the GEOGStandards he identified in Social Lab 1 as features of a distinctive geography lesson and goals for professional experience (see Tables 5.1 and 5.2). An emphasis on inquiry and geographical thinking and communication was evident, and Matt focused on supporting his students to use geographical terminology and apply their geographical understanding of the liveability of places to known examples around the school grounds and adjacent suburbs. Although Matt's lessons were focused on liveability criteria for people and place, and he had 'only just started the topic' when I first observed him teach, there was a 'skills test next week, so we have to look at cross-sections now because it is one of the elements in the upcoming test'. Cross-sections were covered in the previous syllabus unit 'Landscapes and Landforms', and his students, who required 'additional help for learning', had learnt about cross-sections using examples of sea-cliffs and headlands. To help students prepare for the test, Matt revisited the construction and interpretation of cross-sections by linking previous learning from 'Landscapes and Landforms' with 'Place and Liveability' so students could develop their understanding of what Matt articulated as, 'What does this mean for me?' Matt developed 'three worksheets with more difficult aspects on each one so students could go at their own pace ... and ask more questions'. I recorded in my observation notes that some students 'got through all of them, some students got through maybe one or two, all working at their own pace'. Due to an emphasis on 'Place and Liveability' as the current unit of work, Matt positioned the interpretation of cross-sections in connection with liveability in the local area:

looking at things like elevation for liveability, areas of building development in the local area, and why it is that the local area is considered a liveable place, but we haven't built in this area due to elevation. (Post-lesson interview 1)

Matt identified inquisitiveness, the incorporation of lived experience, and the use of hands-on activities as the distinctive features of a geography lesson. In the first post-lesson interview, he identified inquiry and fieldwork (GS2) as the most pertinent GEOGStandard for informing the development of his lesson:

I think inquiry and thinking 'why?' is most important. 'Why am I learning this?' as a question from the students is one of the reasons I've tried to attach student knowledge to the local area. (Post-lesson interview 1)

In the second observed lesson, Matt used a project and game-based learning approach to help students ‘incorporate and consolidate their notes ... where students show their understanding [about liveability] through the [development of] a board game’. Students were encouraged to ask questions, use terminology, and engage with ‘geographical thinking and communication’ (GS3), as Matt supported students to ‘use the textbook, images, maps, and other sources to bring it all together ... to inquire and look into the information themselves — they couldn’t just copy verbatim’.

Mitigating constraints to practice

As I observed the lesson about cross-sections, I was reminded about Matt’s comments in the social lab, where he said he felt constrained by the Scope and Sequence. The situation appeared to be structurally complex. While I believed the inclusion of a cross-section in a summative assessment about Landscapes and Landforms was relevant, I thought the timing of the assessment was unfortunate seeing as a new unit of work had commenced. Additionally, successful construction and interpretation of a cross-section requires time to teach because of the inherent critical and creative thinking skills, multiple map-reading capabilities, and application skills. Also, Matt was working with a designated learning support needs class. I noted Matt’s emphasis on student relationships and fostering inquiry in geography enabled him to mitigate the constraint of having to cover cross-sections as a revision activity. By referring to known landscapes and landforms of the local area, Matt encouraged questioning and geographical thinking and communication about liveability (from the current unit of work) by explicitly teaching how to construct and interpret a cross-section (required for an upcoming assessment although based on learning from a previous unit). And I noted the students completed the task.

5.3 Phase 2: Profession entry (September–November 2019)

During Phase 2, participants moved between the boundaries of degree completion, preparing for employment in schools, and gaining employment in various forms. Social Lab 2 (Appendix G) was the scheduled data-generation activity with all participants for this phase. However, during October 2019, Emily, Grace, and Karen attended a national conference for geography teachers, called ‘The Innovative Geographer’, and towards the end of the conference we came together as a group to reflect on and share our experiences in an unscheduled interview. Responses and

reflections from Emily, Grace, Karen, and I appear in textboxes as appropriate to the discussion from Social Lab 2.

5.3.1 Social Lab 2 (November 2019)

Participants identified and explained the emergent properties that enabled or constrained their experience of transition into the profession and their pedagogical practice in geography. Three activities for Social Lab 2 were inspired by lesson observations from 'Phase 1: Preparation'. The schools where participants were based applied whole-school approaches based on the *Harvard Graduate School of Education, Project Zero Thinking Routine Toolbox* (<https://pz.harvard.edu/thinking-routines>; Ritchart et al., 2011). Anna, Emily, and Karen incorporated VTRs in their teaching of geography (see Section 5.2.2.1), which prompted me to reflect on my own practice. The Toolbox is informally referred to as the 'Cultures of Thinking' or 'VTRs', and I chose 'Do Now: Generate, Sort, Connect, Elaborate', 'Tug for Truth', and an adaptation of 'Think Pair Share'.

During Social Lab 2, the participants *discerned* and *deliberated* on the following areas:

- (i) when they felt they entered the profession and their journey of transition to date
- (ii) the nature and effect of influences on their pedagogical practice in the geography classroom during a time of precarity and transition, with the purpose of developing goals for their future practice.

Demonstrating my reconstructed practice

During Phase 1, I observed participants using VTRs to encourage their students to develop and share their thinking around complex geographical issues such as climate change, liveability, and human wellbeing. I wanted the participant group to know, through my words and actions, how much their teaching made me reflect on my pedagogical practice and compelled me to act. Enabled by my personal values and beliefs about the importance of inquiry in geography, reciprocal learning, and the development of trust during a research process, I decided to incorporate VTRs into my teaching at university and into Social Lab 2. I also decided to start Social Lab 2 by telling the participant group about their influence on my practice:

I have been very inspired by seeing or hearing about you teach [using] the visible thinking routines ... you taught me something ... I decided to try a few of them out with my classes here at university and they worked a treat ... I've put a few of the activities into what we're going to do today, so thank you for showing me something new. (Excerpt from my opening address in Social Lab 2).

5.3.1.1 Personal emergent properties as ways of thinking and knowing about transitioning into the profession

This section reports on the PEPs noted by participants as either an influence of constraint or enablement to their actual or anticipated practice. Participants were asked to identify a moment in time when they believed they entered the profession (Activity 6, Appendix G). Anna, Emily, Grace, and Matt drew on their personal beliefs about what it means to be a teacher; each of them reflected at the level of *relating* to make sense of the moment. Anna related her entry point into the profession to her identity and purpose, whereas Emily, Grace, and Matt related their experience to relationships and trust:

I've already made the claim I am a teacher ... and that was the point when I said to myself ... I'm not a student, I am a teacher, and that is my primary goal and function. (Anna)

Being called 'mum' by Year 7! I think that's when you've made it, when they feel so comfortable with you, in your presence and in their relationship with you that they call you mum! (Emily)

My Head of Department trusted my judgement and opinion ... that was when I felt like I'd entered the profession. (Grace)

Engaging with colleagues at the same level, not being a 'praccie' but being a teacher, it is about respect. (Matt)

Karen reflected at a *reasoning* level to turn the question back on herself. She reasoned through her beliefs about entering the profession to question whether, 'saying "I am a teacher"' is also being a quality teacher:

Then I'm also like, 'when am I a GOOD teacher?' I'm a teacher when I have a class and know what I'm doing, but I'm at the beginning of my career and there is no way to tell how or when I'm close to where other teachers are at. When am I a teacher who knows what she is doing? [Sometimes] I'm like 'yes I know what I'm doing', then something happens and I'm like, 'I have no idea what I'm doing'.
(Karen)

In the Do Now activity, participants described their journey of transition into the profession between August and November 2019. The descriptions occurred in response to a 'Generate Sort Connect Elaborate' VTR whereby participants generated ideas on Post-it Notes about their transition experience, sorted the Post-it Notes into a preferred order, made connections between the Post-it Notes by drawing arrows, and then verbally elaborated on the main ideas. Emily, Grace, Karen, and Matt could identify a clear point in time or an event or place when they believed they entered the profession. Anna decided not to seek employment for the remainder of 2019 but was clear about what would signify her entrance into the teaching profession.

In August 2019, at the conclusion of professional experience, Emily and Grace gained employment. Emily applied on merit and was selected for a 'six-month contract to work at the same school' where she completed her professional experience. She was enabled by feelings of 'confidence'. Emily demonstrated an ability to *deliberate* and *reason* about her feelings in response to the actions of others and her understanding of self over time:

... it made me step up and say, 'now I really have to know my stuff and become more confident'. I felt a change in the students; they're really listening to me now ... and because of that my confidence increased dramatically. I could feel it in myself, and other teachers noticed and told me. (Emily)

Grace obtained a 'casual teaching job three days after I finished prac ... then after five days I was booked until the end of term'. She was enabled by her conviction about teaching as a career choice, reflecting at the level of *reporting and responding* to state, 'I'm still loving every day and know this is what I'm meant to be doing'.

During September 2019, Matt also gained casual employment, which was later adjusted to a 'temporary contract at the school until the end of term'. His reflection demonstrated an ability to *deliberate* by relating his enthusiasm for transitioning into the profession to gaining employment and teaching geography:

Then I finished prac and got a job, which boosted my excitement and preparedness. I'm super excited, ready to go and my enthusiasm for teaching hasn't changed ... I still really love the subject [geography]. (Matt)

A national conference for geography teachers was held in Queensland during the October 2019 school holidays; the national conference is a biennial event for the Australian Geography Teachers Association (AGTA). I knew Emily, Grace, and Karen attended the optional pre-conference tour, and I observed them participate in the Master Class for ECTs and participate in the full formal conference program overall. During an informal and impromptu group interview, Emily, Grace, and Karen reflected on their personal values and beliefs about this time of transition as being the 'best time' in their career to attend a conference because they were not 'set in their ways'.

Continuing to realise my own bias as a researcher and geography educator

I was delighted to see Emily, Grace, and Karen at the national conference for geography teachers, yet I was still curious about why they had not connected ideas about their pedagogical practice to either progressing professional growth and development (GS8) or learning and working collegially (GS9). I knew the conference was expensive and they were not funded by a school to attend the conference; they chose to pay for themselves. I kept asking myself 'Why?' 'Why was it an important choice for them to attend a conference but not identify GS8 and GS9 in their practice?' I paused and again realised my bias. My questions and desire to see GS8 and GS9 reflected in the choices of Emily, Grace, and Karen are my choices, and what I hold up as being most important in my own pedagogical practice.

Towards the end of the conference, I decided to ask Emily, Grace, and Karen about why they decided to attend the conference. They each mentioned this was not their first conference with the professional association and that it was both me and their supervising teachers from professional experience who introduced them to the professional association. Emily, Grace, and Karen also talked about being enabled by their personal beliefs, such as being open to new ideas, building networks, building their content knowledge, and not feeling constrained by existing practice because they were not yet 'set in their ways' of teaching. As I contemplated the responses from Emily, Grace, and Karen, I concluded that GS8 and GS9 were a connector or pathway between the GEOGStandards they chose as being distinctive in their practice. And that is still important.

5.3.1.2 Structural emergent properties as ways of thinking and knowing about transitioning into the profession

This section reports on the SEPs noted by the participants as either an influence of constraint or enablement to their actual or anticipated practice. Social Lab 2 was held in mid-November 2019, and Anna reported that her entry point into the profession occurred 'a couple of weeks ago' when she received her 'teaching number and approval to teach in schools'. Anna also anticipated that she would feel like she had entered the profession when she was connected to a school and its community:

I think I will feel like I've entered the profession when I have a secure full-time role and after a couple of weeks or months into it, I can say 'this is my school, this is what I teach and these are my classes'.

Emily and Grace initially *reported* February and March 2019 as the time they entered the profession because they 'receiv[ed] provisional accreditation' and could start casual teaching. Upon further reflection, the responses from Emily and Grace then demonstrated their ability to *reason* through their reflections about entering the profession regarding the type of work and areas of responsibility. Emily believed that being asked for advice by other, more experienced, colleagues was a sign of her entrance into the teaching profession:

I've got a six-month contract in the same school [as professional experience]; however, two weeks ago I gained a full-time role for next year ... I'm marking independently and my judgement counts. I'm being asked for advice about geography by proficient teachers and colleagues, about how I'm teaching this part of the syllabus, to see if I can help.

Grace spoke about responsibility and autonomy:

The first step was casual teaching ... The second step was gaining full-time employment, and responsibility for classes. That is when I really felt I'd entered the profession despite still being at uni. I had my own classes completely, but the difference was the responsibility with report writing, assessing, behaviour management, and my own professional development. There is no-one looking over my shoulder to check my lesson plans or direction I'm taking a unit in. No-one pulling me up for direction, timing. It is all on me.

Karen and Matt both reflected at the level of *relating*; they connected their entrance into the profession to the time soon after professional experience, receiving payment, and being in the classroom without another teacher. Karen focused on payment and autonomy:

... when I got a job I was paid for, and I was like 'I'm being paid to be a teacher!', and when I was in the classroom by myself. They're my two big things. They occurred the day after professional experience. (Karen)

Matt focused on two tangible elements: payment and keys:

... earning money for the work you do ... and when I had my own keys to the classroom. It was after professional experience. (Matt)

Participants found the experience of transitioning into the profession to be a structural constraint on their practice. Structures discussed included timetabling decisions related to out-of-field teaching or teaching beyond their specialist subject area, and policy-related responsibilities of employment as a classroom teacher related to classroom management, marking final assessments, and report writing.

Out-of-field teaching was raised by Anna, Karen, and Matt as a constraint. Anna was in the process of 'writing up my CV' and 'looking for history jobs'. When questioned by Emily about whether she wanted to teach geography, Anna replied that she would 'teach geography but would not necessarily elect to teach it'. In a recent interview for full-time employment at a 'rural school in Queensland', the focus of the discussion turned towards a range of subjects that Anna would be expected to teach if recruited to the role:

the more they talked to me, the more they were like 'you can teach legal studies and commerce', and I was like 'this does not sound great', and the more they were talking about me teaching other subjects [to history], I realised they are probably a lower-resourced school ... I wasn't sure how comfortable I was going to be in that space, especially because I was going to be away from my support networks, so I ended up saying no. I've been applying at more local schools now. (Anna)

Anna's response demonstrated an ability to reflect at the level of *reconstruction* because she acted on the given circumstance. During her discernment and deliberation process, she reported a problem (teaching other subjects), related the situation to a possible reason why it occurred (lower-resourced school), and then reasoned why it would not be an ideal situation for her circumstances (away from her support networks). Anna then decided on and enacted a course of action (say no, apply for local schools).

Karen experienced out-of-field teaching during most of the time she was transitioning into the profession. Her *deliberations* showed a *reasoned* approach towards reflection because implications for practice were revealed (classroom management):

casual teaching in two schools and I ended up teaching multiple subjects: art, geography, commerce, legal studies, future learning. I'm only trained in one of those, so it was definitely a new thing learning about different subjects, their content, and then learn about the students, the school, and the faculty ... and that leads into classroom management, so I've been focusing on my classroom management skills.

Matt felt constrained by 'teaching commerce', and his reflection revealed an ability to *relate* his experience to prior learning: 'I've never been prepared for that, so there you go ... it comes with a level of stress and expectation so that reduces my excitement [about teaching]'.

The responsibility of having to 'deal fully with behaviour management' and write end-of-year reports due to being 'solo' in the classroom was a concern for Emily, Grace, Karen, and Matt. Emily and Matt briefly reflected on their management of student behaviour and *reported* it as making them feel 'crankier' or 'grumpy'. Emily did not elaborate further, although Karen related her current 'focus on classroom management skills' to teaching outside her specialist subject area (see above). Karen also *reported* 'doing marking and reports, which I haven't done before'. Grace reflected on her current situation in relation to what she knew and had learned about behaviour management from previous experience:

I got placed on my own classes ... there is less support overall and I have responsibility for my own classroom. Behaviour management at this school is a lot different to my professional experience. On professional experience you only had to look sideways at the student and they'd stop talking, where now I have to send students out of the room because they won't be quiet, and I feel I haven't been well enough prepared for dealing with this.

The GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) remained an enabling evidence structure against which participants confirmed, further reflected on, and ranked their ideas in order of importance about the recurring question: 'What makes a geography lesson geographical?' Activities 1 and 4 (see Appendix G) were an adaptation of the 'Think Pair Share' VTR. As in Social Lab 1, participants were asked to identify in written form what they believed to be the distinctive features of a geography lesson, and the responses were then discussed as a group. The written responses typically demonstrated reflection at the level of *reporting and responding*, and their verbal responses were spread across the levels of *reasoning* and

reconstructing. All participants drew on their professional experience to consider the distinctive geographical features of their lesson; however, some participants used their current employment context, professional experience, and looked ahead to future possibilities to deliberate their ideas. Afterwards, participants connected their individual ideas to the GEOGStandards.

Table 5.4 provides a summary of the distinctive features of a geography lesson identified by participants in Phase 2. See Table 5.1 for the identified features and corresponding GEOGStandards for Phase 1.

Table 5.4

Distinctive features of a geography lesson and connection with the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010).

Participant (alphabetical)	Distinctive feature(s) of a geography lesson, ranked in order of importance	Connection of distinctive feature(s) to a GEOGStandard(s)
Anna	Using geographical tools and language such as maps, graphs, and fieldwork	GS3 Developing geographical thinking and communication
	Thinking about the present and the future	GS1 Knowing geography and the geography curriculum
	Thinking about the construction of the world	GS2 Fostering geographical inquiry and fieldwork
Emily	Geographical terminology	GS3 Developing geographical thinking and communication
	Geographical concepts: place, space, environment, change, interconnection, and scale sustainability	GS1 Knowing geography and the geography curriculum
	Geographical inquiry	GS4 Understanding students and their communities
Grace	Geographical content	GS1 Knowing geography and the geography curriculum
	Integration of skills into the lesson	GS3 Developing geographical thinking and communication
	Geographical inquiry	GS5 Establishing a safe, supportive, and intellectually challenging learning environment
Karen	Geographical content	GS3 Developing geographical thinking and communication
	Inquiry	GS1 Knowing geography and the geography curriculum

Participant (alphabetical)	Distinctive feature(s) of a geography lesson, ranked in order of importance	Connection of distinctive feature(s) to a GEOGStandard(s)
Matt	Connecting to current events and student lives	GS1 Knowing geography and the geography curriculum
	Geography concepts	GS2 Fostering geographical inquiry and fieldwork
	Real experience	GS3 Developing geographical thinking and communication
	Data-full	GS3 Developing geographical thinking and communication
	Deeper understanding	GS4 Understanding students and their communities
	Skills	GS2 Fostering inquiry and fieldwork

Since Social Lab 1, Anna's *reported* views about the distinctive features of a geography lesson changed in order, articulation or type, and connection to the GEOGStandards. For example, 'forward focus' from Social Lab 1 now appeared second rather than first, was written as 'thinking about the present and the future', and was connected to knowing geography and the curriculum (GS1) rather than understanding students and their communities (GS4). Anna *reported* 'geographical tools first' and then added in 'geographical language' as she reflected on a lesson from professional experience to explain their points and personal beliefs about 'What makes a geography lesson geographical?' Anna's response demonstrated a *reconstructive* ability because she adjusted her ideas as she spoke:

The first one was to use geographical tools ... you don't use maps or GIS systems or even fieldwork in a lot of other lessons so this is what makes it number 1 for geography ... but I remember in one of my classes I set a mini test and the first word I put up was 'urban' — it was meant to be a quick 'in' for the students ... but one student said she didn't know, yet we had been using the word 'urban' every lesson. So, for me language is what makes a geography lesson geographical ... I think it plays a big part. (Anna, Activity 1)

When I asked Anna about other items on her list, she chose one that did not feature in her list from Social Lab 1: 'thinking about construction of the world'. Anna's reflection reached the level of *reasoning* because she could show why construction of the world is important to geography and her teaching practice:

I think it is most important for the lesson for students to think about the construction of their world. I think this is at the heart of studying geography — How is that landscape formed? Why is it different from one side of the Earth to the other? And what does this mean about how we experience it and how does affluence come into it? So, I hope every time I teach a lesson they are learning about their world and can apply it in thinking or practice to the future. (Activity 1)

There were extensions and changes to Emily's *reported* views about the distinctive features of a geography lesson since Social Lab 1, although she connected her current ideas to the same combination of GEOGStandards. For example, 'connection to the environment' now appeared as 'geographical concepts', and it remained connected to knowing geography and the curriculum (GS1). Emily believed geographical language or 'terminology ... was number one'. As she *deliberated* why, Emily drew on feedback I gave her during lesson observations in the previous phase and *reasoned* about how it developed her self-realisation of practice:

For me, the use of geographical terms. I'm constantly saying to the boys 'it isn't rainfall, its precipitation'. I really noticed it from when you came to observe me, and you told me I was doing it naturally — I hadn't really thought about it, and I am more aware of it now. I'm constantly getting them to answer in geography terms back to me, so I know they know it. (Activity 1)

Two distinctive features of a geography lesson were consistently *reported* by Grace during both social labs — 'content' and 'skills' — but 'geographical inquiry' replaced 'geographical tools'. In Social Lab 1, Grace connected 'content' with establishing a safe learning environment (GS5) and understanding pedagogical practice (GS6). In Social Lab 2, Grace connected 'content' with understanding geography and knowing the curriculum (GS1). When I asked Grace, 'What makes a geography lesson geographical?', she reflected on her current teaching context to explain how she was developing her practice and 'trying to tweak' school programs in alignment with her identified distinctive features. Therefore, Grace demonstrated a *reconstruction* of pedagogical practice:

Content, what we teach is inherently geographical in the way we compare spatial distribution of different factors happening in the environment and with people ... I've been trying to teach students how to use the skills whilst making sense of the content because it isn't something explicitly taught at my school ... also students

are doing a big research project, just internet research, so I'm trying to make it more investigative and include the whole inquiry process. (Activity 1)

Karen *reported* 'content' and 'inquiry' as distinctive features of a geography lesson in both social labs, but in Social Lab 2 she removed 'skills' from 'inquiry and skills' and added in 'connecting to student lives' and 'concepts'. Karen's combination of GEOGStandards connected to the distinctive features of a geography lesson remained the same, although the allocations differed. For example, in the first social lab, 'content' related to knowing geography and the curriculum (GS1), and now Karen connected it with geographical thinking and communication (GS3). During the group discussion, Karen reflected on her current teaching context to outline how her teaching practice has been challenged and *reconstructed* in response to demands from the teaching and learning program:

I know this sounds horrible, but I don't think a lesson is geographical because you have skills, I don't think I've taught skills this term. I'm going with the school program, and I know skills are important, but they don't do them, it's just content linked to current events and student lives ... they are very textbook-oriented. I've been trying to get inquiry into it, and I know how to bring inquiry in for geography, but my thoughts of the geography classroom have changed as a result of being at this school. The focus is much more on content than anything else. (Activity 1)

There were changes in the conceptualisation of ideas Matt *reported* about distinctive features of a geography lesson and the connections made with the GEOGStandards. For example, Social Lab 1, Matt reported 'inquisitive and creative' followed by 'hands-on, lived experience, critical analysis', but in Social Lab 2 he reported 'real experience' as the most important feature and 'deeper understanding' in third place. When I asked him about 'deeper understanding', Matt believed it was about 'turning a what into a why' to help students develop 'higher-order understanding and application'.

Progressing professional growth and development (GS8) and engaging in collegial learning (GS9) were not mentioned by any participants, yet I continue to observe these GEOGStandards as being important to the practice of Emily, Grace, and Karen. At the national conference for geography teachers in October 2019, I raised GS9 with Emily, Grace, and Karen to encourage a discussion about the benefits, from their point of view, of collegiality.

5.3.1.3 Cultural emergent properties as ways of thinking and knowing about transitioning into the profession

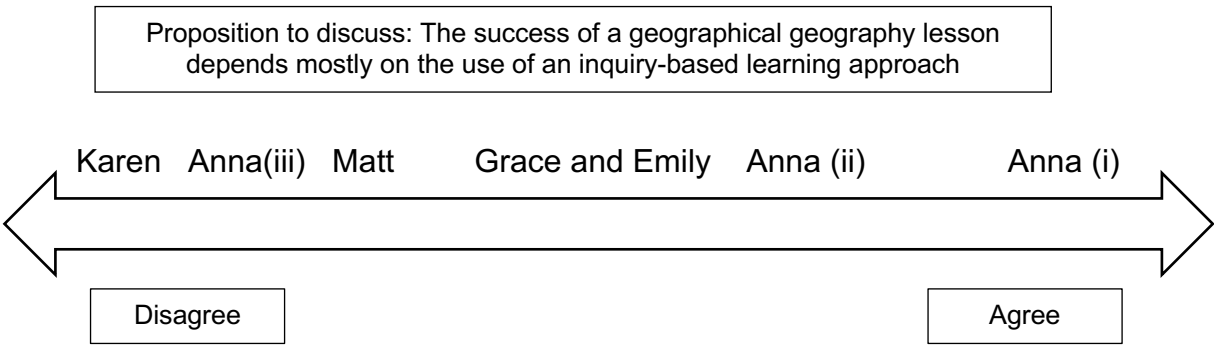
No CEPs were reported in Phase 2.

5.3.1.4 Emergent properties as ways of knowing and doing a distinctive geography lesson during a time of transition

The *Project Zero Harvard’s Thinking Routine Toolbox* VTRs were an enabling influence on the pedagogical practice of Anna, Emily, and Karen during professional experience. In turn, the VTRs became a structural enabling influence for me. I used a VTR, ‘Tug for Truth’ (Activity 5, Appendix G), so all participants could explore a proposition based on pedagogical practice: The success of a geographical geography lesson depends mostly on the use of an inquiry-based learning (IBL) approach. The purpose was to understand whether their current and often-uncertain teaching context influenced their pedagogical practice as they entered the profession. Participants considered their teaching experiences to date, wrote responses on Post-it Notes, and positioned them along the spectrum of disagree, neutral, agree on the whiteboard. Each participant spoke to the points on their Post-it Notes. Figure 5.1 is a representation of the Post-it Notes on the whiteboard.

Figure 5.1

Participant responses to the proposition in a ‘Tug for Truth’



Anna shared multiple points across the spectrum, whereas Emily, Grace, Matt, and Karen justified their position at one point. Anna drew on her enabling personal beliefs about the importance of IBL in comparison with structural constraints of a school timetable to reflect on her position as ‘overall, agree’ at the level of *reasoning*:

I like inquiry-based learning because I think it can be one of the best strategies for deepening knowledge, and I think it is really important to have independent learning skills for geography for the Higher School Certificate and Senior

Geography Project, which is inquiry-based, with primary research as an individual task. The more you can teach [with IBL] the better (Anna i). However, also neutral ... because in some lessons it is not possible to do it due to time constraints. It does take students longer to get the answer because they explore various perspectives. We are time-poor (Anna ii). The other reason is students don't always get the answer you want them to. (Anna iii)

Emily and Grace both positioned their responses 'just west of neutral!' (Emily) in response to personal beliefs about teaching geography using inquiry. Emily *related* her 'disagreement with the modal word "mostly"' because content needs to be learnt 'before the inquiry-based learning approach can take off ... [students] need to know something beforehand' for IBL to be effective. Emily believed that IBL 'requires the use of skills and geographical language'. Grace *related* her position about IBL to her beliefs about the outcome of learning and ways to incorporate inquiry into lessons:

I've taken a project-based learning approach to inquiry [in geography] and it forces collaborative learning, so it does have benefit for students, especially in trying to build up their twenty-first century capabilities of creativity, critical thinking, and collaboration. A geographical inquiry should be used regularly in the classroom, but it doesn't have to be a big shiny project in every lesson; it can be a smaller question or a task that takes 5–10 minutes. (Grace)

Matt put himself 'between neutral and disagree' because of enabling personal and constraining structural influences.

Karen stated that she '100% disagrees with this one'. Karen drew heavily on her current teaching experience and professional experience to explain her change from being 'all about inquiry-based learning before' to being very pedagogically constrained by the school culture and learning environment. Her reflections demonstrated an ability to *reconstruct* thinking to adjust to difficult circumstances:

First of all, I don't think the success of a geography lesson depends on inquiry-based learning ... I think inquiry makes it interesting for students, but it causes so many problems ... unless you have an 'on-point' class you're decreasing understanding if you don't explain it to students before asking them to look at it ... There are so many constraints in teaching: programming, exams, out-of-class activities ... I don't think the success of a geography class should be based on inquiry anymore, I used to think so but not anymore. I've got two more points:

learning environment and access to technology. My professional experience school had no technology, now I'm teaching support students and students with learning support needs ... each time inquiry turns into a bundle of problems ... This is where I'm at now, I hope it might change with a different school environment, I've been talking to the school I'm going to next year and they're all about inquiry and fieldwork, so I think my mind is going to change again by next social lab ... I was all about inquiry-based learning before. (Activity 5)

A 'Tug for Truth' tugs at core beliefs about teaching geography

I was hoping for robust discussion about the proposition in the 'Tug for Truth'; however, I had not adequately anticipated the strength of influence from current school context on participant views. A robust discussion requires a safe, supportive, and challenging learning environment (GS5), and I believed as a participant group we had established trust and rapport over time. As the discussion ensued, I realised Karen, in particular, had her core beliefs about geography teaching challenged by her current teaching context. I reassured her 'it is an important part of the journey ... where all combinations [of schools] shape what you do in the classroom'.

As I listened to Anna, Emily, Grace, Karen, and Matt speak about the success of a geographical geography lesson requiring inquiry-based learning, I became aware of the embedded enabling and constraining influences within their responses. I realised the discussion for Activity 5 had caused discomfort. The participant group was physically dispersed, and views about the proposition were also disparate. One activity caused apparent disconnection from each other, which could create uneasiness for future engagement with each other, so I decided to reframe the proposition. The proposition became: 'The success of a geographical geography lesson depends mostly on ...'. I invited Anna, Emily, Grace, Karen, and Matt to join at the communal table and have quiet time to write an ending to the reframed proposition. I gave them time to reflect, and time to sit with each other before commencing the next social lab activity. Anna, Emily, Grace, Karen, and Matt did not have to justify their position to me or each other, and in response to the reframed proposition, they each wrote 'student engagement' as a key indicator of success.

5.3.1.5 Setting goals for ways of doing a distinctive geography lesson

'Phase 2: Profession entry' provided an opportunity for participants to reflect on their goals from Phase 1 and reflect on how to direct their future practice in the next phase of the study. In doing so, the participants decided to either continue with Phase 1 goals into Phase 3, make adjustments to some existing goals, or develop a new set of goals. As with Phase 1, the participants wrote their goals for personal reflection and did not elaborate on them in the group discussion. Overall, the participants decided to continue with their Phase 1 goals (see Table 5.2).

5.4 Phase 3: Positioned in schools (March–December 2020)

Phase 3 commenced in February 2020, at the beginning of the school year in Australia. By the time Phase 3 started, the composition and location of the participant group changed slightly from Phases 1 and 2:

- (i) Anna moved to regional NSW, having gained a 12-month full-time contract.
- (ii) Emily was appointed to a permanent full-time teaching role at the same school in Sydney where she completed professional experience (Phase 1) and a short-term contract (Phase 2).
- (iii) Karen was appointed as a targeted graduate teacher to a full-time permanent position at a school in Sydney that was different to those she was previously involved in (Phases 1 and 2).
- (iv) Grace was appointed to a 12-month full-time contract at a school in Sydney where she completed a short-term contract (Phase 2).
- (v) Matt withdrew from the study because his teaching load for 2020 did not include geography.

Three lesson observations, post-lesson semi-structured interviews, and a social lab were scheduled as the data-generation activities for Phase 3; however, lockdown periods and other restrictions associated with the COVID-19 pandemic disrupted the research. Instead of three lesson observations and three semi-structured interviews during 2020, the participants and I met individually in April and July 2020 via Zoom for semi-structured interviews focused on transitioning into the teaching profession rather than focusing on classes and geography lessons. We then met individually via Zoom between November and December to discuss specific lessons and classes. Appendix H contains the semi-structured interview questions. Most of the data collected during the

Zoom discussions was not suitable for inclusion because it strayed from the original focus of the present study or was deeply personal. After a participant-checking process and discussion with my supervisors, I felt it was in the participants' best interests, and of the study itself, to only report on what the participants shared during Social Lab 3. The social lab occurred face-to-face three months after the originally scheduled time. Further information about the COVID-19 disruption can be found in Section 4.6.3.

There are no words

Sometimes I listened to the audio-recordings as I read through the transcripts of generated data. I wanted to remember the tone of the dialogue. I found listening to recordings from each social lab to be joyful. There were excited tones in participant voices, an eagerness to respond to activities and share views, an ease and comfort at conversing with me and with each other, a fairly quick pace of talking and always very loud even when the volume was turned down. In many semi-structured interviews during Phase 1 and in the ones conducted at the end of Phase 3, there was often a giggle from participants, or a voice in unison with me, as I posed the overarching question, 'What makes your geography lesson geographical?' Listening to these recordings made me smile, and I tried to find words to capture my feelings: happy, proud, amazed, relieved. But none of these words fully encapsulated what I felt each time I realised I was smiling.

I always hesitated when I came to the recordings of semi-structured interviews conducted during April and July, the time of lockdown. I found listening to these recordings to be very upsetting. The tone in all our voices was quiet, gentle, low volume, with many pauses. I was instantly reminded of the difficulty, frustration, and confusion each participant faced; I was also reminded of my own experience trying to meaningfully adapt face-to-face units to an online delivery. Most of these interviews became a debrief — a chance to connect with the situation and each other. There were many audible tears and long periods of silence from participants that was not suitably captured in the transcription because there were no words spoken. The emotional labour of transitioning into the teaching profession during a pandemic was at times incredibly difficult to manage in conversation. Listening to these recordings made me realise they are the participants' stories to tell, and when they are ready, they will do so.

5.4.1 Social Lab 3 (December 2020)

During Social Lab 3, participants discerned and deliberated the influences of transition on their pedagogical practice, including their achievements, challenges faced, and strategies for mitigating constraints or maximising enablers. Activities conducted in the social lab are found in Appendix I. Overall, participants were invited to think about their experience of transition in the context of change (morpho-genesis), stability or same-ness (morpho-stasis), and future aspirations or next steps.

Participants considered their transition experience a 'year in review' and organised their experience into themes before discerning enabling and constraining influences (Do Now Activity, Appendix I). Participants also reflected on their achievements during a year of transition (Activity 8, Appendix I) and identified three areas of learning about their practice due to their involvement in my doctoral research (Activity 9, Appendix I). Table 5.5 reports the themes, achievements, and areas of learning discerned by each participant and written on Post-it Notes in order of importance.

Table 5.5

A year in review: themes of transition, achievements during transition, and learning about their practice

Participant	Themes arising from their experience of transition	Achievements during a time of transition	Areas of learning due to involvement in the doctoral research
Anna	Moving cities for a job and COVID-19	Not identified at the time	How to improve my geography-specific knowledge with support
	Being a sole teacher of whole year groups for geography and history	'Survived a COVID-19 year' was identified as her achievement, in hindsight, during 2021	The importance of geography skills to the practise of geography
	Teaching out-of-field		
	Future practice		
Emily	A permanent and proficient teacher	GTANSW&ACT councillor	How to share ideas
	Changes due to COVID-19	Accreditation — proficient	How to make my geography lesson a geography lesson
	Familiarity	18 months full-time teaching	Learnt about GEOGStandards
	Geo-specialist	Permanency	

Participant	Themes arising from their experience of transition	Achievements during a time of transition	Areas of learning due to involvement in the doctoral research
Grace	COVID-19	Gained confidence in content and behaviour management	How to reflect on my practice and environment
	As a result of COVID-19		
	What next?	Coordinated Stage 4 geography	How to improve my lessons
		Got students interested in geography	Learnt about GEOGStandards
Karen	Classes	Found my place in the faculty	How to engage with students
	School environment		
	COVID-19	Taught a professional development program	How to create geographical geography lessons
	The future	Created content	Inquiry is extremely important in the classroom
		Survived the first year of teaching	
		Year 12 Mentor for 2021	
		Coordinator for three 'single-teacher' courses	

5.4.1.1 Personal emergent properties as ways of knowing and thinking about transition into the profession

This section reports on the PEPs noted by the participants as either an influence of constraint or enablement to their transition into the teaching profession. Anna *reported* personal wellbeing as a constraint to her practice during a time of transition because 'asking for help isn't one of my strong points'. However, through the process of reflecting on her experiences of 'moving cities, churches, and homes and being responsible for co-ordinating geography', in addition to 'being observed by a prac student' and teaching boys 'because all my professional experiences were in all-girls schools' and 'teaching Stage 3, technology ... but in another twist, teaching languages in 2021', Anna realised, 'I survived under pressure, so that is a success'. Anna then went on to share how she was *reconstructing* her practice to 'be more assertive' as part of learning how to manage her wellbeing, and also to respond to her belief about advocating for geography, and for 'country kids having the right to access the quality of education they could access in the city, [which] is part of my responsibility':

from COVID-19 to the amount of responsibility I had, to the amount of change, to new levels of behaviour management, to out-of-subject teaching, it has not been easy, it has been a lot ... and I developed anxiety ... and I panicked a lot, which is new for me ... and I am learning new skills and developing confidence to ask for help ... I would like geography to be more of a focus and I have to be the advocate and I'd like geography to become more aligned to other subjects like science and agriculture to push geography forward ... all of this will improve my craft as a teacher. (Activities 1 and 2)

Emily reported 'the biggest things for me' were becoming a councillor for the state professional association [the Geography Teachers Association of NSW &ACT (GTANSW&ACT)] and gaining her accreditation at the level of proficient teacher. Emily's personal beliefs and values revealed her family and her desire to position herself as a specialist geography teacher to be the enabling influences. When confronted by the competing demands of time for family and school-based activities, Emily's belief in 'something else that requires my time and is my number one' to be an enabling influence on her practice: 'I'm very happy to leave school at 3.45 pm and play barbie-dolls with my daughter, you need to find that within you'. During the group discussion, her reflection demonstrated an ability to *reconstruct* her practice in response to her belief about the importance of being a specialist geography teacher, and 'being annoyed' at the lack scope available for teaching Stage 6 geography in 2021:

Knowing I was permanent for 2020 was good; I didn't have to worry for my family, that was a weight off my mind ... then I got my proficient status, and I can maintain my accreditation now. GTANSW&ACT is a big thing because I want to focus on being a geography specialist teacher; I don't want to teach anything other than geography ... I want to increase the number of students at my school doing geography as an elective course and in Stage 6 ... so if I'm not going to have a Stage 6 geography class next year, I'm going to show I want to move in that direction ... I've made a five-year plan to get a Stage 6 class in 2024: the GTANSW&ACT Council, cadets, I created an elective 'Students of the world' group for the top achievers in Year 7, being on the school assessment committee, and I've got my eye on the Sustainability Coordinator role. (Activities 1 and 2)

An important enabling influence for Grace's practice was 'the passion and love I have for geography' — particularly with a group of Year 9 students who were difficult to

manage and ‘made my life hell’. Her reflection revealed an ability to *reason* through how standing by your personal beliefs can elicit change in self — ‘I gained confidence in pedagogies and behaviour management’ — and in the actions of others:

Day 1 Term 1, one kid walked in and said ‘Miss, just letting you know I hate geography so I’m going to be a pain all year’ ... regardless, those students noticed I loved geography and backed off eventually and let me teach it well ... I got them to such a good place they almost wanted to start a Sustainability Squad. Had I been staying at the school I would have had the opportunity to run that. Now, that student walks out of class saying, ‘thank you, you’re the best geography teacher I’ve ever had and now I love geography’, which is such a win. (Activities 1 and 2)

Beliefs in ‘collaboration’ enabled Karen’s practice and professional development, as did valuing her hobbies and the need for work–life balance. Karen demonstrated her *reasoning* skills as she explored the constraint of her ‘perfectionist tendencies’ in the context of collaboration and ‘keeping home for home’:

I want to increase my collaboration with staff in my faculty and across faculties ... I want to do [geography] elective subject, and I want to explore professional development opportunities, so I’m going to apply to present at the AGTA Conference next year ... Why? I think collaboration is important ... I want to control things and be a perfectionist for resource creation and programs. People were impressed by my work, but it is long hours at school, 7 am–5 pm every day, so when I get home it is my time ... and I think hobbies are important so I keep doing them ... I can spend all my time programming and resource-creating but it won’t necessarily make me a better teacher if I’m burnt out and tired. (Activities 1 and 2)

5.4.1.2 Structural emergent properties as ways of knowing and thinking about transition into the profession

This section reports on the SEPs noted by participants as either an influence of constraint or enablement to their transition into the teaching profession. Each participant *reported* the adjustment to teaching online in response to COVID-19 as an important influence on their pedagogical practice. Relationships with faculty members, as well as faculty organisation, both enabled and constrained the participants as they transitioned into the profession.

Anna *reported* that she ‘learnt to use Zoom and teach over Zoom’ during COVID-19. She did not elaborate further because Grace had previously *discerned* the lockdown associated with online learning in response to COVID-19 as ‘stressful’ and initially constraining. As Grace reflected on this time, she realised the experience of transitioning into the profession during a pandemic with the forced adjustments to teaching and learning meant she ‘adapted to different circumstances’ and could ‘emphasise ICT [information and communications technology] in her learning’, which meant she ‘gained confidence in her practice’. When asked to elaborate further, Grace revealed a *reconstruction* to her practice:

during COVID-19 I learnt to focus on the basics, which helped all students, and although ideas about what makes a good lesson changed — not a ‘perfect lesson plan’, but covering the basics of geography and having terminology integrated where I could — I found my passion and care for geography stayed the same ... I found a good structure during COVID-19 for groupwork and interacting with each other instead of doing solo work. It was simple and easy for the students, and I continued that throughout the year because we had to be ready at any point to go back into lockdown. I just kept going because it worked well, and I gained a lot of confidence because I could manage behaviour and focus on what was coming up next. (Activities 1 and 2)

Emily found that she ‘quite enjoyed remote [online] teaching’ and adapted to the frequent rebounds between online and face-to-face teaching during lockdown and a staggered return to school. *Reported* examples included a ‘move to the Canvas platform’ and an increased ‘flexibility in classroom teaching’. During her reflection, Emily related the COVID-19 experience as being both an enabling and constraining influence:

I did miss being in the classroom because of missing the connection with the kids, but from a family point of view it was nice to get up and be online without a mad rush. (Activity 1)

An ‘increased use of technology in the classroom’ enabled Karen’s pedagogical practice. Her expertise and creativity in using technology and IBL was quickly recognised by her Head of Department and faculty colleagues. As a result, Karen ‘ran a professional development course for the whole staff when COVID-19 hit’ and ‘wrote new units of work to suit the needs of [online] working from home’. The units had a project-based, inquiry focus, which then resulted in her being involved in faculty programming decisions.

Faculty organisation and timetabling structures resulted in some concern. Due to the size of student and teacher population, Anna taught geography 'to Year 7, 8 and 10', so she had to 'create programs, assessments, everything, in some cases from scratch and in some cases adjusting'. While Anna acknowledged that there was lots of 'freedom', which was enabling, she also mentioned that she felt very constrained in her practice for some activities. For example, Anna reported, 'I don't know how to write a report because I was never told [at uni]'. Grace reflected that teaching commerce and business studies was a constraint initially, although the availability of resources for these subjects 'gained from Facebook groups is unbelievable'. When Grace reflected on the faculty organisation for geography, her response reached a level of *reasoning* because she could make connections with the usual indicators of success for geography in a school:

The biggest constraint was having a lack of specialist geography teachers and colleagues to lead and support me. Programs were basic and have not been changed, modified, or updated since the syllabus came out [5 years ago] ... and I didn't get the opportunity to rewrite any programs because they said I was in my first year of teaching and the program worked fine. But I was like, 'you don't have elective geography or senior geography, clearly it isn't fine', and it was really frustrating and constraining for me. (Activities 1 and 2)

Emily *reported* her pedagogical practice being both enabled and constrained by faculty organisation and relationships. An enabling influence related to her being at the same school since professional experience because 2020 was her 'second time teaching geography units' with Year 7 and 9, so it 'felt like a piece of cake because I did it last year so that was really good'. Emily noted that the school leadership team was supportive of her 'desire to teach geography only'; however, she *reported* being met with a difference of opinion with colleagues, for example some of them 'thought I should teach commerce'. Emily wrote 'faculty restraints' as the most constraining influence on her transition into the profession as a 'geo-specialist teacher' because there was 'no Stage 6 Geography class for Emily [in 2021]'.

Table 5.6 presents a summary of the distinctive features of a geography lesson identified by the participants in Phase 3. See Tables 5.1 and 5.2 for the identified features and corresponding GEOGStandards for Phases 1 and 2 respectively.

Table 5.6

Distinctive features of a geography lesson and connection with the GEOGStandards
(Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010)

Participant (alphabetical)	Distinctive feature(s) of a geography lesson, ranked in order of importance	Connection of distinctive feature(s) to a GEOGStandard(s)
Anna	Global or local focus on knowledge and content	GS4 Understanding students and their communities
	Interpretation of skills	GS2 Fostering geographical inquiry and fieldwork
	IBL and geographical language	GS6 Understanding geography teaching — pedagogical practice
Emily	Content	GS1 Knowing geography and the geography curriculum
	Terminology	GS4 Understanding students and their communities
	Skills and maps/visual tools	GS8 Progressing professional growth and development
Grace	Geographical content	GS1 Knowing geography and the geography curriculum
	Geographical language	GS2 Fostering geographical inquiry and fieldwork
	Geographical inquiry	GS6 Understanding geography teaching — pedagogical practice
	Geographical skills	GS6 Understanding geography teaching — pedagogical practice
Karen	Real-world links	GS3 Developing geographical thinking and communication
	Inquiry	GS5 Establishing a safe supportive and intellectually challenging learning environment
	Content	
	Terminology	
	Skills and tools	

The participant group *reported* personal ideas about distinctive features of a geography lesson on Post-it Notes and discussed what they agreed on overall. As a group, Anna, Emily, Grace, and Karen agreed, in the following order, that the most distinctive features of a geography lesson are ‘content and a real-world link’, ‘terminology’, and ‘inquiry and skills’. Anna, Emily, and Grace thought terminology was closely related to content and a real-world link and found it hard to separate the two. Grace wanted to clarify that ‘skills are not just maps; they are also photos, visual representations, mind-

maps, graphs, all those other ways of representing information'. Karen wanted to emphasise the importance of 'bringing it [geography] back to things students understand. Be relevant, political or environmental, I do it a lot through inquiry. I teach them the content and they apply to a real-world situation'.

5.4.1.3 Cultural emergent properties as ways of knowing and thinking about transition into the profession

This section reports on the CEPs noted by participants as either an influence of constraint or enablement to their transition into the teaching profession. Karen *reported* a culture of 'faculty collaboration and provision of support', particularly from the Head of Department, as the most enabling influence on her pedagogical practice. Karen was 'one of two geography trained teachers in the faculty, so others came to me a lot and quickly in wanting advice [about teaching geography]' because the other geography specialist was her Head of Department, who was often taking on other duties across the school during 2020. Karen was enabled by supportive colleagues who allowed her the 'freedom to change and adapt existing units'; therefore, she felt 'respected'.

5.4.1.4 Reflecting on and setting goals for ways of doing geography

'Phase 3: Positioned in schools' provided an opportunity for participants to reflect on their previous goals and look forward to their future practice. As with Phases 1 and 2, the participants wrote their goals for personal reflection and did not elaborate on them in the group discussion. These goals are included in Section 7.5 to contextualise the current context for Anna, Emily, Grace, and Karen based on changes occurring between Social Lab 3 (December 2020) and May 2021.

5.5 Conclusion

This chapter explicated the results of the present study according to phase and emergent properties. The phase of study provides a context, while the emergent properties show the influences that enable or constrain pedagogical practice in the geography classroom as Anna, Emily, Grace, Karen, and Matt transition into the profession. Understanding about emergent epistemologies during a time of transition is evident in each research phase through the data generated from individual engagement with reflexivity theory and the GEOGStandards. Participant understanding about the conditions emerging and their response to the interplay between themselves, their wider teaching context and its influence on the choices they make about their practice is evident in the data. The next chapter discusses key findings.

Chapter 6: Discussion

6.1 Introduction

The present longitudinal study began in 2019, when the participants were completing their final year of study in an ITEP. The conclusion of the present study occurred at the end of 2020, when the participants had completed their first year of teaching. The research findings from the present study build an understanding of the under-researched field of transition into the teaching profession and its influence on pedagogical practice. The study also advances the understanding of how engagement with theory–practice reflection by TESs during professional experience transfers to their daily work as teachers over time and influences beliefs about good teaching (Stenberg et al., 2016; Stenberg & Maaranen, 2020a, 2020b).

The chapter is organised into three themes: the importance of theory–practice reflection, entering and transitioning into the profession, and the transformation of pedagogical practice.

6.2 Theory–practice reflection

This section addresses the nature and importance of theory–practice reflection. The present study responds to Stenberg et al. (2016), who called for further research to be conducted into the nature and impact of theory–practice reflection on pedagogical practice for TESs within and beyond professional experience. To do so, the study was designed longitudinally, aligning with Stenberg and Maaranen's (2020b) recommendation to gain deeper insights into how TESs become aware of and reflect on their personal practice theories or personal beliefs about teacher practice, and how they recognise its influence on their own practice.

The present study's use of a recurring question: 'What makes your geography lesson geographical?' was purposefully set against the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010). The recurring question helped participants to explicitly use the standards to identify and reflect on their pedagogical choices in their geography lessons. The use of reflexivity theory (Archer, 1979, 1982, 1988) encouraged the participants to interpret the broader context that influenced their decisions about pedagogical practice.

This section discusses the importance of theory–practice reflection in helping TEs to clarify their personal beliefs about geography and geography teaching. In addition, it explains how sustained engagement with theory–practice reflection became interpreted as an enabling structural process of mentoring and professional development. The discussion concludes by showing how a focus on the teaching standards for geography as part of theory–practice reflection revealed them to be relevant to shaping an identity for geography and geography teaching.

6.2.1 Personal beliefs

During the research phases of ‘Preparation’, ‘Profession entry’, and ‘Positioned in schools’, each participant reflected on and articulated personal ideas about distinctive features of their geography lessons, and then they formally connected their ideas to the GEOGStandards. Participants also set goals for their future pedagogical practice in geography in response to their *discernment*, *deliberation*, and *dedication of action* upon influences that either enabled or constrained their pedagogical practice in the geography classroom. Participants developed an independent capacity to self-reflect on the distinctive nature of their geography lessons, which supports similar findings from Eckersley et al. (2017) and Strangeways and Papatraianou (2016). These studies found that when TEs are afforded opportunities to make their own connections between theoretical understanding and practical knowledge, they develop a capacity to think and act like a teacher and identify with the role.

Sustained and explicit opportunities for individual and collaborative theory–practice reflection using the GEOGStandards and reflexivity theory meant that participants could connect their theoretical understanding to their personal beliefs and individual practice. In doing so, they transformed their pedagogical practice during professional experience and continued to do so as part of their daily work as graduate teachers. Such findings support the outcomes from Stenberg et al. (2016), who explored the effect of an intervention study on professional experience to show that TEs who participated in professional experience designed to focus on theory–practice reflection made more robust connections to theory in their reflective portfolios compared with those undertaking a more conventional professional experience, and it became embedded within their practice. In the present study, the participants discovered their pedagogical practice was enabled by their personal values and beliefs about good teaching or about the importance of geography as a subject.

Findings from the present study show that personal beliefs about geography were an enabling influence for all participants in their decisions about how to teach geography. During 'Preparation', personal beliefs about a love for geography and a focus on IBL drove the participants' pedagogical decision-making process. The GEOGStandards, which focus on knowing geography and the curriculum (GS1) and fostering inquiry and fieldwork (GS2), featured heavily in participants' dialogue and written reports. However, when participants faced challenging circumstances at a time of 'Profession entry', such as precarious employment, end-of-year assessment and reporting responsibilities, and out-of-field teaching, they questioned their personal beliefs regarding the importance and necessity of IBL in geography. Consequently, particularly for Karen, personal beliefs about using an inquiry approach to teach geography constrained pedagogical practice in the second research phase. A sustained, explicit, and combined focus on the GEOGStandards and Archer's reflexivity theory allowed the TESs to demonstrate how they became aware of their beliefs about classroom practice for geography. This finding contributes to findings from Stenberg and Maaranen (2020a, 2020b) about how TESs recognise the influence of personal beliefs on their practice.

The subject-based research focus of the present study and reflection on personal beliefs about teaching geography supports an assertion by Butt (2018) that when theory–practice reflection is contextualised within subject-based research such as geography education, practitioners can critically engage with their subject-based knowledge. In the present study, participants justified their personal beliefs about teaching geography and discovered how these were enabled or constrained by a range of structural and cultural properties encountered over time, such as syllabus documents, school-based Scope and Sequences, and pedagogical practices in schools.

Participants in the present study deeply engaged with what was distinctive about teaching geography. Butt (2018) believed that when practitioners engage deeply with their subject knowledge, they can analyse their pedagogical and professional practice to develop reflexive problem-solving capabilities in response to policy recommendations, curriculum documents, existing context, and an empirical evidence base. Additionally, findings from the present study reinforce the need to include opportunities for theory–practice reflection in geography methodology units so TESs can develop self-questioning capabilities and an understanding of their professional orientation towards the subject as suggested by Fögele et al. (2020).

6.2.2 Professional development and mentoring

Theory–practice reflection with explicit use of the GEOGStandards and reflexivity theory became a formative tool of professional development for participants throughout the study. The recurring question (‘What makes your geography lesson geographical?’) enabled participants to move beyond reflective conversations and engage in reflexive practice. Results from Bradbury et al. (2020) showed that while theory–practice reflection did build confidence among TEs in their use of professional language and their ability to autonomously plan and self-reflect during professional experience, there needed to be structured and focused time for TEs and their mentors to engage in reflective conversations. In the present study, social labs and semi-structured one-on-one interviews provided structured, focused time for reflection. The recurring question ‘What makes your geography lesson geographical?’ served as a ‘conversation card’ (Bradbury et al., 2020) whereby participants articulated their understanding of the distinctive features of a geography lesson before connecting to the GEOGStandards. The simple, yet impactful, nature of the recurring question meant that participants could sustain dialogue about pedagogical practice in geography and then draw upon a reflexive process to ‘bend back’ their thought (Archer, 2007) and reconstruct future lessons.

Through written, spoken, and practical forms, participants in the present study demonstrated their capacity to use the GEOGStandards as a formative reflective tool to inform their pedagogical practice in the secondary geography classroom. Each participant prioritised standards that were important to their personal beliefs about teaching geography and suitable for their school context. As such, within the context of geography, participants addressed in detail ‘know the content and how to teach it’ in the domain of ‘professional knowledge’ from the APSTs (AITSL, 2018). Bradbury et al. (2020) noted the contestability of professional standards such as APSTs being used as either a formative tool of ongoing development or a summative tool for accountability. However, findings from the present study offer a contrasting perspective. Theory–practice reflection with explicit use of the GEOGStandards and Archer’s reflexivity theory was an effective formative tool of professional development for participants. The conversational phrasing of the recurring question and multiple opportunities to connect the conversation to the formal language of the teaching standards for geography enabled participants to engage in reflexive practice, justify their individual practice, and hold their decisions accountable. This is similar to Adoniou and Gallagher (2017), who suggested that theory–practice reflection by ECTs in response to professional

standards has a positive and empowering influence on their professional practice, although they acknowledged the standards do not provide a complete picture of effective teaching.

All participants reported that their involvement in the present study was like a mentoring process whereby, over time, they had a continued 'safe space' to connect theory and practice in reflecting on and discussing their lessons with a trusted person. This finding reflects the work of Stenberg et al. (2016), who found that a shared understanding between the teacher educator and the TES, created by a focus on theory–practice reflection during professional experience, helped to foster theory–practice reflective discussions. While the importance of cultural practice around mentoring and the existence of structures such as induction programs for TESs who are transitioning into the profession is noted in research and policy, participants' responses from the present study suggest that policy has not been actioned. For example, Ingvarson et al. (2014) and TEMAG (2015) identified that transition into the teaching profession is best supported by structures such as guidance from professional standards, mentoring, and ongoing professional development. DET (2018) recommended induction programs as an essential support structure for a TES to become a 'fully-fledged teacher' (p. 74). 'Practice-focused mentoring' is recommended as a suitable induction program because it includes participation in networks, targeted professional learning, and reflection on classroom practice through observation, dialogue, and goal setting aligned with professional standards (DET, 2018). The design of the present study reflects a 'practice-focused mentoring' approach, and participants reported their involvement in the study as being an enabling structure of support for developing their pedagogical practice in the secondary geography classroom.

6.2.3 Relevance of the GEOGStandards

In each research phase of the present study, participants readily connected their pedagogical goals and existing practice to the GEOGStandards using their own lay terms and then connecting with the formal language of the standards. As such, findings from the present study show that the GEOGStandards were an enabling structural influence for TESs on their enactment of *discernment*, *deliberation*, and *dedication of action* regarding pedagogical practice in the geography classroom. Through targeted theory–practice reflection using the GEOGStandards and reflexivity theory (Archer, 2010b), participants could articulate an evidence base behind their pedagogical decisions. The ease with which the TES participants in the present study identified,

reflected on, and incorporated a range of GEOGStandards into their practice suggests there are distinctive features about teaching geography, and the GEOGStandards are appropriate for use in a TES and ECT context despite being derived from the practice of and input from experienced geography teachers (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010). In addition, the ease with which the TESs in the present study connected their ideas to the GEOGStandards and focused on developing selected standards in their practice according to the influences of their teaching context demonstrates the attributes of quality teaching and professionalism in meaningfully connecting theory with practice. In doing so, an outcome is reinforced from a discourse analysis by Bourke et al. (2012) that compared the GEOGStandards with the APSTs to determine their potential influence on teacher quality and professionalism. The strength of the GEOGStandards in developing teacher identity was attributed to their creation *from the profession for the profession* (Bourke et al., 2012). Having a set of standards specific to the teaching of geography provides value and identity to the subject, and those who teach it, at a time when public perception about the discipline and the profile of geography education in schools and at universities is diminishing (NCGS, 2018).

6.3 Entering and transitioning into the profession

Results from the present study show how the experience of entering and transitioning into the teaching profession influenced TESs' decisions about how to plan for and enact geography lessons.

During the study, participants were asked to identify a time, place, and event that indicated to them that they had entered the profession. This was done because a limited field of literature exists regarding what TESs articulate as their 'first steps' as a point of entry to the profession or point of embarkation to their first teaching position (Goldhaber et al., 2014). Participants felt they entered the profession after their final professional experience and during the second research phase of the study. Payment was an enabling structural influence that indicated entrance to the teaching profession. School cultural practice around collegiality and respect was also noted by participants as an important enabling influence — for example, being asked for advice from more experienced teachers about how to teach geography, or 'not feeling like a praccie', or being given keys to the classroom. Participant responses about respect and collegiality align with findings from Schuck et al. (2018) that collegial support in a school, such as working with a mutually respectful team; having time to talk, share ideas, and resources; and offering informal support and encouragement, helps ECTs engage with

their professional context and develop confidence to deal with the complexities of transitioning into the profession. However, participant views about entry into the profession were connected to the second research phase rather than during 'Phase 1: Preparation', which covered professional experience and their final months in an ITEP. Policy suggests that TESs should be recognised as members of the teaching profession from the beginning of an ITEP (Ingvarson et al., 2014; TEMAG, 2015), and that ITEPs are positioned as an early part of a teacher's professional journey (AITSL, 2020). Overall, findings from the present study suggest that participants do not feel part of the profession during an ITEP, and they lack a sense of belonging because of the way teachers respond to them and because they do not get paid on professional experience. A possible solution could be from Bjorklund et al. (2020), who proposed that ITEPs consider the inclusion of network-building components, or network literacy in units of study, to help TESs understand the purpose and significance of networks for professional development and teacher self-efficacy. Another solution is for ITEPs to actively create opportunities for TESs to form ties with those already in the profession — for example, by ensuring that they complete all professional experience at the same school (Bjorklund et al., 2020). Studies by Fantilli and McDougall (2009) and Gordon (2020) highlighted the importance of asking TESs to discern their own entry point into the profession. This could help inform decisions about how to develop necessary support structures for TESs that facilitate a sense of belonging in the profession and enable a nurturing and coherent transition process.

The remaining discussion about entering and transitioning into the profession is contextualised around challenges associated with relocation away from a metropolitan region, the prevalence of out-of-field teaching, managing wellbeing, opportunities for leadership and networking, and adapting to the increased presence of online and blended learning.

6.3.1 Relocation to regional New South Wales

One participant (Anna) in the present study relocated to a regional town from a metropolitan area. Her experience of relocation reflects key messages from the literature regarding reasons for relocation and the challenges faced once relocation has occurred.

6.3.1.1 Reasons for relocation

TEs are more likely to actively seek employment in regional areas if they completed professional experience at a regional school or have a personal connection to, or grew up in, regional and remote communities (Cuervo & Acquaro, 2018; Hazel & McCallum, 2016; Kline & Walker-Gibbs, 2015; Somerville et al., 2010; Young et al., 2018). Anna's experience confirms this finding; her family is based in a country town and she was comfortable with a 'town lifestyle', having experienced it during her childhood and teenage years.

Personal values and beliefs about access to quality education and responsibilities as an educator were also an important part of Anna's decision to relocate to a regional area. A study by Sheridan (2019) demonstrated a connection between personal values and motivation to teach in regional areas among TEs. However, Anna did not want to relocate more than a three-hour drive away from Sydney so she could return to her friends and family on weekends as necessary. Anna's decision to relocate, and yet minimise the effects of isolation from known networks, services, and facilities, is aligned with the finding of Hazel and McCallum (2016), who cautioned that moving too far away from all that is familiar adds another complication to the first year of teaching. At the beginning of 2020 (Phase 3), Anna relocated approximately 200 kilometres west from Sydney to a country town in NSW.

6.3.1.2 Challenges faced once relocation occurs

It can be difficult to retain teachers in regional areas due to the contractual nature of employment and the increased likelihood of teaching out-of-field (Sharplin, 2002; Somerville et al., 2010). While Anna was initially appointed on a 12-month contract for 2020, which was extended to another 12-month contract for 2021, the strength of her personal beliefs about why she wanted to relocate and teach in a regional area influenced her decision to stay at the school.

During the Phase 3 social lab, Anna spoke about being the sole teacher for geography and being responsible for the development of programs and resources. Teacher autonomy combined with Anna's personal values regarding quality education in regional areas, as well as her emphasis on understanding students and their communities (GS4) and inquiry and fieldwork (GS2), gave her confidence to explore interdisciplinary connections in geography. Anna made these connections between geography, agriculture, and science in response to student interest and lived experience. This was

consistent with her belief that syllabus content should be contextualised at a local scale and because the school had an Agricultural Centre of Excellence. Anna did not seek employment during Phase 2 of the present study, and during professional experience in Phase 1, she taught geography within the parameters set by a faculty Scope and Sequence and used a whole-school approach towards visible thinking and inquiry (GS2). Therefore, Phase 3 included Anna's entry point into the profession. Her experience of teacher autonomy for geography and her willingness to explore the interdisciplinarity of geography was a success and transformative for her pedagogical practice. Anna's teaching experience in a regional school is consistent with findings from Autti and Bæck (2021), who discovered the importance for students in rural and remote communities to have their learning explicitly linked to local contexts, and for the teacher to actively facilitate place-based connections that are not disconnected from the community.

6.3.2 Teaching out-of-field

In the present study, participants spoke about out-of-field teaching being indicative of their entry point into the teaching profession during the second research phase, and at the end of the third research phase they talked about out-of-field teaching as part of their experience of transition into the profession. These findings align with research (Gallant & Riley, 2017; Nixon et al., 2017) and policy (DET, 2018; Weldon, 2016) that ECTs are most likely to teach out-of-field. Findings from the present study regarding out-of-field teaching are discussed in three areas: identification and incidence of out-of-field teaching, mitigating the challenges of out-of-field teaching, and concerns about out-of-field teaching in geography.

6.3.2.1 Identity and incidence

In Phases 2 and 3 of the present study, most participants taught part of their timetable out-of-field and identified themselves as out-of-field teachers for business studies, commerce, sport, technology, and in the primary school. Hobbs (2013) believed that identification of self and practice as an out-of-field teacher is important for a practitioner to engage with the process of seeking strategies for support. Du Plessis et al. (2015) suggested that out-of-field teaching occurs in response to subject specialisation and stage qualification.

Participants in the present study were geography teachers employed to teach in the Human Society and Its Environment (HSIE) KLA. Commerce and business studies are

subjects of the HSIE KLA, and several participants were expected to teach these subjects during Phase 2, even though these subjects were not part of specific subject training in the ITEP. This finding relates to discussion about 'degrees' or 'scales' of being 'out-of-field' (Hobbs & Törner, 2019), whereby an assignment to teach within a KLA occurs because a major or minor teaching subject is part of multiple subject offerings. However, certification structures determine the practitioner as qualified to teach within the KLA, and school organisation structures tend to be broader than one subject (Nixon et al., 2017). Therefore, participants' experience of out-of-field teaching in HSIE reflects systemic requirements and a need to respond to individual school contexts — for example, due to policy determinants for timetable loads and an allocated number of permanent teachers per school based on student enrolments (Price et al., 2019).

During Phase 3, Anna, who relocated to regional NSW and taught geography and history as her in-field subjects, also taught extensively out-of-field in subject and stage: technology, sport, and in the primary years. Anna knew she would be teaching Stage 4 languages for 2021. Anna's self-identification as an out-of-field teacher for subject and stage is consistent with the definition of out-of-field teaching used in the present study from the work of Du Plessis et al. (2015) and Hobbs (2013). Her experience correlates with a study by Sharplin (2014), which revealed that teacher shortages in regional and rural communities contribute to an increased likelihood of teaching out-of-field. Anna's experience is also an inevitable outcome of policy that requires a teacher to be positioned in every classroom yet exacerbates the incidence of out-of-field teaching in regional Australia because teacher distribution is concentrated in metropolitan areas (Hobbs & Törner, 2019).

6.3.2.2 Mitigating the challenges

The main challenge identified in the present study regarding out-of-field teaching was that participants felt underprepared from the ITEP and overwhelmed with having to learn content and ways of connecting with a subject they were not specifically trained to teach. In some instances, participants believed classroom management issues were more noticeable when teaching out-of-field compared with when teaching geography. Miles and Knipe (2018) confirmed that feelings of under-preparedness are a common experience for TEs as they transition into the teaching profession from an ITEP, particularly in response to classroom management, although they did not make the connection with classroom management issues arising in response to out-of-field

teaching. However, a study by Du Plessis (2019) acknowledged that a connection does exist for ECTs between the incidence of classroom management issues arising when practitioners are trying to master content knowledge and content delivery in an out-of-field teaching context.

Although participants in the present study reported out-of-field teaching as a constraint to their pedagogical practice overall because they felt underprepared, they each found a way to mitigate the problem. Their sustained emphasis on theory–practice reflection in geography meant they could apply the process to help understand the out-of-field subject. By drawing on and applying ideas from the GEOGStandards, such as knowing geography and the curriculum (GS1) and understanding students and their communities (GS4), participants used structural enablers such as reaching out to networks either in person or via social media groups, which they found helpful for gaining advice about suitable resources and strategies for teaching other subjects. These strategies support Gallant and Riley’s (2017) finding that constraints associated with out-of-field teaching are best managed when practitioners purposefully engage with CoPs and have access to professional learning. In addition, participants in the present study spoke about a personal desire to learn and ‘teach themselves’ the subject, thereby demonstrating their commitment to delivering high-quality teaching and learning regardless of the subject (Hobbs & Törner, 2019). One participant drew on her teacher–subject identity and evidence from Hobbs and Törner (2019) and NCGS (2018) regarding out-of-field teaching being prevalent in subjects such as geography and science to justify her refusal of an out-of-field teaching load in commerce during Phase 3.

Participants also spoke about their engagement in the present study as a mentoring program as a way of developing their practice in out-of-field subjects, along with developing trusting relationships with members of the school leadership team or colleagues in their department. These coping strategies for out-of-field teaching connect to advice from Du Plessis (2016) about mentoring and support from school leadership teams and trusted others as being important for building resilience, developing teacher capacity, and reducing negative outcomes associated with out-of-field teaching. This is further supported by Nixon et al. (2017), who suggested that subject-specific induction programs aligned with professional standards (the *Next Generation Science Standards* in their study) help develop teacher capacity in subject knowledge and pedagogical understanding.

6.3.2.3 Concerns in geography

Participants in the present study all qualified as geography teachers, yet they taught out-of-field and reported being either the only specialist geography teacher or one of two geography teachers in their school. While they taught in-field for geography, they also taught subjects outside their specialisation, despite the likely scope within their school context to have a full teaching load of geography, or at least a combination of their specialist teaching subjects. Participant experience corresponds with statistics in a national report about the out-of-field teaching phenomenon in Australian secondary schools (Weldon, 2016). The report showed that the proportion of teachers who are specialised in geography but do not teach it is greater than the proportion of teachers who teach geography out-of-field (Weldon, 2016). It is known from research that out-of-field teaching presents many challenges to those entering and transitioning into the profession, and it contributes to attrition (Du Plessis & Sunde, 2017). While each participant in the present study chose to remain in the profession, the pressure of a predominantly out-of-field teaching load for 2020 was cited by Matt as his reason for leaving the study, even though he was employed as a specialist geography teacher.

It is a concern that specialist geography teachers are not timetabled to teach a full load of geography when there is in-school scope to do so, especially when there are small numbers of graduating specialist geography teachers in Australia. There are concerning statistics evident in *Geography: Shaping Australia's Future* (NCGS, 2018) about the provision of geography methodology units in ITEPs. For example, only nine out of 37 universities had tenured specialist geography educators for the methodology units, and only 19 out of 37 universities offered a geography methodology unit for the secondary years of schooling (NCGS, 2018, p. 85). The provision of geography methodology units in ITEPs is also of international interest, particularly in response to the number of offerings and who is delivering the units, together with their focus on content knowledge, pedagogic strategies, and the use of technology (Brooks, 2017; Mitchell, 2017; Viehrig et al., 2019). Research suggests that to suitably prepare future geography teachers and equip them to transform their teaching practice in geography, the methodology units should be taught by specialist geography educators and designed in a way that allows TESs to explore their geographical subject identity and develop a connection with the discipline itself (Brooks, 2016, 2017, 2021; Mitchell, 2017).

6.3.3 Managing wellbeing

In the present study, participants only raised concerns about wellbeing during the second and third research phases. At first, participants identified emotions, such as feeling grumpy, arising from a higher-than-anticipated level of responsibility and workload. Later, they focused on how to manage and protect wellbeing in the context of workload, work–life balance, and expectations of others. Managing wellbeing to prevent exhaustion and burnout due to expectations of workload and finding a good work–life balance is a common feature in the literature on teachers in their early-career years (Buchanan et al., 2013; Rajendran et al., 2020). Although Buchanan et al. (2013) and Rajendran et al. (2020) noted concerns about wellbeing in response to attrition of ECTs, participants in the present study did not indicate a desire to leave the profession. The discussion in this section focuses on responsibilities and workload as a cause of concern in regard to wellbeing, as well as strategies to protect wellbeing.

6.3.3.1 Responsibilities and workload

Participants in the present study reported a higher-than-anticipated level of responsibility and a large workload as a structural constraint to managing their wellbeing when entering and transitioning into the teaching profession. Concerns raised in the present study about levels of responsibility and workload align with findings from Buchanan et al. (2013), Gordon (2020), and Fantilli and McDougall (2009). Reported responsibilities included being ‘solo’ in the classroom; uncertainty regarding report writing and engaging with parents and carers; and maintaining classroom management for behavioural and differentiation needs of students. Participants also spoke about a lack of support compared with professional experience. These findings are echoed in research by Fantilli and McDougall (2009), who confirmed that TESs receive little support upon entry to the profession yet have instant responsibilities at the same level as more experienced teachers. Farrell (2016) referred to heightened responsibility and workload compared with expectations as part of the ‘transition shock’.

Wellbeing concerns mentioned by participants focused on managing anxiety, balancing time with family and continuing with hobbies, and unexpected changes to their practice that occurred because of teaching during a pandemic. This aligns with findings from Miles and Knipe (2018), who focused on the transition of TESs into the teaching profession. They found that TESs raised concerns about wellbeing during transition in response to feeling underprepared for an extensive and complex workload, managing

behaviour, devising differentiated and inclusive learning strategies, and engaging with parents.

In the present study, participants also mentioned responsibilities and workload in connection with a precarious employment entry point into the profession. During the second research phase, short-term temporary contracts, and casual relief teaching were the most common ways participants entered the teaching profession. A precarious employment experience is known to be common for TESs within their first two years of leaving an ITEP (AITSL, 2020; DET, 2018; Jenkins et al., 2017). While employment during 'Phase 2: Profession entry' was identified as an enabling structural influence associated with payment, participants also noted precarious employment as a structural constraint. The constraint arose in response to heightened emotions and workplace vulnerability because of constant exposure to new subjects, people, and places. Heightened emotions and workplace vulnerability noted by participants in the present study correlate with findings from Jenkins et al.'s (2017) that a range of emotions are prevalent during precarious employment, and they enhance the challenging nature of the transition period for TESs. Findings from the present study are also consistent with Millar (2017) and Mindzak (2020), who described precarity as being typically insecure, sporadic, and characterised by a loss of existing relationships because of constant exposure to new people and places, which contributes to a lack of work-based identity. According to Jenkins et al. (2017), the regular exposure of TESs to precarious employment and its associated emotions presents challenges for the future design of ITEPs. A possible solution to precarious employment and managing wellbeing was offered by Gillett-Swan and Grant-Smith (2018), who proposed a WIL strategy to contribute to the professional development, self-efficacy, and wellbeing of TESs as they transition from education to employment. Gillett-Swan and Grant-Smith (2018) found that WIL helps individuals to manage competing threats to their wellbeing and focus on the experience of learning in the workplace to meet initial accreditation requirements while being paid.

6.3.3.2 Strategies to protect wellbeing

Entering and transitioning into the profession amplify ECTs' concerns about work-life imbalances and workplace stress yet can also lead ECTs to develop strategies of resilience (Kutsyuruba et al., 2019). Beltman et al. (2009) also identified intrinsic motivation, self-efficacy, collegial interactions in the workplace, and engagement with mentoring programs as key reasons for TESs and ECTs enacting

strategies to protect wellbeing and develop resilience. Participants in the present study personally enacted a range of coping strategies to develop resilience and protect their wellbeing, which demonstrates intrinsic motivation and self-efficacy. For example, working with colleagues to learn how to become more assertive in asking for help; prioritising time to play games and be with family members; and establishing clear boundaries between work and home, even if long days at school ensued. These responses align with a key finding of Kutsyuruba et al. (2019) regarding the importance of consulting with others or seeing colleagues as supporters and asking them for advice. Kutsyuruba et al. (2019) and Burger et al. (2021) also suggested that accessing school-based mentoring programs is important to support wellbeing and protect against exhaustion. Participants in the present study did not mention a desire to engage with such initiatives, although they often mentioned that their involvement in the doctoral study was a safe space to discuss their professional and pedagogical practice, and it felt like a mentoring experience.

6.3.4 Embracing leadership, committee, and networking opportunities

Leadership, committee membership, and networking opportunities are known to be important for professional development and allow active contribution to a CoP (Gallant & Riley, 2017; Rajendran et al., 2020; Wenger, 2009). In the present study, participants reported that their engagement with and contribution to CoPs within and beyond the school were driven by their personal values and beliefs about teaching geography and were an enabling structural influence on their pedagogical practice. In doing so, participants demonstrated an ability to progress professional growth and development (GS8) and engage in collegial learning (GS9). This section discusses embracing leadership, committee, and networking opportunities within and beyond the school.

6.3.4.1 Within the school

In the present study, each participant had an opportunity to take on leadership roles within their school department in response to a combination of school cultural practice, timetable structures, and their personal desire to help colleagues teach geography in a distinctive way. Committee opportunities, such as joining the 'Learning Walk Team', were self-initiated and related to wanting to be part of a whole-school approach to professional learning and development. Through the uptake of such roles, each participant in the present study developed their professional capacity and pedagogical practice, which is consistent with findings from a study by Cheng and

Szeto (2016) that in leadership roles, whether the roles are designated or self-initiated, ECTs developed their leadership capabilities, were able to fulfil their interests within teaching, and contributed to overall school success. Further, and also in the study by Cheng and Szeto (2018), it was reported that while leadership opportunities were dependent on school culture and personal desire or interest to lead, the ability of ECTs to see a 'career ladder' encouraged their retention in the teaching profession.

Some leadership opportunities, such as course coordinator for Stage 4 geography, were related to participant timetables and were therefore an expectation of workload. This structural influence was found to be an enabler of pedagogical practice by participants because it helped them to develop their identities as specialist geography teachers and their feelings of belonging in the school department. Participants often spoke about being asked for advice about how to teach a particular part of the geography syllabus or how to incorporate technology into pedagogical practice for teaching geographical communication and mapping skills. Previous research has also reported that geography-focused TESs are often positioned formally and informally by colleagues as 'knowers' in their subject during professional experience (Puttick, 2018). Butt (2018, 2020) also asserted that TESs are perceived as conduits between research and practice and can therefore become agents of change in self as well as among their colleagues.

Emily, who identifies as a mid-life career-change teacher with no previous connection to education — which reflects the definition coined by Bar-Tal et al. (2020) — was determined to gain permanent employment, develop herself as a specialist geography teacher, and gain accreditation as a proficient teacher as soon as possible. As a career-change teacher and mother to a primary-school-aged daughter, it was important to Emily to find security and ensure longevity for her future teaching career. To do this, she involved herself in a range of leadership, committee, and networking activities, which demonstrated attributes of a 'highly engaged persister' (Watt & Richardson, 2008, p. 417); that is, a career-change teacher who looks forward to a long career in the profession after having made a significant change to their life. Emily specifically sought opportunities to engage with leadership, committee, and networking opportunities because she knew about the value of such opportunities from her previous career as an executive assistant in a global finance company. Therefore, Emily continued to demonstrate the attributes of a career-change teacher because she brought and acted upon a broader range of life and work experience to her studies and work in schools compared with those who join ITEPs as school leavers (Varadharajan et al., 2020).

6.3.4.2 Beyond the school

Emily, Grace, and Karen regularly looked towards the state and national professional associations for geography teachers for networking and professional learning opportunities. They were driven by their personal values and beliefs about the importance of identifying as a geography teacher. Structural influences were acknowledged as an enabler of practice; for example, participants spoke about how they were regularly informed about professional association events in the geography methodology unit. Participants were also influenced by the personal values and beliefs regarding their professional experience supervising teachers who emphasised the importance of joining and engaging with the professional associations. A combination of enabling influences from structural and personal emergent properties helped to facilitate participant action on their own values and beliefs. Participants reported wanting to attend conferences to develop their understanding of content knowledge and pedagogical strategies. They believed a connection with a professional association would be beneficial for engaging and networking with specialists in the field of geography education and would build their identity as a geography teacher. The action and reasoning of Emily, Grace, and Karen in the present study align with claims from Kinder (2017) regarding the importance of developing professional identity as an individual and as a collective of geography educators by belonging and contributing to a professional association through sustained interactions to develop a CoP. The focus of Emily, Grace, and Karen on the professional associations also supports findings from a study by Golding (2017) about why mathematics teachers engage with their subject-focused professional association.

During 'Phase 1: Preparation' and 'Phase 2: Profession entry', participants attended state and national conferences run by the professional associations. During 'Phase 3: Positioned in schools', participants demonstrated a willingness to contribute to the professional association. For example, Emily was accepted as one of 20 councillors in the state professional association, Grace expressed her goal to join the Council in 2021 and give back to a community that has supported her, and Karen spoke about her goal to present a workshop at a 2021 conference run by the national professional association. The sustained and active interest demonstrated by participants in joining and/or contributing to association events contradicts findings from a longitudinal study by Pietsch and Williamson (2010), who found it was not until the end of the first year of teaching that ECTs show interest beyond their classroom and school to the wider professional community. Pietsch and Williamson (2010) also reported how a regular

employment context of their participant group influenced their decisions about when to engage with a professional learning community. However, Emily, Grace, and Karen were not regularly employed during their third or final year of university, and they paid for themselves to attend conferences and equivalent events in response to the strength of their personal values and beliefs about what it means to be an effective geography teacher.

Although Anna did not attend professional association events, she often spoke about professional and personal support being important for her development as a geography teacher in the methodology unit and during the study because all of us were willing to share and discuss our learning as a trusted community. Therefore, from a combined sustained engagement with each other during the methodology unit, the present doctoral study, and the professional association, the participants and I developed a partnership in learning which is a concept identified by Hill et al. (2016) from their study with students and faculty members in an undergraduate academic geography course as they engage with each other personally and emotionally to challenge and support each other's changing identity and consider ways of knowing, understanding, and doing in geography. Hill et al. (2016) also used the term 'borderland spaces' to identify partnerships in learning occurring from the field, digital learning, and peer-mentoring. From results in the present study, our 'borderland spaces' can be conceptualised as the methodology course, professional association events, and involvement in the doctoral study. The success of these 'borderland spaces' as a conduit for the development of a learning partnership between the participants and me raises important considerations for the future design of teaching, learning, and assessment practices in geography methodology courses. That is, how to develop confidence in TESs and methodology lecturers to create and enter 'borderland spaces' where a learning partnership based on challenge and support can develop to facilitate a transformation of practice and articulation of self-development (Hill et al., 2016).

6.3.5 Adapting to an increased presence of online and blended learning

Throughout the study, participants explored online and blended learning opportunities. Online and blended learning is not new for geography; physical and human domains of the discipline have been successfully taught online for decades. This is due to purposeful design combined with extensive planning and forethought about the use of geospatial technologies, virtual reality, and sustained opportunities for learners to engage with each other, with the tutor, and with the content (Schultz & DeMers, 2020).

During 'Phase 1: Preparation', such explorations occurred as participant choice, reflective of personal values and beliefs regarding teaching geography, in connection with structural influences of school department programs, and the GEOGStandards on developing geographical thinking and communication (GS3), understanding students and their communities (GS4), and creating a safe yet challenging learning environment (GS5). During 'Phase 3: Positioned in schools', it is noted in the literature that the exploration of online learning was forced due to the arrival of COVID-19, which necessitated an urgent yet innovative and effective response in moving from in-person to digitalised or online modes of research, teaching, learning, and assessment (Bagoly-Simó et al., 2020; Lorenza & Carter, 2021; Schultz & DeMers, 2020; Scull et al., 2020). In the present study, each participant learned to adapt their practice in response to personal and structural enablers related to enhancing interactions with students and fostering student engagement with learning (Eager et al., 2020; Scull et al., 2020).

In the final social lab, each participant identified COVID-19 as a dominant theme to depict their journey of transition. Key constraints to practice were identified by participants as limited access to technology, and capabilities in using technology to retain distinctiveness in teaching geography. These structural concerns from the present study align with those raised by Bagoly-Simó et al. (2020), who highlighted the main challenges faced by geography teachers during the pandemic as unequal access to technology and a compromised ability of teachers to use, apply, and teach geographical mapping skills. The next section discusses adapting to online and blended technologies in response to developing self and developing others.

6.3.5.1 Developing self

In the present study, participants found that a forced transition to online learning became an enabling influence for their professional development and pedagogical practice. They re-evaluated their practice by focusing on structures such as the recurring question 'What makes your geography lesson geographical?' by using the GEOGStandards: knowing geography and the geography curriculum (GS1), geographical thinking and communication (GS3), and understanding students and their communities (GS4). By deliberating over current lesson planning foci, classroom management techniques, and plans for assessment and reporting, participants in the present study were able to reconstruct their practice and develop new strategies to increase student accountability and address sporadic student engagement with lessons. They focused on moving away from content delivery and towards facilitation of learning

by providing opportunities for learners to engage with content, with their peers, and with them as the teacher. Such findings align with those in a recent study by Schultz and DeMers (2020). Participants spoke about attending to structure, collaboration, connection, and enhancing interactions with students to foster student engagement with learning which reflects claims by Eager et al. (2020). Furthermore, according to Scull et al. (2020), Lorenza and Carter (2021), and Schultz and DeMers (2020), such attention to structure, collaboration and interaction with students is critical for success in an online learning experience, especially during emergency remote learning.

Each participant in the present study spoke about how they learnt to use Zoom and have continued to incorporate and adapt it into their current teaching practice, even after schools returned to face-to-face teaching. Participants also spoke frequently about their mindfulness for creating online resources that they can continue to use regardless of pandemic restrictions. This practice supports the recommendation from Guo et al. (2020) that multimedia and digital resources created during lockdown should have capacity for refinement and future use after the pandemic.

6.3.5.2 Developing others

Karen emerged as a confident user of technology. During 'Phase 1: Preparation', she had limited opportunities to incorporate digitisation and online learning strategies into her repertoire because of accessibility issues related to school context. During 'Phase 3: Positioned in schools', Karen spoke of her pedagogical practice being enabled and transformed by a forced transition to online and blended learning because she was able to adapt existing units of work to suit the needs of online learning in geography. Consequently, Karen quickly became an integral member of the school department and was deeply involved in faculty programming decisions, which fostered feelings of respect and acceptance because colleagues asked her for help, adopted her advice about online teaching strategies, and used the digital resources she created. Cultural practice in the school department and structures available to support the use of technology, such as through access to Google platforms, were important influences to enable Karen's professional development and pedagogical practice in geography. Karen's experience aligns with findings from Wohlfart et al. (2021) regarding factors that foster or deter teachers' acceptance and use of technology in their teaching. They discovered that user motivation and familiarity in using technology, together with having access to a confident technology user in a group of teachers, positively influenced the

perception, uptake, and acceptance of technology and the use of digital tools among less technology-capable practitioners.

Karen used Google Tour Creator to reimagine an in-person, fieldwork-focused unit of work for Landscapes and Landforms as an online, personalised, teacher-facilitator, student-directed asynchronous game-based and project-based learning experience. The unit of work incorporated two syllabus areas — ‘Interconnections’ and ‘Landscapes and Landforms’ — and became conceptualised as ‘Where in the World is Carmen San Diego?’ In doing so, Karen’s instructional design and planning considerations for online learning reflected recommendations from Hodges et al. (2020) about modality, pacing, pedagogy, and the online roles of instructors and students. Karen’s practice also aligns with advice from Bagoly-Simó et al. (2020) on using educational media and the scope of COVID-19 as a content focus in geography lessons. However, contrary to advice from Guo et al. (2020), Karen found a way to replace fieldwork using technology. Karen’s work was remarkable because such enactment was not always possible at the time of lockdown (Hodges et al., 2020), and by using theory–practice reflection strategies, Karen focused on the recurring question of the study, as well as the GEOGStandards, including knowing geography and the curriculum (GS1), geographical thinking and communication (GS3), and the creation of a safe, challenging learning environment (GS5) to develop student understanding about interconnections between people, place, and environment. The other remarkable aspect of Karen’s online pedagogical practice is that it contradicts findings from a study with secondary geography teachers in Germany, which reported difficulties for teachers in finding a balance between supervision and support of students in an emergency remote-teaching format and having minimal opportunities to incorporate content related to the pandemic into lessons due to a prescriptive syllabus (Bagoly-Simó et al., 2020).

Karen’s online learning initiative raises important considerations for the future of learning in geography methodology courses that are typically delivered face-to-face. Karen’s ‘Carmen San Diego’ unit using Google Tour Creator is similar to the work of Lee (2019), who used Story Maps in a geography methodology course with TESs for one semester to develop an understanding of distribution, relationships, and processes to support learning about interconnections between human and environmental factors. Karen’s unit of work also supports findings by Kim and Shin (2016), who used *SimCity* in a geography methodology course to enhance an understanding of the liveability and planning concerns of a city. Although game-based learning in an ITE context for geography remains under-researched (Kim & Shin, 2016), the success of Karen’s

initiative with her students, as a TES who recently entered the profession, suggests there is scope for incorporating game-based learning into a methodology course to develop application and critical examination skills of complex geographical problems. The use of geospatial technologies, such as Story Maps or similar platforms and programs, reinforces spatial understanding, spatial reasoning, and solution-finding skills not only as part of inquiry and problem- or project-based instruction (Lee, 2019), but also as part of understanding the distinctive core of geography.

6.4 Transformation of pedagogical practice

This section addresses the way in which transformation of pedagogical practice occurred during the study. This study responds to a need to focus on the practitioner rather than on student learning outcomes (Catling, 2017; Lambert, 2015) to explore how, over time, TESs can interpret, reflect on, develop, and transform their teaching practice. The present study also connects to recommendations from *A Roadmap for 21st Century Geography Education: Recommendations and Guidelines for Research in Geography Education* (Bednarz et al., 2013) — in particular, Recommendation 3 (to conduct future research about the characteristics of effective geography teaching) and Recommendation 5 (about the need for research in ITE to determine what TESs need to be able to understand and teach) (Bednarz et al., 2013). The present study's focus on the TES as a practitioner during their time in a geography methodology unit, and then beyond ITE into profession entry and their early-career years, responds to the call to ascertain effective, enduring ways to incorporate geographical content, concepts, and skills into such teacher preparation programs (Bednarz et al., 2013).

To understand the nature, importance, and effect of pedagogical practice on the practitioner, the practitioner must ask themselves, or be asked, about why they teach the way they do (Brandenburg, 2008; Brooks, 2017). The present study achieved this through the recurring question, 'What makes your geography lesson geographical?', and explicit emphasis on using the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) and reflexivity theory (Archer, 2010a, 2010b, 2012) as a reflective tool and dialogue prompt. When engaging with the recurring question as part of theory–practice reflection (see Section 6.2), participants demonstrated their ability to identify, reflect, and act upon their pedagogical choices and decisions for geography lessons in response to their broader teaching context.

It is known through literature that transformation of practice among TESs during a methodology unit, professional experience, and their early-career years occurs when

there is an opportunity to: (i) learn how to use geospatial technologies (Lee, 2019; Walshe, 2017); (ii) develop their geographical thinking and communication skills; and (iii) explore the grand challenges of geography through questioning and conceptualisation (Seow & Ho, 2016), and approaches related to education for sustainable development (Bagoly-Simó et al., 2018; Rushton, 2021).

To suitably prepare TESs of geography to transform their teaching practice in the subject, methodology courses need to be taught by specialist geography educators and be designed in a way that allows TESs to explore their geographical subject identity and develop a connection with the discipline itself (Brooks, 2016, 2017; Mitchell, 2017).

While participants in the present study did not explicitly enter the territory of misconceptions and conceptual change (Reinfried, 2006), they did focus on inquiry to connect with the personal geographies and prior knowledge of students (Roberts, 2017, 2020) to understand their students' geographical learning. Participants also learned to use geospatial technologies and concentrate on developing their own, and their students', geographical thinking and communication skills through exploration of geography's grand challenges with a focus on inquiry.

This section discusses how a transformation of pedagogical practice occurred in response to structural and personal influences related to teaching a 'geographical geography lesson'. Structural influences such as the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) and involvement in the present study are shown to be structural enabling influences that connect with participants' personal values and beliefs about teaching geography. The discussion is organised around IBL, geographical thinking and communication, and developing an identity as a specialist geography teacher.

6.4.1 Inquiry-based learning

The use of an inquiry approach to teach geography is advocated in the GEOGStandards — fostering inquiry and fieldwork (GS2) — and recommended in the *Kindergarten to Year 10 Geography Syllabus* (NESA, 2016). The use of IBL in geography was also emphasised by Roberts (2017). At each social lab, participants were asked to individually suggest and collaboratively agree upon up to five distinctive features of a geography lesson. Inquiry always appeared as a distinctive feature of a geography lesson in participants' personal values and beliefs, but its position in the hierarchy wavered in response to their current experience of the school context, such as school cultural practice, or structural influences, such as school department Scope

and Sequence documents and timetabling arrangements. This section focuses on VTRs as an enabling transformative influence on pedagogical practice, and time as an influence of constraint.

6.4.1.1 Enabling an inquiry-based learning approach

In the first research phase, when participants were on professional experience, an inquiry focus was evident in each observed geography lesson and attributed to the extensive and explicit use of VTRs from *Project Zero Harvard's Thinking Routine Toolbox*. The VTRs were used to frame a debate around a proposition or overarching question about a grand challenge of geography such as human wellbeing, sustainable futures, climate change, refugees, or water scarcity. The purpose was to prompt student thinking about, and facilitate their engagement with, a complex topic so they could contribute in a personalised, informed, and active way. In doing so, participants demonstrated a pedagogical emphasis on developing geographical thinking and communication (GS3), and creating a safe, supportive, and challenging learning environment (GS5) so students would feel comfortable sharing their ideas. Their approach reflects justifications for inquiry in geography put forward by Roberts (2017, 2020): that students actively construct their understanding to make sense of their world; learn to ask and respond to geographical questions; and see the relevance of geographical learning. The way in which participants used an inquiry approach also demonstrated an understanding of the need to use Socratic questioning techniques to help students create and build an argument about geographical grand challenges and propose a potential solution (Hawkey et al., 2019). Participants used an inquiry method to develop critical thinking among their students, which corresponds with findings from a study by Hoffman et al. (2021), who suggested that the grand challenges of geography are best taught through an inquiry-focused, problem-based learning approach because students can become agentic in applying understanding to a social context and therefore propose a range of alternative futures that may potentially solve the so-called wicked problem.

Participants reported being introduced to VTRs by the new tutor of the geography methodology unit, although they were not used in workshop activities. When I observed the use of VTRs in participant lessons, I decided to incorporate such activities into my teaching repertoire at the university and in the second and third social labs. The reciprocal learning that occurred between me and the participants aligns with results from a study by Makinen et al. (2018), whereby TESs wanted to be viewed as junior

colleagues and be guided, have their ideas acknowledged, and build trusting relationships with more experienced educators. In Makinen et al.'s (2018) study, teacher educators worked in collaboration with the TES to develop a trusting, safe space of learning where they could question and support each other to transform pedagogical practice. Such reciprocal learning in the present study reflects findings from Makinen et al. (2018) and supports the fostering of inquiry (GS2), geographical thinking and communication (GS3), and creating a safe yet challenging space for learning and teaching (GS5).

The inclusion of VTRs in synchronous online and blended learning design supports findings from Howe and Watson (2021) regarding the need for pre-pandemic teaching conditions to be considered and adjusted to fit with alternative modes of lesson delivery required during a pandemic and post-pandemic. VTRs such as 'Think Pair Share' were effectively used by Howe and Watson (2021) before and during pandemic teaching because they allow for active engagement in learning with each other and with the curriculum to see connections. The activities also provide scaffolding activities, which assist with sharing their thoughts and ideas in a safe learning environment (Howe & Watson, 2021).

6.4.1.2 Constraint to inquiry-based learning

Participants reported school context to be both a structural influence of constraint and enablement for the use of inquiry-based approaches in their lessons. Time constraints and a lack of specialist geography teachers at the schools resulted in a reliance on textbook-focused lessons. Such contexts challenged participant beliefs about what it is that makes a geography lesson geographical, although participants always stated their belief about inquiry being a distinctive feature of a geographical geography lesson. Constraints identified by participants in the present study were noted by Ferretti (2016) as common reasons for not incorporating an inquiry approach into geography lessons.

Despite the identified constraints of using an inquiry approach, the participant group was able to plan, enact, and discuss a rationale for inquiry in their geography lessons by connecting VTRs with the GEOGStandards and then interpreting a 'what next' part using reflexivity theory and the GEOGStandards. This resulted in clear justification of the distinctive geographical features of a geography lesson; therefore, a geographical geography lesson identified through theory–practice reflection can be identified as a 'good' geography lesson (Bustin, 2017; Roberts, 2017).

6.4.2 Geographical thinking and communication

In the present study, geographical thinking was said to occur through the five core concepts — place, space, environment, interconnections, and scale — which elicits a distinctive knowledge of geography and therefore becomes powerful (Maude, 2017). Concepts, as the powerful nature of geographical thinking, are evident in the GEOGStandards and help TESs to discern and justify responses to questions such as ‘Where is the geography?’ (Bustin, 2019), or, in the language of the recurring question for the study, ‘What makes a geography lesson geographical?’ When participants in the present study were asked to individually respond and collaboratively agree upon up to five distinctive features of a geography lesson in the social labs, the concepts always featured in the list, closely followed by geographical tools and skills as a mode of communicating geographical thought. Therefore, participants demonstrated their understanding of the power of geographical thinking.

Throughout the study, Grace and Emily emphasised the explicit use of concepts in their lessons, particularly interconnection, environment, place, and sustainability. Grace and Emily also prioritised the incorporation of geographical tools and skills such as maps, visual representations, and statistics to communicate information to students; the expectation was also for students to use an array of geographical tools and skills in communication of their learning. During interviews and in the social labs, Emily and Grace regularly referred to knowing geography and the curriculum (GS1), as well as geographical thinking and communication (GS3). Their teaching reflects advice from Maude (2017) about concepts enabling students to develop their geographical understanding and how such understanding can transform into action to create change, for example, change can occur through students’ ability to engage with public debate and develop future-focused thinking.

Anna and Karen set up units of work whereby students could communicate their geographical understanding through a blog function on the relevant learning management system. Their decision aligns with Brendel (2017), who used weblogs to connect with students’ personal geographies and develop geographical thinking by investigating how they reflect on the key concepts of geography.

6.4.3 Developing as a specialist geography teacher

Brooks’s (2016, 2017) assertion that a strong teacher–subject identity shapes a teacher’s practice arose from her longitudinal investigation over a 14-year period with

10 geography teachers in England. The focus of her work was on how the teachers used their subject knowledge of geography to help guide the 'why' of their pedagogical practice and deal with the challenges they faced in their teaching of the subject. Throughout the study, Emily often identified herself as a 'specialist geography teacher'. A self-directed focus towards subject specialism as part of teacher identity, such as in geography or science, is known to play a crucial role in shaping the personal choices, motivations, and narrative regarding teaching overall and teaching of geography in particular (Brooks, 2016). Emily's self-identification also aligns with results from a qualitative exploratory study into the identity of two career-change science teachers who revealed the importance of loving scientific learning and identifying themselves as a scientist before identifying as a teacher and loving scientific learning (Smetana & Kushki, 2021).

Emily's desire to 'focus on being a geography specialist teacher [because] I don't want to teach anything other than geography' arose in response to the recurring reflective question of the present study: 'What makes your geography lesson geographical?' It reflects her choice to change careers and her use of commentary on out-of-field teaching in geography, which is evident in documents such as *Geography: Shaping Australia's Future* (NCGS, 2018) and professional readings from Weldon (2016) and Hobbs and Törner (2019), to make the case for retaining a full teaching load of geography on her timetable. The decision to focus on her specialisation as a niche area was further enhanced when colleagues mentioned to her that she should teach other HSIE subjects such as commerce (which would position Emily as an out-of-field teacher) and her annoyance at not being allocated to a Stage 6 geography class in 2021. Consequently, Emily developed a five-year plan to position herself as the specialist geography teacher in the school. The plan included a strategy to establish a Stage 6 geography class by 2024.

The importance of recurring questions in helping shape teacher–subject identity was also noted by Brooks (2016, 2017), whose examples included 'Why is teaching geography is worthwhile?' and 'Why do they prioritise some pedagogical approaches over others?' Participant responses to the recurring questions assisted with navigation of their pedagogical practice because they knew what was important and distinctive about geography, and therefore could develop a 'subject story' that resonated with students (Brooks, 2017).

6.5 Conclusion

The experiences of transition into the profession and the resultant transformation of pedagogical practice arose from a combination of PEPs, SEPs, and CEPs. To make sense of the transition experiences and to determine what enabled or constrained pedagogical practice, each participant reflected on their learning from university and school contexts in response to a recurring question, the GEOGStandards and reflexivity theory. School contexts included those from professional experience, casual employment and short-term contracts, and full-time employment. University contexts included the geography methodology unit and their participation in the doctoral study. Once TESs identified what enabled or constrained their practice in response to the experiences of transition, which included relocation to regional NSW, out-of-field teaching, managing wellbeing, taking on leadership and networking opportunities, and adapting to an increased presence of online learning, participants drew on their enabling influences to take action. Personal values and beliefs were a dominant enabler of pedagogical practice. The importance of theory–practice reflection including the use of professional standards was also an important enabling structural emergent property.

For participants in the present study, the strength of personal and structural emergent properties as an enabling influence during a time of transition develops empirical understanding about emergent epistemologies around the conditions influencing practice and identity of TES as they complete an ITEP, enter and then transition into the profession. The reflexive process which revolves around use of the GEOGStandards also forms an empirical understanding about the impact and suitability of teaching standards for geography amongst teachers who are in their pre-service and early-career years.

The following chapter concludes the thesis. To do so, the chapter summarises key findings to provide a response to the research question and aims, and also address implications and recommendations for future practice and research in ITEPs, geography education, and for the experience of transitioning into the teaching profession.

Chapter 7: Conclusion

7.1 Research context

The present research investigated how the experience of transitioning into the teaching profession influences pedagogical practice in the context of secondary geography education in Australia. A broad, open question allowed the exploration of transition and transformation in response to individual experience in specific contexts: How does transition into the teaching profession influence a transformation of pedagogical practice in the secondary geography classroom? Exploration of transition and transformation crossed the boundaries of place and time with a small group of TESs as they finalised their studies in an ITEP and journeyed into their early-career years as a teacher.

To conclude the thesis, this chapter opens with a summary of the main findings in response to the research question and aims, followed by an outline of limitations of the research. Next, the chapter presents implications for policy, practice, and future research about transitioning into the teaching profession and the teaching of geography. The thesis concludes with 'Where are they now?', which encapsulates how 'Anna', 'Emily', 'Grace', and 'Karen' continued to transition and transform between the formal conclusion of the data-generation activities and the present time.

7.2 Research findings

The research findings make an important contribution to the field of education and geography education. Research findings that arose in response to the overarching research question, 'How does the experience of transitioning into the teaching profession influence a transformation of pedagogical practice in the secondary geography classroom?' produced important outcomes in connection with the aims of the study.

The aims of the research were to:

- (i) understand the participants' experience of transitioning into the teaching profession, in response to personal, structural, and cultural emergent properties
- (ii) understand how the participants discerned, deliberated, and acted upon personal, structural, and cultural emergent properties to transform their pedagogical practice in a secondary geography classroom

- (iii) determine how participants discerned, deliberated, and acted upon the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) as a reflective tool for pedagogical practice.

7.2.1 Research aim 1

Three outcomes arose in response to the first research aim about the experience of transition: the importance of theory–practice reflection, the strength of influence of PEPs and SEPs, and participant identification of their entry point into the profession. The current research confirmed the importance of theory–practice reflection in developing the pedagogical practice and identity of TESs and advanced understanding evident in the literature by monitoring the TES experience of such reflection into their early-career years. The current research confirmed the strength of influence of PEPs and SEPs in an educational context and contributes to the literature through applying such understanding to a geography education context. The current research adds to the literature about TES entering the profession because policy suggests transition into the profession starts during an ITEP yet there is very little empirical evidence to support or refute such a position. The current study refutes the position in policy. The experience of transition related to relocating to regional NSW, teaching out-of-field, managing wellbeing in response to higher-than-expected levels of responsibility and workload, embracing leadership and networking opportunities within and beyond the school context, and adapting to an increased presence of online and blended learning by developing self and developing others.

The provision of sustained and explicit use of theory–practice reflection opportunities focused on reflexivity theory (Archer, 2010a, 2010b, 2012), and the GEOGStandards (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010) helped participants to understand their teaching context. Reflexivity theory enabled participants, as TESs and ECTs, to identify, interpret, and analyse the emergent properties of most influence, which then allowed them to design and implement a plan for action to respond to challenges and opportunities of transition. The GEOGStandards enabled participants to develop their pedagogies during professional experience and in response to the challenges and opportunities of transition to retain the geographical distinctiveness of their geography lessons. Overall, sustained, and explicit use of theory–practice reflection activities allowed participants to develop an independent capacity to self-reflect on their pedagogical practice and make their own connections between theoretical understanding and practical knowledge.

PEPs and SEPs were the most enabling influences in helping participants to plan for and act upon the challenges and opportunities of transition. The greatest enablers were personal values and beliefs related to what participants understood as good teaching. These included developing relationships with students and what participants understood about the importance of geography as a subject and their identification as a specialist geography teacher. An important structural enabler included the GEOGStandards because it provided an evidence-based rationale for participants' decisions about how to develop their geography lessons to respond to the challenges and opportunities of transition. This is a new finding for the literature and makes an important contribution to understanding specific structural influences in the structure-agency problem in education. School and beyond-school structures such as leadership, committee, and networking opportunities were another enabling influence to manage the transition process.

SEPs were also found to be areas of constraint, including timetabling and out-of-field teaching load. During a time of 'Profession entry' (Phase 2) and 'Positioned in schools' (Phase 3), a higher-than-anticipated workload and level of responsibility, together with a lack of in-school support through collegiality and mentoring, were also reported as structural constraints.

Participants identified their entrance to the profession occurring not during their ITEP, but after their final professional experience, signified by payment and responsibility for managing the classroom. However, this time of entry to the profession was also reported to be a time of constraint due to a lack of support structures, out-of-field teaching, and working across different schools. Results of the study also showed that identification of post-ITEP as an entry point into the profession from a participant view is important because policy indicates that TESs are in the early stages of transitioning into the profession once they commence study in an ITEP. This finding is important because participants did not see the ITEP as being part of their transition process.

7.2.2 Research aim 2

Two outcomes arose in response to the second research aim about how transition influenced a transformation of pedagogical practice in the secondary geography classroom: the use of a recurring question as part of theory–practice reflection, and the influence of PEPs and SEPs. The current research confirms the use of a recurring question that connects theory with practice is effective for helping TES and ECTs develop their pedagogical practice. It also qualifies that the recurring

question must be in accessible language to prompt engagement with theory–practice reflection activities. Transformation of pedagogical practice was also related to the adoption of IBL; an emphasis on geographical thinking and communication; engaging with leadership, committee, and networking opportunities; and developing an identity as a specialist geography teacher.

As with the first research aim, sustained and explicit use of theory–practice reflection activities revealed PEPs and SEPs to be the most enabling influences, and SEPs to be the most constraining.

The use of two recurring questions — ‘What makes your geography lesson geographical?’ and ‘How have knowledge, understanding, and skills gained from the geography methodology classes informed your practice?’ — enabled TESs to transform their practice by moving beyond reflective conversations and engaging in reflexive practice. Structured and specific time for reflection in the social labs and semi-structured interviews meant the recurring questions helped participants to build confidence in their use of professional language and in their ability to autonomously plan and self-reflect during professional experience. The simple yet impactful nature of the recurring questions meant participants could sustain dialogue about pedagogical practice in geography and then draw upon a reflexive process to ‘bend back’ their thought (Archer, 2007) and reconstruct future lessons. The use of recurring questions also reinforces the need to include opportunities for theory–practice reflection in geography methodology units so TESs can develop self-questioning capabilities and an understanding of their professional orientation towards the subject.

PEPs and SEPs were the most enabling influences in helping TESs plan for and act upon decisions to transform their pedagogical practice. The greatest enabler of the transformation of pedagogical practice related to personal values and beliefs about being a specialist geography teacher because it guided the ‘why’ of their teaching and helped to deal with challenges faced in the teaching of their subject. For example, their belief that inquiry is important to the teaching of geography, and that geography needs to be relevant and connected to the personal lives of students, became evident in their pedagogical practice using VTRs or game-based learning about the grand challenges of climate change, wellbeing, and sustainable management of environments. Structural enabling influences to transform pedagogical practice included the GEOGStandards and an understanding of the distinctive core of geography.

A structural influence of both constraint and enablement to pedagogical practice related to the forced transition to online teaching in response to the global pandemic. The current research outcomes are important because they advance an understanding of the outcomes of practice from the view of the practitioner. Research outcomes also confirm existing findings in the literature to reinforce the importance of identifying as a specialist teacher of geography who understands the discipline and includes the distinctive core of geography in their teaching practice using concepts and inquiry approaches.

7.2.3 Research aim 3

In response to the third research aim, the impact of using the GEOGStandards as a reflective tool for pedagogical practice became evident through targeted theory–practice reflection activities. The current research outcome is an important contribution to the field of geography education, particularly in an Australian context, because, to my knowledge, there are no empirical studies focused on the use of the GEOGStandards as a personal and collective tool of reflection on pedagogical practice. Participants identified the first five GEOGStandards as the most resonating and influential standards on their pedagogical practice as they responded to the challenges and opportunities of transitioning into the profession: knowing geography and the curriculum (GS1), inquiry and fieldwork (GS2), geographical thinking and communication (GS3), understanding students and their communities (GS4), creating a safe challenging learning environment (GS5). Participants could discern, deliberate and act upon the GEOGStandards to determine the distinctive features of a geography lesson.

7.3 Limitations of the study

Four important limitations of the study relate to the size of the participant group, the study's qualitative nature, the interruption to the research in response to the COVID-19 pandemic, and the timeframe of the study.

First, although typical for qualitative research, the number of participants was small and lacked diversity which did reduce the scope of the findings. A larger and more diverse participant group may have produced broader and deeper insights into the experience of transitioning into the profession and the impact of theory–practice reflection in transforming pedagogical practice in the geography classroom. If I had also recruited participants from a history methodology class, who are known to be likely to teach geography in a HASS or HSIE education context depending on school structure, a

greater understanding and different perspectives of the influence and effect of the GEOGStandards and identifying as a subject specialist teacher on pedagogical practice may have ensued. However, the participant sample was considered viable to document specific findings in detail and it was never intended to generalise findings or claim that the participants were representative of the broader population of secondary geography TESs and ECTs.

Second, the qualitative nature of the study limited its ability to be replicable or generate theory. A quasi-experimental design with use of a control group would have enabled the current research to demonstrate a cause-and-effect relationship between variables and ascertain a connection between transitioning into the teaching profession and transformation of pedagogical practice. However, despite this limitation, the study does provide depth of contextual understanding and captures rich authentic insights about the participant experience of transitioning into the teaching profession to discover the 'why' and the 'how' of their transformation in pedagogical practice.

Third, the disruptions and adjustments to the research arising in response to the global pandemic (see section 4.6.3) affected the third research phase, 'Positioned in schools', and resulted in missing data. Pandemic-related restrictions and university mandates during 2020 limited my ability to complete all data-generation activities as planned, and to repeat those already conducted in pre-pandemic times. An ethical variation to observe lessons online was not possible, and an extension to the timeline of the study was not viable for the focus of the study and uncertainties related to the pandemic waves. It was important to retain the original timeline and data-generation activities as much as possible due to the longitudinal nature of the study, so a decision was made to proceed without an extension or ethics variation to the conduct of research. Consequently, the scope of the results relies upon participant reports in Phase 3 and therefore may contain participant bias because I was not able to observe their teaching practice and was not permitted to interview their Head Teacher for triangulation purposes.

Fourth, full-time doctoral candidature is only three years, which limits the timeframe for data generation in response to fixed conditions such as presenting a proposal for research and waiting for ethics approval. The timeline was further affected by my original participant group withdrawing from the study. Overall, data generation occurred over 18 months, which may be too brief to capture the experience of participants in their final year of an ITEP (six months) and transition into the teaching profession (12

months). Additionally, the pandemic-related impacts further reduced the time available for the conduct of data-generation activities.

7.4 Implications and recommendations of the study

The current research makes an important contribution to the fields of education and geography education in its design and area of focus. There are also implications for policy and practice arising from the current research together with opportunities for future research. Longitudinal research design is lacking, as are interdisciplinary approaches to connect contemporary under-researched areas of concern. Implications and areas for future research within and beyond the scope of geography education are discussed in response to entering and transitioning into the profession, theory–practice reflection, and out-of-field teaching.

7.4.1 Entering and transitioning into the profession

Each participant could discern their entry point to the profession, and it occurred after Phase1: Preparation which included professional experience. Such discernment challenges the view from Australian education policy and workforce data that an ITEP is an early part of a TES journey into the profession (AITSL, 2020; Ingvarson et al., 2014; TEMAG, 2015). Outcomes from the current research indicate that TESs do not feel as if they belong in or are part of the profession while they are within a preparation phase. The implication for policy is that further investigation is required in this area to develop a research-informed view about when it is that TES believe they have entered the profession. There is a need for longitudinal research with TES across ITEPs, or from a large cohort across years of study in one ITEP, to determine when it is they believe entrance to the profession has occurred, why it is so, and what support structures they need to enhance feelings of belonging in the profession.

Alternatively, the dearth of research about TES entering the profession suggests the need for more longitudinal studies within and beyond the scope of geography education. These studies could focus on understanding how TES, across each year of study in an ITEP, can discern, deliberate, and respond to the problem of belonging to a profession during a time of preparation at the current university. A longitudinal qualitative design incorporating social labs, semi-structured interviews, and lesson observations during selected units in an ITEP and on professional experience could build upon findings from the current research. The findings from such research could also provide important

empirical evidence to inform structural changes to program focus and delivery around profession-readiness.

Participants experienced a higher than anticipated level of responsibility and workload during their entrance and transition into the profession which contributed to concerns about their wellbeing. Their involvement in the 'safe space' of the doctoral study was often mentioned as the structure that helped them to reflect on and work through challenges and opportunities associated with their transition into the teaching profession. However, the current lack of mentoring and support structures between schools and universities indicates the need for establishment of formal mentoring and induction programs in-schools and between schools and ITEP providers, such as through school-university partnerships. The results of the current study serve as a recommendation for 'practice-focused mentoring' as an induction program to support TES in their journey to becoming an ECT. Practice-focused mentoring utilises networks and incorporates targeted professional learning and personal reflection opportunities in alignment with professional standards. The design of this current doctoral study could inform the development of future research, perhaps through a pilot study between the university, its local schools, and subject-specific professional associations like the Geography Teachers Associations to further investigate approaches to 'practice-focused mentoring' and therefore inform future policy development about induction support structures for ECTS.

7.4.2 Theory–practice reflection

A sustained and explicit incorporation of theory–practice reflection in the study helped participants respond to the experience of transitioning into the profession. The GEOGStandards were instrumental in this process as a structural support to enable participants to discern, deliberate, and dedicate action to transform their pedagogical practice in response to the transition experience. Future studies could replicate the design of the present study with a larger group of TES participants drawn from geography methodology units around Australia. In doing so, these studies could confirm, extend, or challenge findings from the current research about the relevance and impact of the GEOGStandards as a reflective tool for pedagogical practice in a TES and ECT context.

Alternatively, an empirical understanding about pedagogical transformation of newly qualified geography teachers is scarce and there is a call for theory-building research in this area, so the aim and design of the present study could be scaled up and replicated

in an international context, such as in the United States of America through the National Centre for Research in Geography Education. Another example, and with access to appropriate funding such as through the International Geographical Union-Commission for Geographical Education, the research could be conducted across multiple countries and institutions as an international project focused on emergent epistemologies of TES as they transition into the profession as a geography teacher. For example, the longitudinal design, with participants purposefully sampled from geography methodology units, and the theoretical framework (reflexivity theory) and conceptual framework (pedagogy and reflection) could remain although the GEOGStandards may be replaced with a local set of standards for the teaching of geography if available. The transferability of the study to international contexts, whether within or across nations would make an important empirical contribution to the field of geography education research internationally. This is because at the time of writing there are no known studies that track and monitor the experiences of newly qualified secondary geography teachers as they transition from ITEPs into the profession to understand how participant need for understanding their own practice and accessing professional development is supported.

Future research could also explore a collaboration with the professional associations for geography teachers and include a participant group of experienced, specialist geography teachers. These studies could develop a 'teacher as researcher' professional learning program in a school-university partnership. Another option would be to combine experienced in-service teachers, ECTs, and TESs in conjunction with the professional associations for geography teachers to demonstrate teaching as a research-based profession to build knowledge and practice.

The study raises implications for the future of geography education in schools and ITE contexts including the impact and suitability of geography methodology units in shaping the pedagogical practice of TES. The emphasis in the current study on identifying as a specialist geography teacher and connecting pedagogical practice to the concepts and inquiry as the distinctive core of geography was shown to be important for the transformation of pedagogical practice. Hence, schools and universities should ensure sufficient attention is given to advancing geography teachers' knowledge and understanding about geographical thinking and inquiry-based pedagogical approaches.

7.4.3 Out-of-field teaching

Most participants experienced out-of-field teaching during Phase 2: Profession-entry and Phase 3: Positioned in schools, usually within a HASS context. However, empirical evidence about the extent, reactions to, and reasons why out-of-field teaching occurs in geography is limited, both in Australia and internationally. Hence, future research studies could build on these findings from the current research in a geography education context. For example, future research could include two groups of TESs and ECTs, one who complete a geography methodology unit in an ITEP, and one who do not but are completing methodology units within HASS. This is of interest because participants in the second group are still likely to teach geography once they have entered and are transitioning into the profession. It would be interesting to compare how the two groups use the GEOGStandards to inform their pedagogical decisions.

Future studies could seek to understand the views about out-of-field teaching from a larger cohort of TESs and ECTs. These studies focus on how the participants respond to out-of-field teaching to inform unit development within ITEPs and design support structures, either within schools or as part of school-university partnerships. Results from such future studies could also provide an evidence base to understand the extent of out-of-field teaching occurring in a secondary geography education context. This would help to respond to recommendations in *Geography: Shaping Australia's Future* (NCGS, 2018) about how to address the out-of-field teaching phenomenon for geography in Australian schools.

7.5 Where are they now?

Data-generation activities for the current research concluded in December 2020. During the final social lab, I asked Anna, Emily, Grace, and Karen to look ahead to 2021 and set some goals for their professional and pedagogical practice. Due to a focus on developing relationships and trust throughout the study, our contact continued throughout 2021. I would often receive messages 'just letting you know that ...', which demonstrated that their transition is still occurring, and they continue to reflect on their practice. In April 2021, I asked Anna, Emily, Grace, and Karen if they would be willing to share a story about their experience between the conclusion of the formal data-generation activities in December 2020 and the present time. Each of them agreed, and we met individually via Zoom or in person. Their stories are presented below.

Anna's goals for 2021 were to (i) complete her accreditation requirements for proficient status by the end of 2021; (ii) improve her use of Canvas for online and blended form teaching; (iii) establish a Stage 6 geography class within the next five years; and (iv) start a master's degree with a view to being a Head Teacher of HASS within the next 10 years. She remains in regional NSW on another 12-month contract at the same school. In 2021 she is teaching languages to Stage 4, and geography and history across Stages 4 and 5. Anna mentioned that her geography teaching is now 'more distinctive and interdisciplinary', and her out-of-field teaching load has been a 'growth period' that she sees as an opportunity to create a foundation of teaching and learning programs for future teachers at the school to use. As we talked more about teaching in a regional school, Anna reflected on her university experience and believes that universities should be 'encouraged to open up to country schools through more practicums and fund it because you can't pick up and move your life for a month'. As a result of her experience teaching at a regional school, Anna also believes that ITEPs should 'focus more on how to be autonomous in teaching'. When I asked Anna about the distinctive features of geography teaching, she spoke about interdisciplinarity and how she starts lessons with, 'What makes this geography lesson geographical?' to prompt thinking and discussion among her students.

Emily's goals for 2021 were to (i) teach a Stage 6 geography class by 2024; (ii) establish and teach an elective geography class in Stage 5 by 2026; and (iii) complete a master's degree in geography or school leadership. She remains in Sydney at the same school. Her teaching load is all geography for Stages 4 and 5, and, after an internal merit selection process, she was appointed to two leadership roles in the school: Coordinator, Ecology Committee, and acting Head of House. Emily also noticed how teachers who are new to the profession and new to the school are coping with the transition experience, and she is now in a mentoring role to help these teachers manage what she refers to as the 'overwhelming nature of transition'. Since joining the GTANSW&ACT Council, Emily has been working with two subcommittees: Resources and Webinars. For the Resources committee, she will be a guest co-editor for the Association journal in Term 2; for the Webinar committee, she agreed to chair the proceedings for a webinar in May 2021 and organise geography educators from England to present a webinar in Term 3. Emily is scheduled to present a workshop on incorporating geographical tools and skills into classroom practice at the GTANSW&ACT Annual Conference and attend the national biennial AGTA Conference. When I asked Emily what she emphasises in her practice now that is distinctive to

geography, she said it was all about 'making it relevant through real-life examples and using geographical tools and skills'.

Grace's goals for 2021 were to (i) complete accreditation requirements for proficient status by the end of 2021; (ii) contribute to the geography education community by joining the Council of GTANSW&ACT and writing an article for publication in the Association journal; (iii) start a master's degree in educational leadership within the next five years; (iv) and teach a Stage 6 geography class. By April 2021, Grace had achieved goal (iv) and most of goal (ii). She remains in Sydney and was appointed to a full-time permanent geography-focused teaching role at different school to where she taught during 2020. Grace is teaching geography in Stages 4, 5, and 6, and history in Stages 4 and 5, so she is not teaching out-of-field. At the end of Term 1 (April 2021), she was invited to apply for a Head of House role. Grace aspires to start up a 'geography or sustainability or social justice club' to respond to the grand challenges facing Australian communities by working with students to actively assist and provide support to those in need. Grace is also involved in a Stage 4 interdisciplinary project with geography, science, and mathematics focused on water use, scarcity, and management. In March 2021, Grace applied for, and was accepted to, the GTANSW&ACT Council as a co-opted member, and she can apply to become a full councillor at the Annual General Meeting in November 2021. Grace sees joining the Council as an opportunity to learn from the wisdom of experienced geography educators and to understand how the Association operates to support others. She spoke a lot about what she sees as her responsibility to give back to the profession and structures that have provided support to her development as a geography teacher. To do this, Grace would like to write an article for publication in the Association journal, develop resources, and run professional learning workshops aimed at geography teachers who are new to the profession or new to the teaching of geography. She will also attend the national biennial AGTA Conference. When I asked Grace what she emphasises in her practice now that is distinctive to geography, she said it was all about 'live geography' and 'linking real-life understanding about the world to students' lived experience and interests'.

Karen's goals for 2021 were to (i) teach elective geography in Stage 5; (ii) complete accreditation requirements for proficient status by the end of 2021; (iii) change teaching and learning programs to be more future-focused; (iv) complete more professional learning courses and present a workshop at a conference; and (v) engage in cross-curricular work during 2021. By April 2021, Karen had achieved goal (i), was enjoying

goal (iii), and was on the way to completing goal (iv). Karen remains in Sydney at the same school, and her teaching load is within her two specialist subjects, so she is fully in-field and 'super excited' about teaching geography in Stages 4 and 5, elective geography in Stage 5, and society and culture in Stage 6. She finds herself taking on an informal leadership role in advising colleagues about how to teach geography since her Head Teacher has taken up employment at another school. Karen is also coaching the grade sport soccer team and leading the Social Justice Club, which is an extracurricular leadership and citizenship opportunity for students in Stages 4 and 5. The club draws upon the geographical understanding of the grand challenges facing environments and communities. Karen has been able to maintain her presence in the department in leading and shaping online learning for geography and is enjoying being able to create group interactive tasks to replace individualised textbook-focused activities. She will attend the national biennial AGTA Conference and present the online-adapted, self-paced, gamification-enabled Stage 4 unit of work for geography. When I asked Karen what she tells her colleagues, who are not specialist geography teachers, about distinctive geography teaching, she said it was all about 'relevance' and 'discussing the grand challenges of geography in response to students' lived experience', and to focus on sustainable future solutions by linking it to 'their role in developing and actioning such solutions'.

7.6 Concluding remarks

Overall, the conduct of research during a pandemic could not have been anticipated at the time of planning (late 2018) or at the commencement of Phase 1: Preparation for this longitudinal study (early 2019). Continuation of the longitudinal research, albeit in a slightly adapted way from the original plan, enabled an important contribution to be made to understanding the iterative and complex processes of transitioning into the profession and understanding the 'how' and 'why' of pedagogical transformation in a geography classroom.

As participants transitioned into the teaching profession during extraordinary times, they mitigated the challenges and maximised opportunities by drawing on structures such as GEOGStandards, and personal values and beliefs such as their strengthening identity as a geography teacher. Trusted relationships and feelings of belonging within and beyond the doctoral study group also assisted participants in responding to the complexities of transition.

Each time I reflected on my own transition experience throughout this doctoral study I realised our journeys were similar. Support structures and personal values and beliefs about geography education enabled me to move through candidature within the allocated timeframe. A different but recurring question was often posed to encourage me to scrutinise readings and communicate evidence meaningfully, 'Is this [empirical] research?'. Opportunities for theory–practice reflection were part of regular meetings to guide academic practice including reflexivity theory and other frameworks. I was also moving between various roles: a teacher and a student, a mentor and a mentee, a colleague and a friend, a leader and one who also needed to be led. Trusted relationships and feelings of belonging with groups at and beyond the university offered immense support.

When I commenced this doctoral study about transition and transformation, I began to envision possibilities for geography education. Now the research has concluded there is clarification. I can see what to enact to contribute to an improved future for geography education and initial teacher education in Australia. This thesis is a significant part of my transition and an entry-point into future transformation of my own practice.

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Appendices

Appendix A: Participant names and profiles

Table A.1

Participant names and profiles

Note: participant names are pseudonyms and listed in alphabetical order.

Participant name	Participant profile
Anna	<ul style="list-style-type: none"> Enrolled in a Bachelor of Arts and Bachelor of Education program straight after completion of secondary school. Modern history is Anna's specialist teaching subject, and geography is the second teaching subject. Final-year professional experience requirements included: <ul style="list-style-type: none"> a 15-day placement at a dual-language instruction (Spanish–English) co-educational private school in Santiago, Chile. Anna taught geography and history as part of the Middle Years Program of the International Baccalaureate a 45-day placement at a Catholic all-girls school in northern Sydney. For the PhD study in Phase 1, Anna selected two Year 10 classes; for Phase 3, Anna selected Year 8.
Emily	<ul style="list-style-type: none"> Enrolled in a Bachelor of Arts and Bachelor of Education program. Emily is a mature-age TES. She chose to complete a degree in Education as part of her career change pathway, and this is the first degree she has completed. Geography is Emily's specialist teaching subject, and English as a Second Language (ESL) is the second teaching subject. Final-year professional experience requirements (60 days) were completed at an independent, all-boys school in eastern Sydney. For the PhD study in Phase 1, Emily selected a Year 9 class that was identified as a learning-support needs group; in Phase 3, Emily selected Year 9. Towards the end of final-year professional experience, Emily applied for, and was offered, a temporary classroom teaching position at the school for the remainder of the year. Employment commenced at the conclusion of professional experience responsibilities. A week before Social Lab 2, Emily was offered an extension of the contract for 2020 as a full-time permanent employee.
Grace	<ul style="list-style-type: none"> Enrolled in a Bachelor of Arts and Bachelor of Education program straight after completion of secondary school. Geography is Grace's specialist teaching subject, and modern history is her second teaching subject. Final-year professional experience requirements (60 days) were completed at an independent school in northern Sydney. The school is in the process of transitioning from an all-boys to a co-educational context. Grace is teaching geography and history during her final-year placement.

Participant name	Participant profile
	<ul style="list-style-type: none"> • For the PhD study in Phase 1, Grace selected a Year 8 and a Year 10 class. The Year 8 class is all-boys and is identified as a learning-support needs group. The Year 10 class is co-educational and is identified as a mixed ability group. In Phase 3, Grace selected Year 8. • Grace was employed on a short-term temporary contract at an Anglican co-educational school in Sydney from the conclusion of professional experience until the end of the 2019 school year. • A month prior to Social Lab 2, Grace was awarded an extension of the contract for 2020; she was employed for the 2020 school year on a temporary full-time contract. • During the final quarter of 2020, Grace actively sought employment at other schools for 2021. Grace accepted permanent full-time employment at an Anglican school in north-western Sydney starting in January 2021.
Karen	<ul style="list-style-type: none"> • Enrolled in a Bachelor of Arts and Bachelor of Education program straight after completion of secondary school. • Geography is Karen's specialist teaching subject, and Society and Culture is her second teaching subject. • Final-year professional experience requirements occurred in Chile, South America: <ul style="list-style-type: none"> - a 15-day placement at a dual-language instruction (Spanish–English) co-educational private school in Santiago, Chile where she taught Geography as part of the Middle Years Program of the International Baccalaureate - a 45-day placement at a government co-educational school in north-western Sydney. • For the PhD study in Phase 1, Karen selected a Year 10 class; in Phase 3, Karen selected Year 8. • Between the conclusion of professional experience and the end of the 2019 school year, Karen was employed on a temporary contract at a government co-educational school in north-western Sydney. The school is different to the one attended for professional experience. • Three weeks prior to Social Lab 2, Karen was appointed as a targeted graduate teacher to a permanent full-time teaching role for 2020 at a government co-educational school in northern Sydney.
Matt	<ul style="list-style-type: none"> • Enrolled in a Bachelor of Arts and Bachelor of Education program straight after completion of secondary school. • Geography is Matt's specialist teaching subject, and modern history is his second teaching subject. • Final-year professional experience requirements (60 days) were completed at an independent, all-boys school in northern Sydney. • For the PhD study in Phase 1, Matt selected a Year 8 class that was identified as a learning-support needs group. • A fortnight prior to Social Lab 2, Matt was awarded on merit a full-time, permanent role at a co-educational Anglican school in northern Sydney. This position commenced in October 2019. • In 2020, Matt withdrew from participating in the research.

Appendix B: Photographs to show the layout of each social lab in each research phase

Figure B.1

Layout of Social Lab 1, Phase 1: Preparation, June 2019



Five participants are seated around one table for both individual and collaborative activities.

Figure B.2

Layout of Social Lab 2, Phase 2: Profession entry, November 2019



Five participants rotate between individual workstations (in the background) and a collaborative workstation (in the foreground).

Figure B.3

Layout of Social Lab 3, Phase 3: Positioned in schools, December 2020



In response to university-specified COVID-safe procedures, each participant ($n = 4$) had to remain seated on their own at a socially-distanced work station for both individual and collaborative activities.

Social Lab #1

What makes our Geography lessons geographical?

- Understanding and planning for the use of discipline specific pedagogies in our Geography classroom



Outline for the Social Lab

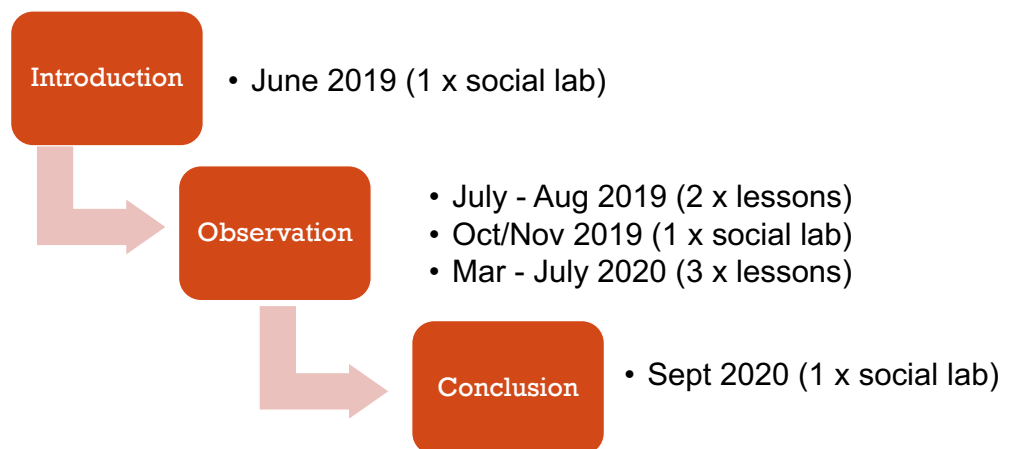
Session	Focus area
Part 1 Familiarisation (5 mins)	Broad timeline The nature of a social lab Goals for this social lab
Part 2 Considering our practice (35 mins)	What makes our Geography lessons geographical? <ul style="list-style-type: none">• Professional Standards for the Accomplished Teaching of School Geography• Influences upon our pedagogical practice
Part 3 Creating goals for our practice (35 mins)	What can I attempt to do to make my Geography lessons more geographical? <ul style="list-style-type: none">• Personalised SMART goals of theory and practice
Part 4 Conclusion (10 mins)	Key outcomes from the social lab Next steps and close



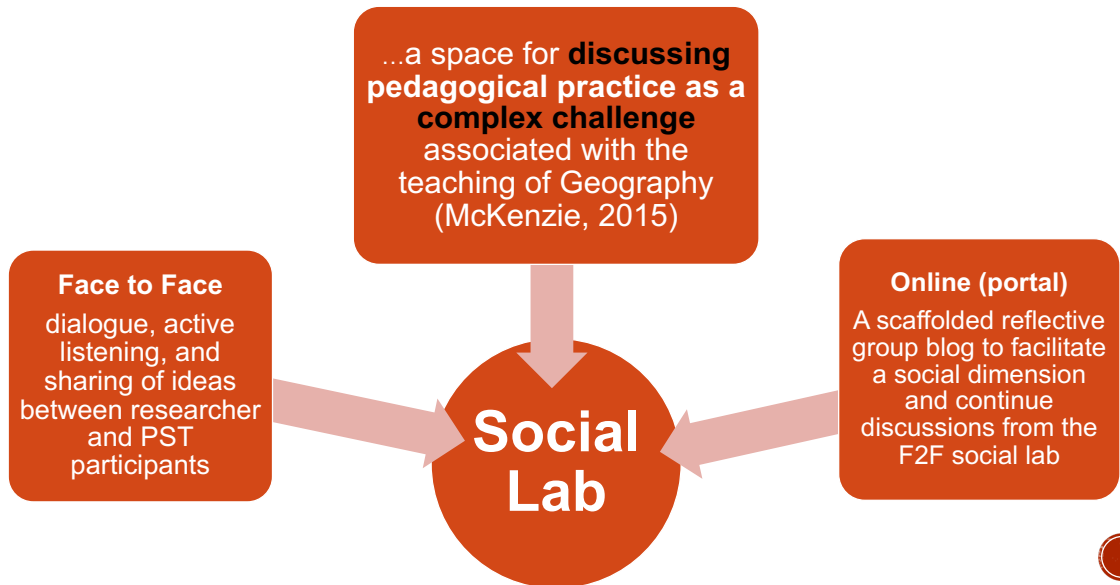
1. Familiarisation

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The timeline of the study



The nature of a social lab



The goals of this social lab

By the end of this social lab, participants should be able to:

1. Demonstrate an understanding about the nature of Geography and the discipline-specific pedagogies of this subject.
2. Demonstrate an understanding about the possible enablers and constrainers to pedagogical practice in the Geography classroom.
3. Develop three SMART goals, related to pedagogical practice in the Geography classroom, to work towards and reflect on during professional experience.

Choose a pseudonym



2. Considering our practice

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What makes a Geography lesson geographical?

What happens in a Geography lesson that confirms you have been in a Geography lesson?

Activity 1

- Individually, in response to the question, write down 3 – 5 points on **white post-it-notes**. You can draw on personal experience and/or theory
- Individually, rank the points from most to least resonance. This could be completed by numbering from 1 – 5 where 1 = of most resonance. Place on the table in front of you.

Think, Share, Compare

Activity 2

- Discuss the points on the **white post-it-notes** with group members. Discussion should focus on the 'what' and the 'why' for each point
- Determine an agreed order of resonance, from most to least, for 5 points. Write them down and number 1 – 5 on **pink post-it-notes**. Place on the middle of the table.
- Share and discuss with the researcher.



Professional Standards for the Accomplished Teaching of School Geography

- Researcher leads exploration of the 'GeogStandards' (www.geogstandards.edu.au; www.agta.asn.au).
- **Activity 3:** Individually, on **star post-it-notes** identify 3 GeogStandards you see as being the most important to your pedagogical practice in the Geography classroom. Number from 1 – 3 where 1 = most important. Place on the table in front of you.
- **Activity 4:** Individually, review your **white post-it-notes** (from Activity 1) and align where appropriate or possible with the chosen GeogStandards by placing the **white post-it-notes** next to the **star post-it-notes**.



Identifying possible enabling and constraining influences upon pedagogical practice in the Geography classroom

	Enablers	Constrainers
Personal (e.g. my own convictions)	Green post-it-note (P) Pink post-it-note (P), (E or X)	Yellow post-it-note (P)
Structural (e.g. syllabus, empirical research, timetabling)	Green post-it-note (S) Pink post-it-note (S), (E or X)	Yellow post-it-note (S)
Cultural (e.g. school, faculty)	Green post-it-note (C) Pink post-it-note (C), (E or X)	Yellow post-it-note (C)

Individual = green and yellow post-it-notes; **Group** = pink post-it-notes



3. Creating goals for our practice

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What can I attempt to do to make my Geography lessons more geographical?

Introduce SMART goals

<https://www.projectsmart.co.uk/smart-goals.php>

- **S** - specific, significant, stretching
- **M** - measurable, meaningful, motivational
- **A** - agreed upon, attainable, achievable, acceptable, action-oriented
- **R** - realistic, relevant, reasonable, rewarding, results-oriented
- **T** - time-based, time-bound, timely, tangible, trackable (note: time = duration of professional experience)

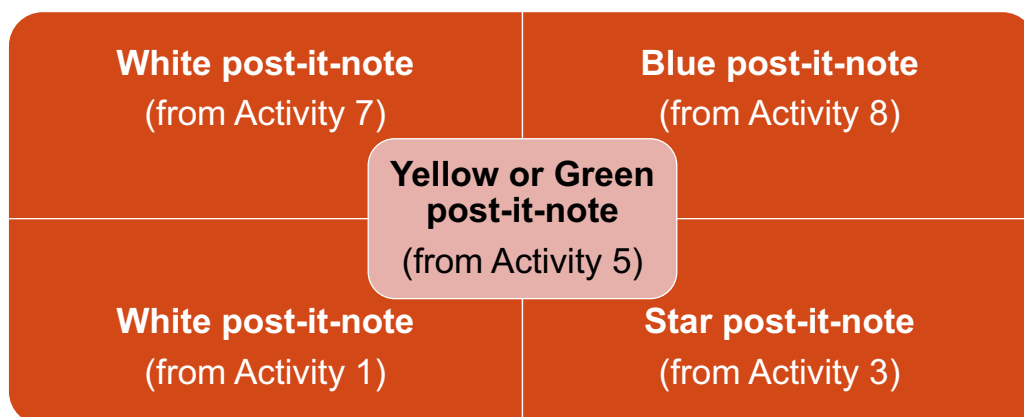
▪ **Activity 7:** Individually, on **white post-it-notes**, develop 3 SMART goals about discipline-specific pedagogical practice in the Geography classroom for you to work towards and reflect on during professional experience.

▪ **Activity 8:** Individually, on **blue post-it-notes**, for each goal, identify how you might know when it has been achieved.



Bringing the post-it-notes together

Activity 9: Keeping 5 alive!



What can I attempt to do to make my Geography lessons more geographical?

Introduce SMART goals

<https://www.projectsmart.co.uk/smart-goals.php>

- **S** - specific, significant, stretching
- **M** - measurable, meaningful, motivational
- **A** - agreed upon, attainable, achievable, acceptable, action-oriented
- **R** - realistic, relevant, reasonable, rewarding, results-oriented
- **T** - time-based, time-bound, timely, tangible, trackable (note: time = duration of professional experience)

- **Activity 10:** From Activity 9, share one set of *Keeping 5 Alive*, with the group and researcher. Explain what the goal is, how you will know when it is achieved, why this goal is important to you, how it is related to your identified enabling and/or constraining influences and how your understanding of pedagogical practice in the Geography classroom has developed throughout the social lab.



Deciding how to make my Geography lessons more geographical

Activity 11: Write a short statement on the sheet of A4 paper about your decision-making process throughout the social lab

- Consider the role(s) of factors such as personal experience, theoretical understanding, key messages from the Geography methodology course, discussions from the social lab
- Consider why you decided to focus on the areas identified in your SMART goals, for example, what is important to you about those particular goals
- Consider how challenging and/or easy you found the decision-making process within the activities of the social lab. What were some of the contributing factors to the challenge or ease of making the decisions






4. Conclusion

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Objectives of the Social Lab

-  To demonstrate an understanding about the nature of Geography and the discipline-specific pedagogies of this subject.
-  To demonstrate an understanding about the possible enablers and constrainers to pedagogical practice in the Geography classroom.
-  To develop three SMART goals, related to pedagogical practice in the Geography classroom, to work towards and reflect on during professional experience.



Next Steps

- A 'walk-through' and log-in to the portal although the portal will not be used during the face-to-face social lab.
- Reminder about key dates and activities related to this study for professional experience.
- Questions for clarification.



Close

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If you have further questions, please contact Susan Caldis via email:



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**The
geographical
concept
wheel**



Acknowledgement: Malcolm McInerney

Appendix D: Summary of the Professional Standards for the Accomplished Teaching of School Geography (GEOGStandards)

Table D.1

Professional Standards for the Accomplished Teaching of School Geography (GEOGStandards) (Hutchinson & Kriewaldt, 2010; Kriewaldt & Mulcahy, 2010; <https://www.agta.asn.au/files/Professional%20Standards/geogstandards.pdf>)

Please also see Chapter 2 for further explication.

GEOGStandard number	GEOGStandard title
1	Knowing Geography and the Geography curriculum
2	Fostering geographical inquiry and fieldwork
3	Developing geographical thinking and communication
4	Understanding students and their communities
5	Establishing a safe, supportive and intellectually challenging learning environment
6	Understanding Geography teaching and pedagogical practice
7	Planning, assessing and reporting
8	Progressing professional growth and development
9	Learning and working collegially

Appendix E: Lesson protocol for researcher observation notes, Phase 1: Preparation (2019) and Phase 3: Positioned in schools (2020)

Lesson observation protocol for researcher observation notes

Date		Time						
Lesson duration		Location						
Year Level		Unit						
Rating scale: 1 – 5 where 1 = no use, 3 = some use, 5 = extensive use Rating scale: M = implicit use, X = explicit use								
Inquiry questions	Please circle: 1 2 3 4 5 M X Comment:							
Concepts	Please circle: 1 2 3 4 5 M X Comment:							
Fieldwork	Please circle: 1 2 3 4 5 M X Comment:							
Textbook	Please circle: 1 2 3 4 5 M X Comment:							
Interdisciplinary connections	Please circle: 1 2 3 4 5 M X Comment:							
Geospatial technologies	Please circle: 1 2 3 4 5 M X Comment:							
Geographical tools and skills	Please circle: 1 2 3 4 5 M X Comment:							
Syllabus connection	Please circle: 1 2 3 4 5 M X Comment:							
Geographical terminology	Please circle: 1 2 3 4 5 M X Comment:							
Inquiry based learning	Please circle: 1 2 3 4 5 M X Comment:							
Explicit instruction	Please circle: 1 2 3 4 5 M X Comment:							
Technology	Please circle: 1 2 3 4 5 M X Comment:							
GEOGStandard 1: Knowing Geography and the Geography Curriculum	Please circle: 1 2 3 4 5 M X Comment:							

GEOGStandard 2: Fostering geographical inquiry and fieldwork	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 3: Developing geographical thinking and communication	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 4: Understanding students and their communities	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 5: Establishing a safe, supportive and intellectually challenging learning environment	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 6: Understanding Geography teaching – pedagogical practice	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 7: Planning, assessing and reporting	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 8: Progressing professional growth and development	Please circle: 1 2 3 4 5 M X Comment:
GEOGStandard 9: Learning and working collegially	Please circle: 1 2 3 4 5 M X Comment:
Other	

Appendix F: Semi-structured interview for post-lesson interviews during Phase 1: Preparation, June–August 2019

Table F.1

Semi-structured interview questions for the first lesson observation during Phase 1: Preparation, June–August 2019

Question number	Question
1	How does this lesson fit in to the teaching, learning and assessment program for [insert Year group] and [insert name of syllabus unit being taught]?
2	What do you believe made your Geography lesson geographical?
3	In response to the GEOGStandards, which one(s) do you feel were important in the development of this lesson? Why?
4	If you were to repeat this lesson with the same class (a) What would you change or do differently? Why?; and (b) What would you keep or do the same? Why
5	Is there anything else you would like to add either overall or to any of the responses provided for the questions already?

Table F.2

Semi-structured interview questions for the second post-lesson interview, Phase 1: Preparation, June–August 2019

Question number	Question
1–5	See Table A8
6	How have knowledge, understanding, and skills gained from your Geography Methodology classes been incorporated into the observed lessons (and unit of work for this year group)?
7	How has guidance from your supervising teacher and/or other colleagues in the faculty been incorporated into the observed lessons (and unit of work for this year group)?

Social Lab #2



How geographical are my Geography lessons? Exploring pedagogical practice from professional experience to profession-entry

Acknowledgement Of Country

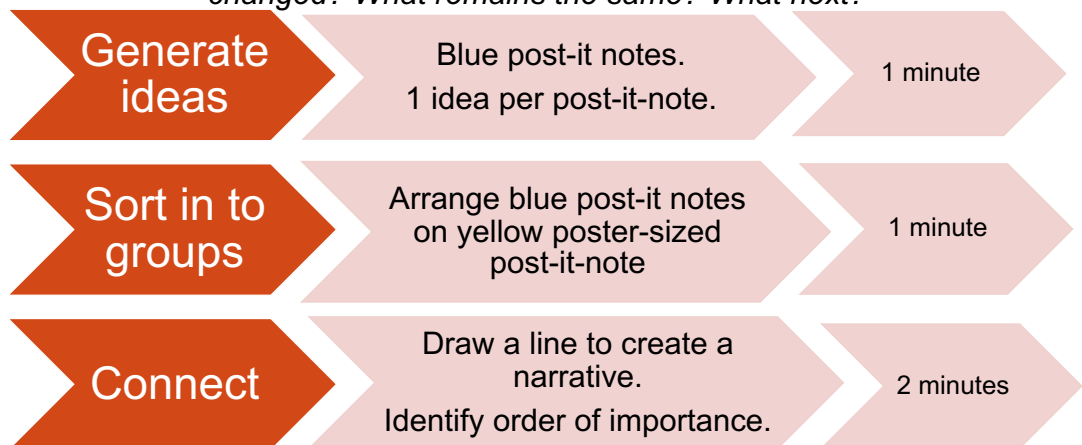
Before we begin our learning today I would like to acknowledge the traditional custodians of the Macquarie University land, the Wattamattagal clan of the Darug nation, whose cultures and customs have nurtured, and continue to nurture, this land, since the Dreamtime.

We pay our respects to Elders past, present and future.



Do Now Activity: Generate, Sort, Connect, Elaborate (GSCE)

Scenario – *Professional experience to profession-entry: What happened? What changed? What remains the same? What next?*



Elaborate the narrative and reasoning (2 minutes each)



1. Familiarisation

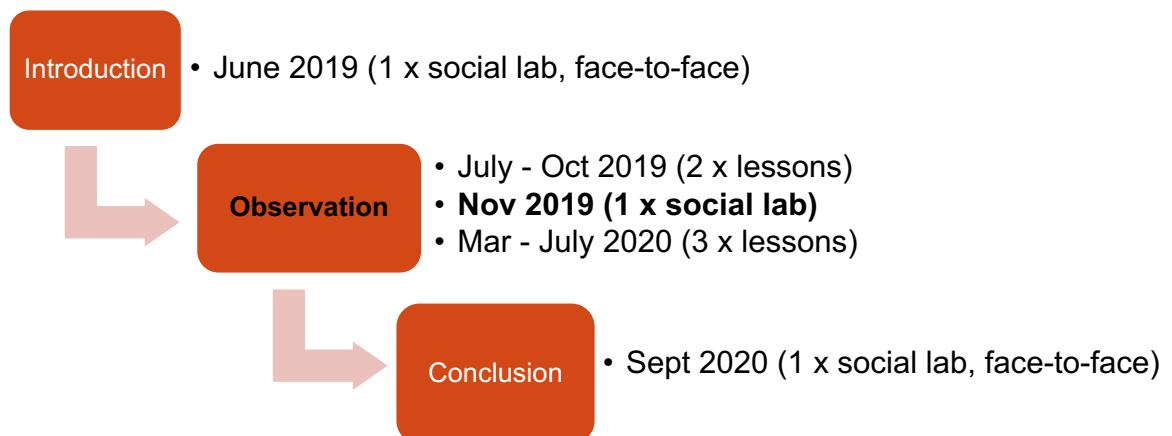
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Outline for Social Lab 2

Session	Focus area
Do Now Activity (10 mins)	Generate, Sort, Connect, Elaborate
Part 1 Familiarisation (5 mins)	Outline of Social Lab 2 Review of the timeline
Part 2 Considering our practice (i) (1 hour 20 mins)	Pedagogical practice: Nature of and influences on – what changed, what remains the same, why, what next? 2.1 Nature of our pedagogical practice 2.2 Influences upon our pedagogical practice
Part 3 Considering our practice (ii) (10 mins)	Reflecting on and resetting our goals 3.1 Revisiting the nature of SMART goals 3.2 Resetting the SMART goals
Part 4 Conclusion (5 mins)	Next steps and close

Review of research timeline



2-3 minutes 

2. Considering our pedagogical practice: Nature of and influences on

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2.1 Nature of our pedagogical practice in the secondary Geography classroom

What makes my Geography lesson geographical?

What happened in my Geography lessons that confirmed I taught a Geography lesson?

Activity 1 (5 minutes)

- Individually, in response to the question, write down 3 – 5 points on **white post-it-notes**. You can draw on personal experience and/or theory
- Individually, rank the points from most to least importance to your practice. This could be completed by numbering from 1 – 5 where 1 = of most importance. Paste on to A4 sheet of paper.

Think, Share, Compare*

Activity 2 (10 – 15 minutes)

- Discuss the points on the **white post-it-notes** with group members. Discussion should focus on the 'what' and the 'why' for each point.
- Determine an agreed order of resonance, from most to least, for 5 points. Write them down and number 1 – 5 on **pink post-it-notes**. Place on the middle of the table. Paste on to A4 sheet of paper.
- Share and discuss with the researcher.

15 - 20 minutes



What makes my Geography lesson geographical?

What has changed? What remained the same? Why?*

Activity 1A (15 minutes)

- Individually, read through and reflect on your Social Lab 1 & 2 responses to Activities 1 and 2 in the context of:
 - What changed? What remained the same? (include items and rankings)
 - Possible influences on the occurrence of similarities and differences
- Share and discuss responses as a group (~2 mins each)

15 minutes



Professional Standards for the Accomplished Teaching of School Geography

- Revisit the 'GeogStandards' (www.geogstandards.edu.au; www.agta.asn.au).
- **Activity 3 (3 - 5 minutes)**: Individually, on **star post-it-notes** identify 3 GeogStandards you see as being the most important to your pedagogical practice in the Geography classroom. Number from 1 – 3 where 1 = most important. Place on the table in front of you. Know your 'why'.
- **Activity 4 (3 - 5 minutes)**: Individually, review your **white post-it-notes** (from Activity 1) and align where appropriate or possible with the chosen GeogStandards by placing the **white post-it-notes** next to the **star post-it-notes**.

10 minutes



Professional Standards for the Accomplished Teaching of School Geography

What has changed? What remained the same? Why*

Activity 3A (15 minutes)

- Individually, read through and reflect on your Social Lab 1 & 2 responses to Activities 3 and 4 in the context of:
 - What changed? What remained the same? (include items and rankings etc.,)
 - Possible influences on the occurrence of similarities and differences
- Share and discuss responses as a group.

15 minutes



2.2 Influences on our pedagogical practice in the secondary Geography classroom



Tug For Truth*

Activity 5 (20 minutes):

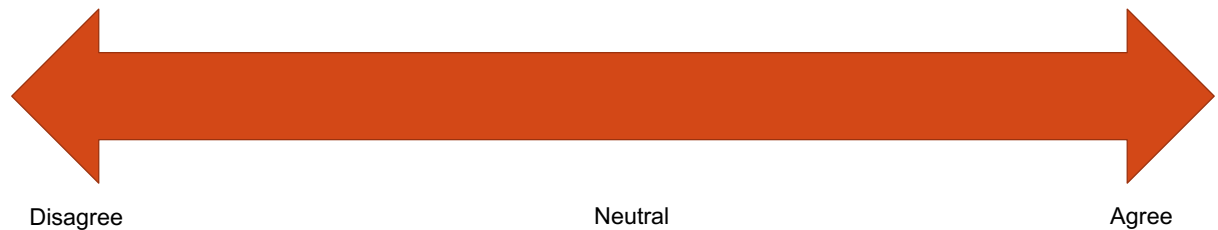
- Personal reflection on the following propositional statement and key reasoned points written on post-it-notes (5 minutes):

*The success of a geographical Geography lesson
depends mostly on the use of an inquiry-based learning approach*

- Participants to put forward their case as a 1 ½ - 2 minute pitch and positioning their post-it-notes on the continuum, then take questions from the floor (3 minutes each)



The success of a geographical geography lesson depends mostly on the use of an inquiry-based learning approach



Per person: 1 ½ - 2 minute pitch; 1 minute questions from the floor



Enabling or constraining influences

What has changed? What remained the same? Why?*

Activity 5A (15 minutes)

- Individually, read through and reflect on your Social Lab 1 & 2 responses to Activity 5 in the context of:
 - What changed? What remained the same? (include items and rankings etc.,)
 - Possible influences on the occurrence of similarities and differences
- Share and discuss responses as a group

15 minutes 

Transition: Professional experience to profession entry

Activity 6 (15 – 20 minutes):

- Personal reflection activity (revisit the GSCE activity)

- How will you know when you have entered the profession?

What does profession entry look like to you? When did you become a teacher and no longer a pre-service teacher?

- Share and discuss responses as a group

15 - 20 minutes



3. Considering our practice (ii): Reflecting on and resetting our goals

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3.1 Reviewing the nature of SMART goals

<https://www.projectsmart.co.uk/smart-goals.php>

- **S** - specific, significant, stretching
- **M** - measurable, meaningful, motivational
- **A** - agreed upon, attainable, achievable, acceptable, action-oriented
- **R** - realistic, relevant, reasonable, rewarding, results-oriented
- **T** - time-based, time-bound, timely, tangible, trackable (note: time = duration of professional experience)

2 minutes



3.2 Re-setting our SMART goals for developing pedagogical practice in Geography

What next? Why? How?

Activity 7 (5 - 7 minutes)

- Individually, review the goals and suggested points of achievement from Social Lab 1 and decide
 - Whether these are the goals you are going to remain with for your first year of teaching and why
 - Whether one or more goals and/or points of achievement require re-setting and why
 - Write out the goals (**white** post it notes) and points of achievement (**blue post-it-notes**) for the next Observation phase.

- Assemble on to an A4 sheet of paper

5 - 7 minutes



4. Conclusion

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Next Steps

- Reminder about key dates and activities related to this study for the remainder of the observation phase in to 2020.
- No portal for an online social lab reflection
- Questions for clarification.



Close

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If you have further questions, please contact Susan Caldis via email:



The geographical concept wheel



Acknowledgement: Malcolm McNerney



Appendix H: Semi-structured interviews during Phase 3: Positioned in schools, March–December 2020

See Sections 4.6.3 and 4.6.4 for information about COVID-19 disruptions to research during ‘Phase 3: Positioned in schools’, March–December 2020.

Table H.1

Semi-structured interview conducted individually with each teacher education student (now graduate teacher) during Phase 3: Positioned in schools, April 2020

Please note: This interview occurred via Zoom or Google Hangouts or telephone in April 2020 during COVID-19 lockdown when all schools transitioned to a fully-online delivery and home-based teaching and learning occurred.

Question number	Question
1	With reference to Term 1 2020 overall, could you please explain the enabling and constraining influences on your practice?
2	Based on your responses from Q1, what would be the MOST enabling and the MOST constraining influence on your teaching practice? Could you please explain a reason(s) why for each one?
3	With reference to COVID-19 could you please explain (a) what happened in your school context? (b) how the time of teaching in a pandemic is influencing your current practice and informing your next steps?
4	Is there anything else you would like to mention about transitioning in to the profession during Term 1 2020?

Table H.2

*Semi-structured interview conducted individually with each participant during Phase 3:
Positioned in schools, July 2020*

*See Sections 4.6.3 and 4.6.4 for information about disruption to research due to COVID-19.
Participants chose to answer only Questions 1–4.*

Question number	Question
1	With reference to Term 2 2020 overall, could you please explain the enabling and constraining influences on your practice?
2	Based on your responses from Q1, what would be the MOST enabling and the MOST constraining influence on your teaching practice? Could you please explain a reason(s) why for each one?
3	With reference to COVID-19 could you please explain (a) what happened in your school context? (b) how the time of teaching in a pandemic is influencing your current practice and informing your next steps?
4	Is there anything else you would like to mention about transitioning in to the profession during Term 2 2020?
5	How does this lesson for in to the teaching, learning and assessment program for [insert Year group] and [insert name of syllabus unit]?
6	What do you believe made your Geography lesson geographical?
7	In response to the GEOGStandards, which one(s) do you feel were important in the development of this lesson? Why?
8	If you were to repeat this lesson with the same class (a) What would you change or do differently? Why?; and (b) What would you keep or do the same? Why?
9	Is there anything else you would like to add either overall or to any of the responses provided for the questions already?
10	How have knowledge, understanding, and skills gained from your Geography Methodology classes been incorporated into the observed lessons (and unit of work for this year group)?
11	How has guidance from your Head Teacher and/or other colleagues in the faculty been incorporated into the observed lessons (and unit of work for this year group)?

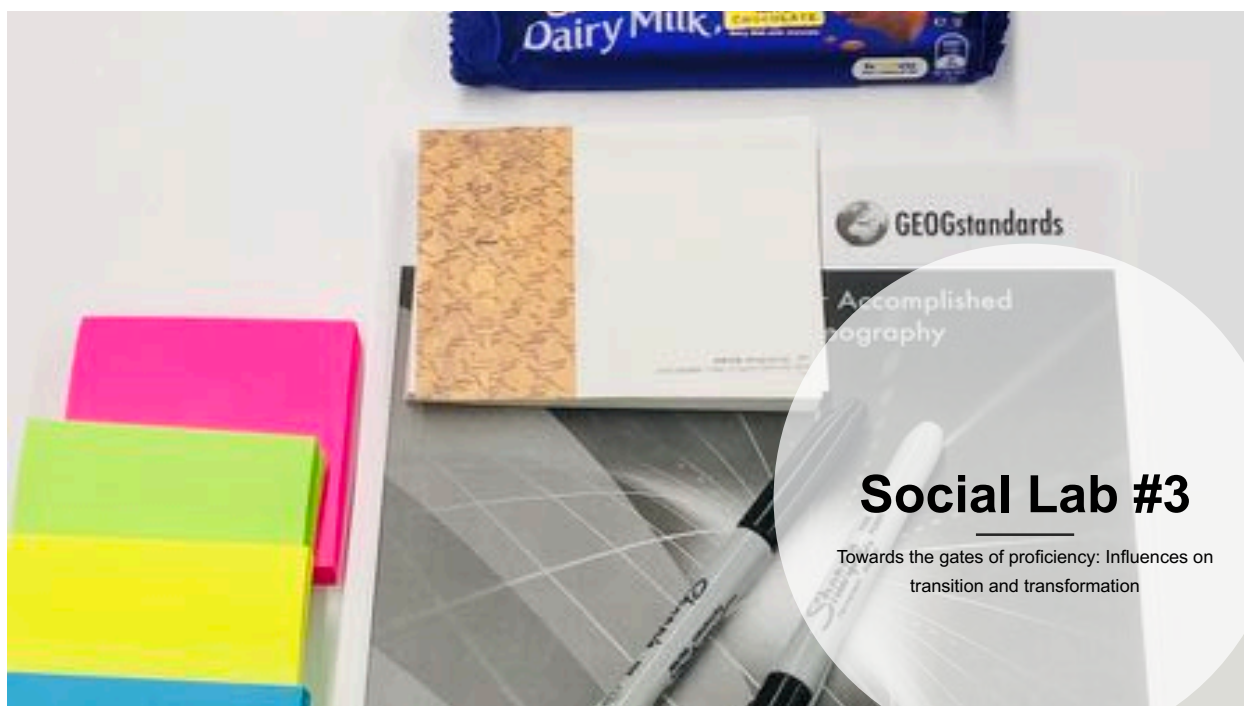
Table H.3

Semi-structured interview conducted individually with each participant in response to the lessons during Phase 3: Positioned in schools, August–December 2020

See Sections 4.6.3 and 4.6.4 to understand research disruption from COVID-19

Question number	Question
1	How does this lesson fit in to the teaching, learning and assessment program for [insert Year group] and [insert name of syllabus unit being taught]?
2	What do you believe made your Geography lesson geographical?
3	In response to the GEOGStandards, which one(s) do you feel were important in the development of this lesson? Why?
4	If you were to repeat this lesson with the same class (a) What would you change or do differently? Why?; and (b) What would you keep or do the same? Why?
5	Is there anything else you would like to add either overall or to any of the responses provided for the questions already?
6	How have knowledge, understanding, and skills gained from your Geography Methodology classes been incorporated into the observed lessons (and unit of work for this year group)?
7	How has guidance from your Head Teacher and/or other colleagues in the faculty been incorporated into the observed lessons (and unit of work for this year group)?
8	Are there any closing remarks you would like to share about your experience of being a participant in this PhD study? (only asked at the end of the final semi-structured interview for Phase 3)

Appendix I: Social Lab 3, Phase 3: Positioned in schools, December 2020



COVID-Safe procedures

- **Hand sanitizer** is available; please use upon entry and exit to the Academy space
- Please **remain seated** throughout the Social Lab unless departing for the bathroom or short break
- Please ensure a **distance of 1.5m** is maintained between people
- Please **wear a mask** for the duration of the Social Lab



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1. Familiarisation with the study

Source: Unknown

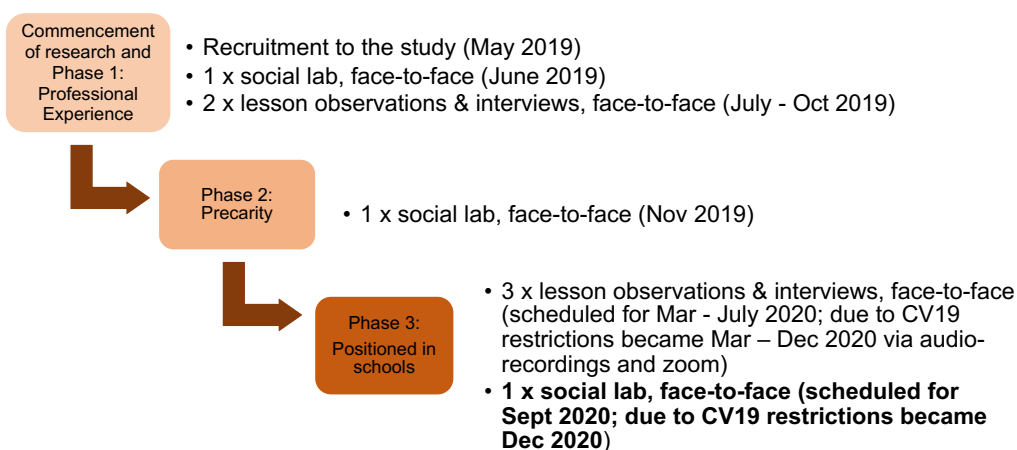
Outline for Social Lab 3



Session	Focus area
Part 1 Familiarisation (3 mins)	Outline of Social Lab 3 Review of the timeline
Part 2 The year in review (20 mins)	Generate, Sort, Connect, Elaborate
Part 3 Considering our practice (45 mins)	What makes my Geography lessons geographical?
Part 4 Looking back, looking forward, taking action (20 mins)	Acknowledging success and making plans for action
Part 4 Conclusion (5 mins)	Next steps and close

1-2 minutes

Review of research timeline



2-3 minutes

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Source: Unknown

2. The year in review: Transition and transformation

Activity 1: Generate, Sort, Connect, Elaborate (GSCE)

Scenario

Reflecting on a full year of teaching:

- * What happened?
- * What changed?
- * What remained the same?
- * What next?

Complete the **G S C** tasks and then
Elaborate the narrative with reasoning
(2 minutes per person)



Generate ideas

Blue post-it notes.
1 idea per post-it-note.
1 minute



Sort in to groups

Arrange blue post-it-
notes on large yellow
post-it-note
1 minute

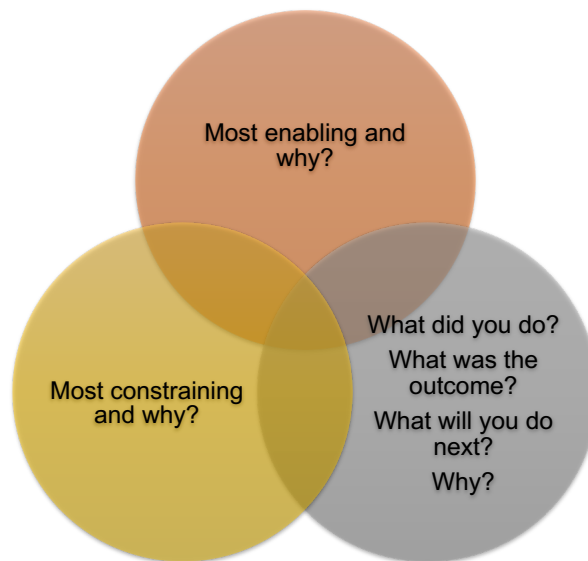


Connect

Draw a line to create
a narrative.
Identify order of
importance.
1 minute

10 - 12 minutes

Activity 2: Consider your responses from the previous task (GSCE) and identify the following situations...



5 - 8 minutes

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2. Considering my pedagogical practice

Source: Unknown

What makes my Geography lesson geographical?

What happened in my Geography lessons that confirmed I taught a *Geography* lesson?

Activity 3 (5 – 8 minutes)

- Individually, in response to the question, write down 3 – 5 points on **white post-it-notes**. You can draw on personal experience and/or theory
- Individually, rank the points from most to least importance to your practice. This could be completed by numbering from 1 – 5 where 1 = of most importance. Tape on to an A4 sheet of paper.

Think, Share, Compare*

Activity 4 (8 – 12 minutes)

- Discuss the points on the **white post-it-notes** with group members. Discussion should focus on the 'what' and the 'why' for each point.
- Determine an agreed order of resonance, from most to least, for 5 points. Write them down and number 1 – 5 on **pink post-it-notes**. Place on the middle of the table. Tape on to an A4 sheet of paper.
- Share and discuss with the researcher.

15 - 20 minutes

Professional Standards for the Accomplished Teaching of School Geography

- Revisit the 'GeogStandards' (www.geogstandards.edu.au; www.agta.asn.au).
- **Activity 5 (3 - 5 minutes)**: Individually, on **star post-it-notes** identify 3 GeogStandards you see as being the most important to your pedagogical practice in the Geography classroom. Number from 1 – 3 where 1 = most important. Place on the table in front of you. Know your 'why'.
- **Activity 6 (3 - 5 minutes)**: Individually, review your **white post-it-notes** (from Activity 1) and align where appropriate or possible with the chosen GeogStandards by placing the **white post-it-notes** next to the **star post-it-notes**.

6 – 10 minutes

Activity 7: Consider your responses from the previous activities and identify the following situations for the chosen GeogStandards...



8 - 10 minutes

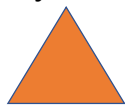
Image has been removed as it contains copyright material.

4. Looking back, looking forward, taking action

Source: Unknown

Looking back....

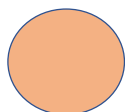
Activity 8: As a result of participating in this research...(respond on the large yellow post-it-note and then share as a group)



identify up to three things I have learned



identify up to three areas of resonance



identify up to three things I am still pondering or curious about

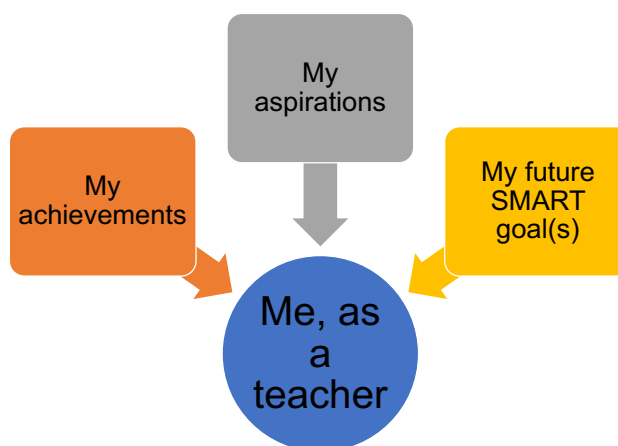
7 - 10 minutes

Acknowledging success and making plans for action

Activity 9: What next as a result of this year and from participating in the research?

<https://www.projectsmart.co.uk/smart-goals.php>

- **S** - specific, significant, stretching
- **M** - measurable, meaningful, motivational
- **A** - agreed upon, attainable, achievable, acceptable, action-oriented
- **R** - realistic, relevant, reasonable, rewarding, results-oriented
- **T** - time-based, time-bound, timely, tangible, trackable (note: time = duration of professional experience)



7 - 10 minutes

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Source: Unknown

5. Next steps and close

Source: Unknown

Next Steps

- The thesis is due for submission on 30 July 2021.
- You will appear as your pseudonyms: Anna, Emily, Grace, Karen.
- As part of an authentic reporting process you will be asked to verify the representation of your story from time to time.
- Questions for clarification.

Thank you and close

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If you have further questions, please contact Susan Caldis via email:

The geographical concept wheel



Acknowledgement: Malcolm McNerney

**Appendix J: Semi-structured interview questions for ‘Where are they now?’
conducted in April 2021**

Table J.1

Semi-structured interview conducted individually with each participant to form a ‘Where are they now?’ section to the conclusion

Please note: The interviews occurred via Zoom during April 2021

Question number	Question
1	Can you please explain what has happened for your career and your teaching between Social Lab 3 in December and the present time?
2	Can you please explain what’s next for you in your career plans and teaching?
3	Can you please choose one of the following questions: What do you believe is distinctive about geography and teaching geography? OR What do you believe makes a geography lesson geographical?

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18/02/2019

Dear Associate Professor Michael Cavanagh,

Reference No:5201937236998

Title: 3723 Investigating the transformation of pedagogical practice in the secondary Geography classroom as pre-service teachers transition into the profession

Thank you for submitting the above application for ethical and scientific review. Macquarie University Human Research Ethics Committee HREC Humanities & Social Sciences Committee considered your application.

I am pleased to advise that ethical and scientific approval has been granted for this project to be conducted by Associate Professor Michael Cavanagh and other personnel: Susan Caldis, Professor Mary Ryan, Dr Rod Lane.

Approval Date: 15/02/2019

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007, updated July

2018) (the *National Statement*). **Standard Conditions of Approval:**

1. Continuing compliance with the requirements of the *National Statement*, which is available at the following website: <http://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research>
2. This approval is valid for five (5) years, subject to the submission of annual reports. Please submit your reports on the anniversary of the approval for this protocol.
3. All adverse events, including events which might affect the continued ethical and scientific acceptability of the project, must be reported to the HREC within 72 hours.
4. Proposed changes to the protocol and associated documents must be submitted to the Committee for approval before implementation.

It is the responsibility of the Chief investigator to retain a copy of all documentation related to this project and to forward a copy of this approval letter to all personnel listed on the project.

Should you have any queries regarding your project, please contact the Ethics Secretariat on 9850 4194 or by email ethics.secretariat@mq.edu.au

The HREC Humanities & Social Sciences Committee Terms of Reference and Standard Operating Procedures are available from the Research Office website at: <https://www.mq.edu.au/research/ethics-integrity-and-policies/ethics/human-ethics>

The HREC Humanities & Social Sciences Committee wishes you every success in your research. Yours sincerely,

Dr Karolyn White
Chair, HREC Humanities & Social Sciences Committee

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007, updated July 2018) and the CPMP/ICH Note for Guidance on Good Clinical Practice

