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Teacher Disposition and Career Choice Motivation in Transitioning Teachers

Conor West
University of Wollongong

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Teacher Disposition and Career Choice Motivation in Transitioning Teachers
Teacher Disposition and Career Choice Motivation in Transitioning Teachers

Conor West, B. Primary Ed. (Hons I), UOW

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Statement of Originality

This thesis reports the original work of the author, except as stated.
It has not been previously been submitted for a degree at this or any other university.

Conor West
June 2018
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Abstract

The present study was conducted to examine pre- and in-service teachers’ dispositions toward teaching and career choice motivations at periods of transition. This quantitative inquiry outlined how professional dispositions and career choice motivations developed and interacted in pre-service and beginning teachers in an Australian tertiary setting. This was done through investigating: (1) changes in teacher dispositions and career motivation over the course of teacher training and entry into the field, by focusing on key times of transition and change; and (2) changing inter-relations between teacher dispositions and career motivations over this time. In the context of this study, dispositions were understood as a tendency to behave in a particular way, as determined by a set of latent, context-specific psycho-cognitive traits. Career choice motivations were understood as the factors that determine and sustain an individual’s choice of career. This study aimed to expand current understandings of dispositions by exploring the longitudinal development and potentially changing relationships between teacher dispositions and career choice motivations in pre-service and beginning teachers. This study was in response to recent interest in Australian education reform to consider dispositions in the acceptance and accreditation of teachers, where it would be assessed in the process of preparing new teachers.

A survey design, using a longitudinal panel approach, was used to capture and compare teacher dispositions and career choice motivations over a year. This captured these two constructs at significant points of transition: entry to initial teacher education (ITE) and entry to service. The first cohort group comprised participants entering their first year of tertiary-level teacher training, while the second cohort group comprised participants at the end of their fourth year of their teacher training degree. Two instruments were selected to measure each construct: the recently introduced Teacher Disposition Scale (TDS) for teacher disposition; and the Factors Influencing Teaching Choice (FIT-Choice) scale for career choice motivation. Data were analysed to identify relationships between these two constructs. Specifically, the first research question was investigated via paired-samples t-tests (to evaluate within-samples changes at one-year follow-up) and independent-samples t-tests (to evaluate differences between 2nd and 4th year cohort ratings). The second research question was investigated through bivariate correlations to identify the association among career choice motivation and teacher disposition variables early and late in pre-service teacher training. It was expected that a number of...
key teacher dispositions and career choice motivations would change over the course of a pre-service teacher’s career. Those perceptions related to career difficulty were expected to decrease over the period of study. Individual perceptions of capability were expected to increase before decreasing once in-service, with the exception of more general skill-based constructs not related explicitly to identity that would remain consistent into service. Broadly, perceptions of difficulty were expected to decrease as perceptions of capacity increased, as informed by the realities of teaching as they became known to respondents. In terms of correlations, it was expected that intrinsic/altruistic motivations, as well as all ability- or efficacy-related constructs, would positively correlate with teacher dispositions across both cohorts. Conversely, extrinsic motivation was not expected to correlate with motivation to teach dispositions when respondents were highly intrinsically or altruistically motivated in both cohorts.

This study found that motivation and disposition constructs all changed at some time point over the course of initial teacher education and into service. Namely, intrinsic, altruistic and extrinsic motivations decreased at both points of transition, while 2nd year pre-service saw increases to efficacy dispositions and perceived demand of teaching. Entry to service saw efficacy disposition increase again, while communication-related dispositions increased only in-service. Correlations were found between career choice motivations and dispositions, although these differed over time (between the cohorts). At the beginning and end of ITE, both intrinsic and altruistic motivations correlated with dispositions related to communication, willingness to learn and conscientiousness. Overall, these findings suggested that while dispositions and expectancy of success beliefs increased or remained stable, task value (i.e., motivation) beliefs toward teaching decreased at both entry to ITE and entry to service. These findings are informative for considering dispositions and motivations as screening or evaluative tools for pre-service teachers, as well as the development of ITE programs and in-service support in order to better develop teacher motivations and associated dispositions.
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Chapter One: Introduction

1.1 Introduction

Historical narratives of great teachers place emphasis on the ingenuity, passion and humanity of these individuals. While modern Western perceptions of teachers and learners are still infused with such narratives, the political and economic imperatives of the time arguably hold far greater power in shaping the aims and structures of education. Modern educational reforms characterised by re-established national educational aims, a diversified, market-driven approach and a focus on educational quality, standards and teacher accountability have been adopted around the world to compete in an ever-more demanding global market (Paine, Blömeke, & Aydarova, 2016). However, the implications of teachers’ changing roles within these reforms have not been adequately considered in the extant literature. In the current climate, some researchers reason that intensified pressure of global competition (Cheng, 2009), increased perceptions of responsibility and workload (Pas, Bradshaw, & Hershfeldt, 2012), amplified anxiety of individual accountability (Sleeter, 2008) and the deprofessionalisation of teachers’ work through excessive management and monitoring (Weiner, 2012) may have negative implications for teachers’ performance, welfare and persistence in their teaching career.

Most work attrition is linked to job burnout, understood as a response to prolonged stress in the work environment (Fernet, Guay, Senécal, & Austin, 2012). Data from the United Kingdom, United States, Canada and Australia suggest anywhere from 24% to 40% of education graduates leave teaching within three to five years (DeAngelis & Presley, 2011; Kyriacou & Kunc, 2007; Lindqvist, Nördanger, & Carlsson, 2014; OECD, 2012; Paris, 2010; Wang, Hall, & Rahimi, 2015; Weldon, 2015). Though these rates may be overestimated due to movement between education sectors (Mayer, 2011; Weldon, 2015), there are also teachers who may remain in the profession despite experiencing burnout and the associated reduction in capability and wellbeing. Attrition rates produce obvious financial costs (Synar & Maiden, 2012), but can also have a non-financial impact on early career teachers’ wellbeing, and the reputation and credibility of universities and the teaching profession. These repercussions have led recent research to identify numerous workplace and individual determinants of teacher burnout. In these investigations, workplace factors such as student behaviour and job resources (Hakanen,
Bakker, & Schaufeli, 2006) have been found to interact with individual factors such as motivations (Fernet, Senécal, Guay, Marsh, & Dowson, 2008) and self-efficacy (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007) to determine teachers’ satisfaction with their career.

Three main perspectives are presented in this literature about which factors induce burnout and attrition and how they influence teachers and their work. Stevens, Parker and Burroughs (2007) propose that unrealistic expectations of teaching held by early career teachers leave them psychologically unprepared for the realities of teaching. Further work has demonstrated that early career teachers do hold high and often unattainable personal expectations of social impact (Constantine, 2017; Le Maistre & Paré, 2010). Beauchamp and Thomas (2009) consider the adjustment of such personal expectations in favour of workplace expectations and practices to be a healthy and necessary part of teacher development. This perspective is countered by those who view current reforms as repressing the career motivations of teachers, and in doing so, underestimate the value individual factors play in effective teaching (Korthagen, Kim, & Greene, 2013; Parr, 2010; Tucker, 2010). For instance, realising a personally meaningful sense of purpose in teaching has been found to be vital in offsetting the relatively low-status, low-pay and high-demand work of teaching (Korthagen et al. 2013; Parr, 2010). Further, the absence of a sense of purpose has been connected to feelings of frustration, acquiescence and depersonalisation in early career teachers (Fernet et al. 2012; West, 2013).

Between these two arguments lies research in teacher resiliency, in which individual traits and characteristics are argued to be vital for the unpleasant realities of teachers’ work to be withstood (Kitching, Morgan, & O’Leary, 2009). This area is complemented by studies of stress, burnout and attrition by highlighting traits such as altruism, strong intrinsic motivation, strong self-efficacy and social competence as factors that enable teachers to thrive, rather than simply survive in their profession (Beltman, Mansfield, & Price, 2011; Gu & Day, 2007; Sinclair, 2008; Tschannen-Moran & Woolfolk Hoy, 2001). If these factors are absent or impaired, their protective functions are lost, and teachers can become vulnerable to stress, dissatisfaction and burnout.

Whether this increased attrition, particularly among early career teachers, is attributable to individual or workplace factors remains unclear. As standardised testing and individual accountability become more prominent in teachers’ workplaces around the
world (Paine et al. 2016), workplace factors will likely remain the core focus of burnout research (Beltman et al. 2011; Hakanen et al. 2006). This focus is not unfounded, as disruptive students, challenges from coursework differentiation, heavy workload and lack of resources have been reported as primary reasons for leaving teaching (Castro, Kelly, & Shih, 2009; Day, 2008; Fantilli & McDougall, 2009; McCormack & Thomas, 2005). Understanding the issue of attrition as a balance between these two factors highlights the need to better understand individual factors to conceptualise the successful teacher, while continuing to explore the most conducive training programs and workplace for teaching (Fernet, Chanal, & Guay, 2017; Fernet et al. 2008; Xanthopoulou et al. 2007). Considering these issues and existing focus on workplace factors, this study was developed to investigate the potential relationship between the two individual factors of teacher dispositions and career choice motivations in pre-service and beginning teachers.

1.2 Purpose of the Research

This study examined the longitudinal development of teacher dispositions and career choice motivations in pre-service and early career teachers. This was done by focusing on key times of transition and change in their careers. Further, this study investigated potential correlations in the development of specific teacher dispositions and career choice motivations. This was completed through viewing the formation and function of dispositions and motivation as manifestations of professional identity, which are constructed from factors such as values, attitudes and social influences.

The study was directed by the following research questions:

1. Do teacher dispositions and career choice motivations change from pre-service training to entry into the teaching profession?

2. Is there a correlation between particular teacher dispositions and career choice motivations among pre-service and beginning teachers?

This study aimed to provide enhanced understanding of the formation and function of teachers’ teacher dispositions and career choice motivations to ultimately contribute toward aiding and informing tertiary institutions to help prepare competent, resilient and fulfilled pre-service teachers for classroom teaching within Australia.
1.3 **Significance**

This study sought to describe how teacher dispositions and career choice motivations developed and interacted in pre-service and beginning teachers in an Australian tertiary setting. Recent interest from Australian and global education reforms to additionally consider dispositions in the acceptance and accreditation of teachers has led to a marked increase in research attempting to describe the dispositions that should be sought and fostered in the process of preparing new teachers (Ginsberg & Whaley, 2006). Such descriptive research is vital to ensure the meaningful conceptualisation, development and assessment of teachers’ dispositions. 

This study also sought to expand current understandings of dispositions by exploring the longitudinal development and potentially changing relationships between career choice motivations and teacher dispositions in pre-service and beginning teachers. This may assist in the understanding of dispositions as proclivity for future behaviours, rather than just as stable behaviours that have been already displayed. This was done through clarifying the relationships between teacher dispositions and career choice motivations. Better understandings of these relationships at points of transition in initial teacher training carry many implications for the design of candidate admission procedures, assessment of pre-service teachers and accreditation of beginning teachers. Knowledge of the factors related to the formation of teachers’ teacher dispositions will aid the development of those behaviours conducive to the realities of teaching. Such knowledge may have the potential to alleviate reportedly damaging disparities between graduates’ expectations of practice and its reality, that have been subsequently linked to increasing rates of stress, career dissatisfaction and attrition (Andrews, Gilbert, & Martin, 2007; Constantine, 2017; Delamarter, 2015).

1.4 **Theoretical Contribution to Practice**

This study aimed to complement current theorising associated with teachers’ career choice motivations with early conceptual understandings of expected and/or desired behaviours (i.e., dispositions) of pre-service and early career teachers. This study is grounded in the theoretical construct of Eccles and Wigfield’s *expectancy-value theory* (Eccles et al. 1983; Eccles & Wigfield, 2000; Wigfield, Tonks, & Klauda, 2016) and its linkages to Fishbein and Ajzen’s *reasoned action approach* (RAA) (2010) to conceptualise how motivation and disposition may associate.
In recent years, *expectancy-value theory* has been successfully and prominently used in the field of achievement motivation (Wigfield, Tonks, & Eccles, 2004). Eccles and Wigfield’s model of expectancy-value theory is conceptualised into two main components. In this theory, motivation requires both a belief that an action will be successful (*expectancy of success*) and an expectation of short or long-term gain or value from the action (*task value*). These constructs are shaped by personal goals, self-concept, task difficulty and affective memories, which in turn reflect life events, social influences and the environment. This theory shares its foundation with other social cognitive theories, namely in work by theorists such as Lewin, Tolman and Atkinson. One such theory is Fishbein and Ajzen’s RAA, which aims to predict social behaviour through intentions.

Within this framework, behaviour requires (1) a positive intention to perform, (2) the skills/ability to perform the behaviour, and (3) absence of environmental constraints (Fishbein & Ajzen, 2010). This framework is closely tied to Bandura’s concept of self-efficacy, with a collaboration in 1991 unifying several distinct yet similar systems, in which further determinants for behavioural intention were identified as: (4) higher task value versus task cost, (5) social normative pressures, (6) consistency with self-image, (7) positive affective reactions and (8) perceived capability (Fishbein & Ajzen, 2010). These factors are also found in Eccles and Wigfield’s expectancy-value model, including affective task reactions, return-cost evaluations, cultural milieu and self-concept, though they are used in the expectancy-value model to predict broad observable behaviours like choice, effort and achievement (Eccles, 2005a). By contrast, the RAA model positions behavioural intention not as motivation, but as synonymous with common usages of ‘disposition’ within the educational literature (Diez, 2007; Katz & Raths, 1985; O’Neill, Hansen, & Lewis, 2014). Although Fishbein and Ajzen (2010) occasionally use *disposition* to refer to broad attitudes or personality traits, it is also used synonymously with *intention* and, by extension, *attitude*. Considered the most important determinant of intention by Fishbein and Ajzen (2010), attitude is defined as “a latent disposition or tendency to respond with some degree of favourableness or unfavourableness to … [an] object” (p. 76). As such, RAA models how intentions (i.e., dispositions) may be used to predict and influence specific behaviours.

Despite their similarities, these two models have not been used to specifically link disposition (i.e., behaviour) and motivation. Use of the RAA model has centred on
health and behavioural psychology (McEachan et al. 2016), with very little application in educational settings. Similarly, although expectancy-value theory purports that expectations and values beliefs affect subsequent behaviour, these behaviours have been focused upon broad behavioural themes such as career choice and persistence (Watt & Richardson, 2012) or subject motivation (Harackiewicz, Tibbetts, Canning, & Hyde, 2014). Use of the RAA model in this study extends expectancy-value as it is currently used in education toward more specific behaviours, with associations between the two models potentially providing a method to predict and influence both broad and specific behaviours in educational settings.

1.5 Structure of the Thesis

This thesis is divided into five chapters. The purpose of each of these is outlined below.

The first chapter introduced the research topic, outlined the purpose of the study and stated the bounds within which this study was conducted. It also discussed the significance of this research and provided an overview of the theoretical contributions of the study.

The second chapter will provide a more detailed review of the literature and description of the theoretical approach adopted. This will commence with a discussion of the current issues within early career teacher attrition and disposition research, before discussing the varied approaches taken to conceptualise and measure dispositions and ending with a summation of the RAA model. It will then explore the theoretical basis of motivation theory, specifically that of expectancy-value theory, self-determination theory and goal orientation theory. The chapter will conclude by examining the theoretical links between disposition, motivation and identity, before examining how teacher dispositions are currently assessed both in Australia and around the world.

The third chapter details the methodological structure of the study, including its research questions and hypotheses. The site, population and sample are also outlined in detail. The research design and data collection instruments are then examined, and the process of data collection and preparation of the data set prior to formal analysis is stated.

The fourth chapter presents the results of the data collection beginning with initial explorations of potential bias, data normality and reliability. It then examines the descriptive statistics for both career choice motivation and professional disposition
subscales. The results of each hypothesis will then be outlined, followed by some key exploratory findings. The implications of these findings are briefly discussed throughout.

The fifth and final chapter summarises the findings of the previous chapter, particularly regarding the change to and relationship between disposition and motivation constructs. These changes and associations are examined in terms of their shared theoretical structures, with the implications of these findings for practice and future research discussed. This chapter concludes with an overall summary to the study.
Chapter Two: Literature Review

2.1 Introduction

As a market-orientated outlook continues to inform international educational reform, it is important to understand how to best assess the many personal factors now deemed relevant to assess teachers’ competence. Recent interest in teacher disposition has seen it heralded as joining knowledge and skills as the final piece in a triadic model for complete teacher assessment and evaluation. However, disposition occupies a place far more fundamental and intangible than either knowledge or skills, and thereby presents many challenges in its identification, development and assessment. Thus, exploring the nature of dispositions and potential relationships with other personal factors such as career choice motivation may provide broader understandings of the construct and inform its place within teacher education.

This chapter aims to review and analyse research and theory which relate to the study’s research questions. To do this, the chapter will address the key areas of teachers’ work, teacher education, teacher attrition, disposition and motivation. Within these areas, this chapter will outline the development of present issues in teacher education, work and retention. It will also discuss the underpinning issues of disposition and motivation theory. The chapter will then further consider the relationship of these themes to the broader theme of identity. It will conclude by looking at how these three concepts are treated within current dispositional and motivational assessment in initial teacher education settings.

2.2 Teachers’ Work and Attrition

Modern educational reforms characterised by re-established national educational aims via international dialogue, a diversified, market-driven approach and a focus on educational quality, standards and teacher accountability have been adopted around the world to service an ever-more demanding global market (Cheng, 2009; Paine et al. 2016). Such reform characteristics evidence the current shift toward understanding teaching on a global scale, and as a structure of larger economic systems (Paine et al. 2016). Given this economic pressure, no recent national educational policies have been formed without an awareness of international policy or research (Paine & Zeichner, 2012). While international interest in others’ educational practices has long existed, its
pace and prevalence have intensified. Today, there is a wide-reaching assumption that advanced education reform requires practices recontextualised from elsewhere, often enacted by actors far removed from the intended classroom (Akiba & LeTendre, 2009; Paine et al. 2016).

Despite the increasing homogeneity of educational reforms, the landscape of teaching varies greatly between regions. In sub-Saharan Africa, teacher shortages have seen lowered teacher training entry requirements and wages, while teachers attempt to reaffirm native languages and culture amidst poor conditions and few resources (Paine et al. 2016). Conversely, China anticipates a teacher oversupply as demographics shift, at a time when learner-centred reform is placing new expectations on teachers in a culture that still values test performance (Jiang, 2015). In wealthier Western countries, an aging teacher population is raising concerns about future shortages (OECD, 2014), while some among them report a surplus of some types of teachers (Weldon, 2015) at a time when classrooms are more diverse and externally monitored than ever (Paine et al. 2016).

Despite these diverse regional features, teachers’ work occurs within a world driven by the free exchange of people, capital and ideas. Educational reforms are therefore centred on some universal norms: learner-centred pedagogy, differentiated teaching, continuous professional development, and standardised comparisons (Paine et al. 2016). Educational reform has a profound influence over how teachers’ work is conceptualised, learned and enacted, and by extension, on teachers’ lives and welfare. The implications of teachers’ changing roles include intensified pressure of global competition (Cheng, 2009), increased responsibility and workload (Burke et al. 2013), amplified anxiety of individual accountability (Klassen et al. 2013; Mayer, 2014) and the deprofessionalisation of teachers’ work through comprehensive management and monitoring (Burke et al. 2013; Weiner, 2012). These factors have been linked to increasing incidences of teacher burnout and attrition within research literature.

While teacher attrition can refer to the turnover of teachers for any reason (Macdonald, 1999), recent usages more commonly describe a voluntarily premature departure from teaching (Buchanan et al. 2013; Paris, 2010; Wang et al. 2015). Data from Europe, United States, Canada, and Australia have seen attrition rates increase to anywhere from 24% to 50% of education graduates within three to five years (DeAngelis & Presley, 2011; Kyriacou & Kunc, 2007; Lindqvist, Nördanger, & Carlsson, 2014; OECD, 2012;
Paris, 2010; Wang et al. 2015; Weldon, 2015). Such high attrition rates produce obvious financial costs to the individual, in addition to non-financial impacts on early career teachers’ confidence, and the reputation and credibility of initial teacher training (ITE) providers and the teaching profession (Synar & Maiden, 2012).

Most attrition in teaching is linked to job burnout, understood as a response to prolonged work-related stress that leads to an inability to effectively perform (Fernet et al. 2012; Skaalvik & Skaalvik, 2010). Exposure to prolonged levels of stress, particularly when stressors are perceived to be externally determined and controlled, has been linked with poor physical and psychological health (Wang et al. 2015), as well as poor teaching outcomes (Skaalvik & Skaalvik, 2010; Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010). While feelings of burnout are linked with higher quitting intentions (Wang et al. 2015) some teachers experiencing these manifestations of stress may remain ineffective within the profession for some time. This current situation has led recent research to investigate numerous workplace and individual determinants of teacher burnout. In these investigations, workplace factors such as student behaviour, work resources and collegial support (Burke et al. 2013; Hakanen et al. 2006) have been found to interact with individual factors such as motivations (Watt & Richardson, 2012), self-efficacy (Pfitzner-Eden, 2016; Wang et al. 2015) and professional identity (Pillen, Beijaard, & den Brok, 2013) to determine teachers’ satisfaction and persistence in their career.

Three main perspectives are presented in this literature about which factors induce burnout and attrition and how they influence teachers and their work. It may be that unrealistic expectations of teaching held by early career teachers leave them psychologically unprepared for the realities of teaching (Stevens et al. 2007; Pillen et al. 2013). An Organisation for Economic Co-operation and Development (OECD, 2012) report supports this, as it found no difference in work demands between early career teachers and more experienced teachers across 24 countries. This suggests that early career teachers may lack some internal protective structures that allow them to adapt to the realities of teachers’ work after graduation. Beauchamp and Thomas (2009) consider the adjustment of such personal expectations in favour of workplace expectations and practices to be a healthy and necessary part of teacher development. Personal expectations are an important element to teachers’ professional identities (Clandinin et al. 2015), so a balance between personal understandings and institutional demands is
vital to teachers’ work. Crucially, it is the mishandling of this adjustment that is positioned as leading to teacher burnout and attrition, not teachers’ personal expectations themselves or teachers’ working conditions (Schaefer, 2013; Pillen et al. 2013).

This perspective is countered by those who position current reforms as causing irreparable damage to the career motivations, expectations and aspirations of teachers. This perspective posits that current reforms severely undervalue the influence individual factors have in effective teaching (Mayer, 2011, 2014; Parr, 2010; Tucker, 2010). Current reforms are viewed as incompatible with traditional, service-based motivations for teaching, therefore causing an inevitable disconnect between teachers’ sense of purpose and teachers’ work (Connell, 2009; O’Connor, 2008). It is suggested that this disconnect is due to the corrosive effects of extrinsic motives (e.g., performance-based pay, school rankings) on traditionally intrinsic motives to teach (Deci, Koestner, & Ryan, 1999). Korthagen, Kim and Green (2013) cite the sagging morale and stagnating outcomes of past decades’ reforms as justification to re-focus on the internal and empathetic qualities of teachers that create effective pedagogies. For instance, realising a personally meaningful sense of purpose in teaching is believed to offset the relatively low-status, low-pay and high-demand work of teaching (Manuel & Hughes, 2006; Parr, 2010; West, 2013). Further, the absence or deterioration of a sense of purpose has been connected to feelings of frustration, loss of reflective practice and lowered motivation in early career teachers (Allard, Mayer, & Moss, 2014; Fernet et al. 2012; West, 2013).

This area is extended teacher resiliency research, which emphasises the role of traits such as altruism, strong intrinsic motivation, strong self-efficacy and social competence as factors that enable teachers to thrive, rather than simply survive in their profession (Beltman et al. 2011; Gu & Day, 2007; Hong, 2012; Kitching et al. 2009; Nahal, 2010; Sinclair, 2008; Tschannen-Moran & Woolfolk Hoy, 2001). Here, teacher burnout and attrition are due to the absence or impairment of these significant protective functions, leaving teachers vulnerable to stress, frustration, dissatisfaction and burnout. While this perspective recognises the challenges of modern educational reform, it remedies these by promoting the early development of certain individual factors to protect early career teachers. Whether this increased attrition is more attributable to any one individual- or workplace-factor remains unclear. As the workplace of teachers becomes one in which standardised assessment and individual accountability increases, workplace factors
remain the core focus of burnout research (Beltman et al. 2011; Fernet, Trépanier, Austin, & Levesque-Côté, 2016). This focus is not unfounded, as student behaviour, lack of collegial support, curriculum differentiation, and lack of resources are commonly reported as reasons for leaving teaching (Burke et al. 2013; Castro et al. 2009; Day, 2008; Fantilli & McDougall, 2009; Lindqvist & Nordänger, 2016).

The fundamental role of individual factors in teacher resiliency means that the individual is, to some degree, capable of negating damaging these workplace factors (Wang et al. 2015). Individual factors, such as intrinsic motivations, self-efficacy and social competence, have been shown to insulate teachers from workplace stresses (Beltman et al. 2011; Pfizter-Eden, 2016). It is due to this protective function that a temptation exists in this literature to focus on the individual’s accountability to persevere through all workplace stresses, while leaving the workplace unchanged. Instead, most researchers argue that the success of a teaching career is a delicate balance between teacher resilience, as the amalgamation of individual factors, and the demands of the workplace (Danielewicz, 2001; Pfizter-Eden, 2016; Pillen et al. 2013). Understanding the issue of attrition as a balance between these two factors highlights the need to better understand individual factors to conceptualise the successful teacher, while continuing to explore the most conducive workplace for teaching (Danielewicz, 2001; Fernet, et al. 2017; Stevens et al. 2007).

2.3 Current Directions toward Disposition

Modern reforms of education are informed by a common assumption that improving student outcomes depends largely on the quality of teachers. This position is consistent with identifying teachers as a determining factor in student performance (Adnot, Dee, Katz, & Wyckoff, 2017; Araujo, Carneiro, Cruz-Aguayo, & Schady, 2016; Gerritsen, Plug, & Webbink, 2016; Goe & Stickler, 2008) with Barber and Mourshed (2007), for example, concluding that the performance of an education system cannot exceed the quality of its teachers. This finding has since been used extensively to justify the need for teacher reform internationally (Paine & Zeichner, 2012), including Australia’s new teacher education entry requirements (AITSL, 2015). The significant cost and influence attributed to teachers have driven extensive research in recent decades devoted to outlining what makes a teacher effective for the purposes of policy (OECD, 2005; Paine & Zeichner, 2012). A common set of key areas of investigation can be synthesised from
the literature that represent the components of teaching: *knowledge*, *skills* and *disposition*.

An understanding of research-based practice is of vital importance in the early stages of a teacher’s development, where the focus of teacher training programs is to ensure their graduates can act as an effective teacher across a variety of contexts from the outset of their careers. Encompassing the knowledge their students must comprehend and the ability to best facilitate this understanding, *knowledge* and *skills* are two key components of teaching that represent what teachers should know and be able to do. As these concepts are both more clearly tangible, they remain, in some form, the staples of teacher accreditation and evaluation globally (AITSL, 2011; NCATE, 2008; Schussler, 2006). The value of these two concepts for effective teaching is often demonstrated through quantifiable measures of student performance and readily measurable knowledge and skills in teachers.

The relationship between the quantifiable knowledge and skills of teachers and student performance has long been used to determine the quality of teaching (Rothstein, 2010; Stronge, Ward, & Grant, 2011). Strong content knowledge, previous teaching experience, verbal ability and aptitude in instructional differentiation are some of the knowledge and skills identified in the literature as potential prerequisites of improved student outcomes (CCSSO, 2013; Hill, Rowan, & Loewenberg Ball, 2005; Stronge, Ward, & Grant, 2011). However, other research has questioned whether teachers’ impact on student test scores can be accurately measured as an isolated factor (CESE, 2013; Goe & Stickler, 2008), and even if such an impact could serve as a genuine reflection of teacher quality (Chetty, Friedman, & Rockoff, 2013; Korthagen et al. 2013; Papay, 2011). Generally, there is agreement that any measure of teacher quality must encompass more than subject knowledge and instruction strategies.

In addition to teacher *knowledge* and *skills*, most research presents teachers’ social conduct as an equally important factor in the effectiveness of teachers’ practice. In studies conducted on teachers’ socio-emotional characteristics, behaviour demonstrating such traits as empathy, enthusiasm and fairness have been found to be consistently present amongst effective teachers (AITSL, 2015; CESE, 2013; Cornelius-White, 2007; Darling-Hammond, 2006; OECD, 2005). The increased usage of *disposition* in the educational lexicon reflects current attempts to outline these ill-defined behavioural characteristics of research-based effective practice, to be used ultimately to
systematically assess the suitability and effectiveness of candidate, graduate and in-service teachers (AITSL, 2015; NCATE, 2008; NSW DEC, 2013a).

For instance, the New South Wales government and New South Wales Institute of Teachers (NSWIT) have collaborated with the Australian Institute for Teaching and School Leadership (AITSL) to create national guidelines on teachers’ personal qualities and aptitudes to be used in selecting candidate teachers from 2015 onwards (NSW DEC, 2013b). The assessment of these non-academic capabilities, also described as understandings, values, personal attributes/aptitudes and dispositions (NSW DEC, 2013b), have to date prompted 1000-word personal statements, later adapted into four-question online questionnaires, to be added to the ITE application process (UAC, 2017; UAC 2018). This current questionnaire comprises four questions that ask about career motivations, leadership experience, personal time-management skills and problem-solving skills. These questionnaires are assessed by each ITE provider, and form part of their entry requirements (UAC, 2018). These have been used in conjunction with more rigorous academic requirements for ITE candidates and external testing of literacy and numeracy skills upon graduation to attempt to raise the calibre of early career teachers (NESA, 2017) and by doing so, the academic achievements of students (NSW DEC, 2015).

In the United States, addressing dispositions in teacher training programs has been a mandatory element of the accreditation process at state and national levels since 2002 and revised in 2008 (NCATE, 2008). The growing acknowledgement of the value of these behavioural attributes has resulted in the proliferation of definitions to aid understanding of what dispositional assessment should include. Policymakers, researchers and official documents promote a core set of dispositions that underlie an effective disposition to teach, such as critical thinking, enthusiasm and self-confidence (O’Neill et al. 2014), with such sets of desirable teacher behaviours differing only slightly across cultural contexts (Shao & Tamashiro, 2013). However, there exists little consensus on what a disposition specifically entails, or how it functions and develops (Ginsberg & Whaley, 2006).

2.4 Disposition

Despite its increasingly central place in discussions of teacher recruitment, education and accreditation, disposition is primarily a psychological construct. It is an intricate
concept, and as such few clear, concise or broadly accepted definitions exist in the field. Thus, it is one of many concepts that, despite a large and diverse body of literature, remains empirically ambiguous and without much cumulative development (Deutscher, Pestello, & Pestello, 1993; O’Neill et al. 2014). Present research both reflects and compounds this weakness, where these concepts are often outlined in terms of their classical definitions, before a novel working definition is stated (Banaji & Heiphetz, 2010).

This complexity is further amplified when synonymous definitions are considered; there is often no way to clearly distinguish a disposition from some definitions of attitude, behaviour, belief, characteristic, sentiment, trait, temperament, or value. Despite the temptation to treat research across all these concepts as equivalent and comparable, the limited understanding of the processes and conditions that frame these concepts makes this unwise (Deutscher et al. 1993). It is therefore important to distinguish these terms from each other, so that finer distinctions can be made to interpret studied phenomena and clearer contributions to the field may be made (Deutscher et al. 1993). Therefore, in addition to defining disposition as an independent, descriptive concept, this literature review will also seek to position the major psychological concepts to which disposition has been linked to provide an explanatory overview of its relationship to behaviour.

It is also important to consider philosophical conceptualisations of mind that provide ontological foundations for the theories of psychology related to dispositions. Both philosophy and psychology have built upon the advancements of the other, and when considered together, present a way to understand and group theoretical perspectives. Broadly, these perspectives can be divided according to whether dispositions are thought to be dictated by external stimuli or internal structures. As such, dispositions are linked to studies of behaviour, cognition and personality on a continuum that encompasses a range of perspectives about the importance of the environment versus the individual. This has created conflicting notions of the nature of dispositions, particularly in terms of their stability and measurement.

Despite this spectrum of definitions, a key starting point for all is behaviour. Behaviour is the sound overt factor from which many psychological concepts and theories have been proposed to predict or explain these acts, explain individual differences and categorise individuals’ uniqueness. Dispositions are considered central to many attempts to explain and predict the origins of human behaviour, although the exact term
may not be used. The two constructs are often comprehensively related within theories that attempt to explain, predict and influence human behaviour. This literature review seeks to better understand what dispositions are through asking: what causes people to exhibit behavioural patterns?

2.4.1 Disposition and Behaviour

Although behaviourism does not explicitly conceptualise disposition, its operationalisation of behaviour can be used to infer the nature of dispositions within this theoretical perspective. Behaviourism conceptualises the closest link between disposition and behaviour, by representing dispositions as a purely external concept through its concern to achieve objective experimentalism. Behaviourist John Watson sought to predict and control behaviour by discounting any covert mental process that required speculation and subjective evaluation (Watson, 1913). As such, understanding the reasons behind observed behaviour was deemed irrelevant in favour of behavioural change and control (Chamorro-Premuzic, 2011). Within behaviourism, dispositions can be interpreted as denoting a predictable tendency to exhibit certain behaviours in certain situations. Further, the ‘useless fiction’ of mental states was considered a misnomer for these simple behavioural dispositions, evidenced sufficiently through observable behaviours (Skinner, 1957).

Gilbert Ryle presented a more moderate form of behaviourism by acknowledging inner states, but still dismissing their ability to cause or shape overt behaviour. Ryle acknowledged the presence of a distinctly different material body and immaterial mind but suggested that this immaterial mind was no more than a label for human activities such as thinking, feeling and knowing (Ryle, 2009). In this philosophical (or analytical) behaviourism, both behaviour and apparent mental states such as feeling could be explained without the consideration of the hypothetical construct of mind. Ryle uses the brittleness of glass to illustrate how a disposition can have no effect on behaviour until conducive conditions arise; being dropped or struck causes glass to break, not its disposition for brittleness (Ryle, 2009). By extension, while dispositional characteristics result in certain patterns in feeling, understanding what was done to a person to evoke anger is enough to explain and predict the behaviour.

Through a behaviourist lens, dispositions are simple by-products of conditioned behaviour that may be clearly measured as patterns of overt behaviour. This presents an
attractive prospect, where individuals’ dispositions within each environment could be observed and compiled, and potentially altered through external intervention. This *environmental determinism* advocated by Skinner was even extended to a person’s motives and sense of purpose as a “condition produced by reinforcement” (1974, p. 58). Such perspectives strongly equate dispositions to behaviour and position it as a physical, not mental, construct. However, the examination of our own personal experiences with behaviour exposes the flaws of such a definition. While others’ behaviour may be adequately predicted by simply knowing their behavioural patterns under certain circumstances, it is clear through our direct access to our own minds that much of what dictates our observable behaviour is not expressed within it. As critics argue: pain is more than the disposition to wince. This indicates that mental processes play some role in overt behaviour (Chamorro-Premuzic, 2011), and so dispositions too are implied to be more than behaviourism allows them to be.

Ryle positioned philosophical behaviourism against *Cartesian dualism*, which today continues to deal with how to address growing attention upon a causal mind. While behaviour can be predicted, or even controlled, by knowing behavioural tendencies, this explanation can be viewed as falling intentionally short of its intellectual endpoint. While it can be acknowledged that feelings and dispositions towards those feelings do not cause behaviour, these feelings are more psychologically complex than behaviourism allows (Bowlby, 1982). *Cartesian dualism* acknowledges the interaction of a distinctly different body and mind, although places prominence on the causal mind, a notion now engrained in popular culture through Descartes’ enduring statement ‘I think, therefore I am’. This perspective allows individuals behaving similarly to be distinguished by both the internal and external factors that caused the behaviour (Chamorro-Premuzic, 2011). This has an equally as liberating effect on dispositions, which now unshackled from overt behaviour, may also interact with the mind’s internal structures in theories developed outside behaviourism’s paradigm.

### 2.4.2 Disposition and Socio-cultural Context

Theories that accept the existence and influence of internal processes upon behaviour cannot simplify either internal processes or the environment as behaviourism did. While individuals’ internal processes are emphasised as their causal heart, these theories differ in how they emphasise and conceptualise these processes as either internally-informed
and innate, or externally-informed and learned. As the human brain and genome has remained relatively enigmatic until recent decades, a large body of theories solely emphasise the external socio-cultural environment in the shaping of the *mind*, a term for all internal processes leading to behaviour without explicit consideration of its biological structures. From this perspective, behaviour is examined as informed by semi-conscious selections based upon social benefit or position. Within these theories, dispositions become complex products of external socio-cultural interactions and observations that when analysed may be used to explain and predict behaviour.

John Dewey conceived dispositions as a variety of habits of thought, with these physical and mental patterns used to respond and engage with the environment. While *habit* implies simple and often negative repetition, Dewey (1988) saw this as “in no sense the essence of habit” (p. 32). Dewey uses *habit* to represent a body of human actions, or active dispositions, that drive people to act as they do (Dewey, 1988). These habits involve the support of the socio-cultural environment, leading Dewey to propose that extant habits (or social norms) persist because individuals form personal habits in a context set by these prior norms and customs. In this way, habits are both the product and formational process of society and culture. When applied to behaviour, these habits may support routine action when possible, but will be replaced with conscious deliberation when extant habits no longer function (Schutz, 2010). Therefore, Dewey’s theory of knowledge and behaviour is an active process of adaptations and re-adaptations to the environment through hypothesis testing, reflective intelligence and exposure to others. It is this ability for conscious deliberation that allows individuals to modify and control habits, helping to form the dispositions that comprise character and a sense of selfhood (Dewey, 1988). As such, *habits* are socially shaped *dispositions* toward certain types of behaviour in response to the environment (Anderson, 2008, cited in Dottin, 2010, p. 9).

While these dispositions are contextually responsive, they differ from those of passive perspectives of radical behaviourism where individuals are shaped exclusively by external positive or negative stimuli and reinforcement. For dispositions, the notion of an active agent positions it as a complex mental process shaping behaviour, and so removing its previous stability as a purely overt concept. Further, overt behaviour itself is evaluated as a product of individual habits, intelligently selected to respond to the context (Nelson, 2015). However, like behaviourists, Dewey (1988) believed
dispositions could be taught and developed, seeing them not as fixed traits or characteristics. Like Dewey, sociologist Pierre Bourdieu also saw dispositions as the adaptive and unique product of environmental and individual processes.

As a sociologist with a philosophical background, Bourdieu’s theories of human action explored free will within the socio-cultural context of the time. To establish how behaviour could be regulated without being “the product of obedience to rules” (Bourdieu, 1994, p. 65), Bourdieu sought to understand how social structure and individual agency could be reconciled. As a pragmatist, he used a unique set of subjective and objective conceptual ‘thinking’ tools to explore this social phenomenon. Bourdieu emphasised the structuring role of culture on dispositions and behaviours across four key concepts: field, capital, habitus and practice. To Bourdieu, reality itself was a social concept in which individuals existed only in relation to others (Mohr, 2013). In this context, individuals belong to social spheres of action (i.e., fields), each with doxa that determine a shared understanding for appropriate conduct, which assist with this relationality. Every individual holds a power position with specific behavioural requirements and degree of social clout. The more powerful the position within the field, the more cultural capital the individual is believed to hold and express through a symbolic collection of markers including credentials, belongings and mannerisms (Jenkins, 2002). However, these symbols are predominantly objectifications of Bourdieu’s influential but ambiguous “structured and structuring structure” (Bourdieu, 1994, p. 170): habitus.

As a ‘structure’ made up of the dispositions that form perceptions and actions, habitus is also ‘structured’ by past and present conditions and experiences, as well as ‘structuring’ present and future actions (Grenfell, 2008). To Bourdieu, the term ‘disposition’ was the core of its definition, as it expressed structured ways of thinking, feeling and acting that brought personal histories to the present (Bourdieu, 1977). Like Dewey and later Bandura, these dispositions are durable and transferable across domains. Reflecting Bourdieu’s pragmatic approach, habitus reflects both objective social structures and subjective personal experience. While the three concepts of field, capital and habitus represent the three main thinking tools of Bourdieu’s field theory, they do not represent the process of interaction between individual agency and social structure.

This process is described in Bourdieu’s theory of practice, in which practice (or practical logic) represents individuals’ feel for the social ‘game’ and ability to operate
successfully within society. This *practice* is strategically produced by an interaction between dispositions (*habitus*) and social position (*capital*), within the constraints of the current context (*field*) (Bourdieu, 1986). Despite individuals strategising to maximise their social profit, *practice* is not an entirely conscious act, but rather an improvised performance that draws upon a set of learnt social competencies and social identity (Grenfell, 2008). To Bourdieu, *practice* is an individually formed and socially determined strategy, bringing together individuals’ internalised structures and culture’s external rules. This emphasises the role of cultural and social structures, rather than individual perceptions and motives, in the conceptualisation of disposition and behaviour.

The idea of behaviour being selected for social function is also examined by Mead and Goffman. Mead’s *role theory* saw the development of role-taking ability as crucial for societal participation (Mead, 1934). Illustrated by the egocentric and dissociated behaviour of children, Mead regarded functioning adults as enacting learnt roles acquired by observation, evaluating feedback and the ability to think about how their actions affect others. As such, assuming the role of a generalised other sees actions selected based on expectations of others (Hogan & Smither, 2001). Goffman (1959) formulated rules for both the performer and the observer of behaviour, where the performer carefully selects their behaviour to maintain the impression most advantageous with the current audience. Goffman called this *impression management*, including not only overt behaviours, but a consistency across speech, dress and body language. Adaptations are also carefully made when situational factors interrupt planned behaviours to communicate with others and achieve our desired ends. Both view social structures as creating stable patterns within behaviour. This conceptualisation built upon the work of Durkheim (1897), considered the father of sociology, who believed that shared beliefs was the core aspect of cultures and communities, and that the behaviours of its members were direct reflections of this overarching belief system. Maladaptive behaviours, such as suicide, alcoholism and crime, were conceived by Durkheim as caused by *anomie*, a sense of lack of purpose and meaning, caused by the erosion of traditional social institutions like neighbourhood and family.

Coming from a behaviourist background, Albert Bandura’s *social cognitive theory* expanded from *behaviourism* by rejecting its unidirectional causation in favour of triadic reciprocal determinism among behaviour, personal factors, and environmental
influences (Bandura, 1989), and by doing so, drew on elements from the socio-cultural perspectives discussed. This triadic model is centred upon individuals’ thoughts of self-efficacy, conceived as unique to each domain of activity and as capable of determining how the individual will behave (Bandura, 1999). Like Dewey, Bandura also extends dispositions to refer to more than a pattern in overt behaviour, doing so by linking it to social cognitive theory’s central concept of self-efficacy (to be discussed further in sections 2.4.4 and 2.4.5). Here dispositions refer to personal factors that include the self-beliefs, aspirations, and outcome expectations that form self-efficacy (Bandura, 1999). For each domain of activity, the individual will consider their sense of efficacy and behave differently should they feel competent or “beset by self-doubt” (Bandura, 1999, p. 14). Like Dewey, these dispositions are also dynamic, multifaceted belief systems that vary across different activity domains and under different situational demands rather than being fixed, decontextualised traits (Bandura, 1999). Bandura viewed these dispositional beliefs as shaped through modelling and vicarious reinforcement, which also involve personal factors such as the cognitive and biological processes of attention and memory. Additionally, social norms within the social environment can “aid, retard, or undermine efforts at personal change” (Bandura, 1994, p. 43). As each of these factors may vary, they produce individual patterns of efficacy beliefs to form a unique dispositional makeup for each person (Bandura, 1999).

It is problematic to consider the immaterial mind and active thought without also considering the socio-cultural climate that the human mind thinks within. As such, these theorists all view disposition and behaviour as interplay between individual agency and the socio-cultural environment. However, the degree of determinism attributed to an active, conscious mind varies. Like both Dewey and Bandura, Bourdieu conceptualises dispositions as contextually responsive and unfixed. However, Bandura positions individuals as consciously able to eliminate potential behaviours due to self-efficacy beliefs, formed by dispositional personal factors. This notion of a rational actor is contrasted with Bourdieu’s improvising participant with both structured and structuring experiences. Dewey’s semi-conscious adaptations present a middle ground between the two, where dispositions are modified when circumstances require. Despite these theories’ differing views of consciousness, all three view dispositions as a complex mental process that depends on context and is relatively durable within the individual.
These perspectives provide a foundation for dispositions to be contrasted to attitudes, sentiments, or beliefs which are also used to describe often ambiguous mental processes related to behaviour. Most definitions draw upon Allport’s (1935) conceptualisation, where an attitude is a “mental and neural state of readiness, organised through experience” (p. 810) that in turn influences responses to all relevant objects and situations. Research conducted in this line views attitudes as internal predispositions which cause behaviour or even as behaviour itself (Lalljee, Brown, & Ginsberg, 1984). However, Allport believed it would be an error to assume behavioural predictability from attitude scales, as they represented only the “roughest approximation” (1935, p. 832) of attitudes’ true mental reality. Indeed, despite strong internal and external validity, many subsequent researchers have found that espoused attitudes via sentiments or beliefs are inconsistently reflected in action (Bohner & Wänke, 2002; Lalljee, Brown, & Ginsberg, 1984). Like dispositions, a socio-cultural lens may also be applied to attitude, in which it is viewed as one of many personal and situational factors that cause behaviour.

Dominant among these other proposed factors are social norms and the presence of other people (Shavitt & Nelson, 2002). This is illustrated by Milgram’s (1963) electric shock experiment, in which individuals conducted actions at the request of an authority figure, albeit unwillingly, that appeared to cause significant distress and conflicted with their attitudes toward others. Thurstone (1928) also viewed attitudes as inclinations, feelings or preconceived notions best measured through opinions (i.e., beliefs, sentiments). As such, an individual’s attitude towards an object forms a more evaluative response that is expressed through cognitive, affective and/or behavioural responses (Ajzen, 2005; Bohner & Wänke, 2002). Much like Dewey and Bourdieu, this view allows attitudes to be influenced by the socio-cultural context and be strategically manipulated to assert a profitable social outcome or identity (Lalljee, Brown, & Ginsberg, 1984). As such, attitudes may be considered as informing dispositions, but as ultimately bending to the contextual habits, culturally reinforced norms and strategic social structures perceived by the actively thinking and semi-deliberative individual.

How attitudes can alter by and within context – and therefore potentially alter dispositions and behaviour – is extended by the internal constructs of values and morals. Interacting with attitudes, values are the guiding principles for people’s lives (Ajzen, 2005). Morals are communal values that promote social harmony, which may or
may not align with individual values (Eysenck, 2013). As conflict between these two constructs is possible, moral reasoning may also occur, where an outcome is reached by evaluating moral factors with mitigating personal values and attitudes (Fazio, 1990). In this way, a strictly immoral choice may be reached in a certain context where an individual’s personal values or attitudes are given more ethical weight (Eysenck, 2013; Lucidi et al. 2017; Young, 2016). Patterns within the outcomes of moral reasoning are often summarised as part of character or personality and are used to categorise and predict behavioural choices (Chamorro-Premuzic, 2011; Fleeson, Furr, Jayawickreme, Meindl, & Helzer, 2014). As these behaviours do not always strictly adhere to socio-cultural expectations or norms, understanding dispositions must also consider individual agency, individual difference and the patterns of character traits.

In this way, the thoughts of an active mind are seen to play a major part in these conceptualisations of both disposition and related concepts of attitude, value and morality. While an active, thinking mind is recognised, the theories so far discussed attribute behaviour largely to situational factors, such as cultural norms and social identities. These active, socio-cultural dispositions have become common among modern theories of human functioning, forming a body of work that can be used to understand individuals’ actions within a social context. However, some actions may also be attributed to fixed, unique and sometimes unexpected traits that do not always serve a social purpose. These character or personality traits prompt a shift back in thinking about disposition toward internal attribution to explain behaviour, instead of the ultimately external socio-cultural attributions of Dewey, Bourdieu and even to some degree, Bandura. Such perspectives still reflect an active mind but view innate semi-stable dispositions as shaping behaviour as well as – or perhaps more than – deliberate socio-cultural adjustments.

2.4.3 Disposition and Traits

Like the theorists of behaviourist and socio-cultural thought, personality theorists also aim to clarify the processes underlying human functioning. Personality is a construct to represent individual consistency, difference and similarity observed in individuals’ behaviour, intelligence, thought and emotion. In some current approaches to disposition assessment, this notion of consistent behavioural patterns makes personality testing an attractive means to assess individuals’ dispositions (O’Neill et al. 2014). Most theorists
accept a dispositional or trait approach to personality, considering there to be a set of stable and partially-inherited dispositions – personality traits or types – that guide individual action (Chamorro-Premuzic, 2011). As such, personality traits are aggregated measures of behavioural tendencies, and so personality itself can be a general disposition to act in specific ways (Chamorro-Premuzic, 2011). Within this conceptualisation, dispositions are the traits that influence behaviour consistently (Ajzen, 2005; Jaccard, 1974), rather than patterns of action or semi-conscious predispositions to act based upon habitus (Dottin, 2010) as discussed in 2.4.1 and 2.4.2.

Within a disposition/trait approach, the study of personality is focused upon the identification, classification and deduction of stable personality traits via these consistent patterns of behaviour. Within this perspective, the value of a personality trait is therefore determined by the consistency with which it influences the psychological states that may predispose an individual to action (Ajzen, 2005). Traits are set response tendencies in any given context that centre upon the individual; they differ from *attitudes* as they are not evaluative, directed at external objects nor are as malleable, but often connected to attitude (Ajzen, 2005). Therefore, traits’ predictive consistency is largely limited to specific situations, even if different behaviours belong to a common personality dimension. Traits are ordered hierarchically to reflect this context-specific nature, with the highest only describing variation within a few overarching dimensions, for example, within the prevalent Five Factor Model of personality: openness, conscientiousness, extraversion, agreeableness and neuroticism (Judge & Zapata, 2014). Such personality inventories allow different specific behaviours to be identified across varied contexts as demonstrating a shared core, personality dimension, without the costs of observing individuals’ behaviours in naturalistic settings (Ajzen, 2005).

Broad dimensions have been used to describe behaviour across demographic groups (Bleidorn et al. 2013; Rentfrow et al. 2013; Rentfrow, Jokela, & Lamb, 2015), predict behaviours and life outcomes such as work performance, divorce and longevity (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007; Solomon & Jackson, 2014; Yao & Moskowitz, 2014), as well as constructs such as attitudes (Brick & Lewis, 2014) and motivation (Carver & Scheier, 2014). Measures like the Five Factor Model (FFM) can be split into lower level traits, aspects or facets (DeYoung, Quilty, & Peterson, 2007). These facets have been found to outperform broad dimension traits in the prediction of specific behaviours, and so provide a richer contextualised description of individuals
(Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Mõttus, Kandler, Bleidorn, Riemann, & McCrae, 2017; O’Neill & Steel, 2018; Paunonen & Ashton, 2001). While situational consistency of general dimension traits has been established, the strength of facet traits lies in their ability to provide patterns across varied acts that allow measures to be sensitive to situational variations in trait expression.

Although sensitive to situational moderation, traits are not exclusively socially acquired. Using advancing technologies, the study of individuals’ stable, inherited traits has grown and diversified. Yet, the strongest evidence for genetic influence upon personality remains the domestication of animals (Bouchard & McGue, 2003). Recent studies have begun to extend this observation, identifying that traits such as docility, sociability (Petelle, Martin, & Blumstein, 2015), and aggression (Filby et al. 2010) are inherited in animal populations (Dochtermann, Schwab, & Sih, 2015). Within humans, similar correlations have been reported for the FFM dimensions over multiple studies, ranging from .42 for agreeableness to .57 for openness (Bouchard & McGue, 2003; Judge & Zapata, 2014). In addition to social phenotypes, such as work performance, divorce and longevity (Roberts et al. 2007; Solomon & Jackson, 2014; Yao & Moskowitz, 2014), studies have also been able to identify responsible genes for common psychotic disorders (Ripke et al. 2013; Bodea et al. 2016), which are generally considered maladaptive personality traits (Ajzen, 2005). Such studies provide strong evidence of genetic effects on personality, with some extending their research to find the heritability of intelligence to be similar or even greater still (Bouchard, 2004).

Although traditionally not a personality trait, intelligence shares conceptual similarities with personality: consistency, predictive-potential and apparent heredity-situational interplay. It is also affected by the common misconception that heritability and situational moderation are negatively correlated (Bouchard & McGue, 2003). Known as the Flynn Effect, while a wide body of evidence suggests there is a moderate to strong heritability for IQ, growing stronger with age (Benyamin et al. 2014), evidence also suggests population IQ has grown considerably over the last 50 years, even when genetics are controlled (Pietschnig & Voracek, 2015). Despite their genetic basis, even FFM personality traits are susceptible to change over a person’s entire lifetime (Cobb-Clark & Schurer, 2012; Debast et al. 2014; Li, Stanek, Zhang, Ones, & McGue, 2016). Twin studies illustrate this change further, as while genetically identical, results have shown that varied life outcomes and personality traits can develop despite shared
genetic potential and vulnerabilities (Goldberg et al. 2013; Polderman et al. 2015; Rosenthal, 1963). Even temperament, considered a child’s innate differences in emotional and behavioural reactivity and self-regulation set within three months of birth, cannot be solely attributed to heritability (Buss & Plomin, 1984; Judge & Zapata, 2014; Twenge & Campbell, 2017). While work continues to quantify the degree to which some traits reflect underpinning biological structures (Lewis & Bates, 2014; Munafò, Zammit, & Flint, 2014), in terms of disposition, genetics is not a definitive predictive or explanatory tool for all observable behaviours.

The influence of non-genetic factors in personality theory is significant, as it confirms that individuals’ behaviour is not solely informed by inherited personality traits/dispositions, and that behaviour is in some way individually constructed. Nonetheless, stability to some degree remains a constant in personality research but can be considered with other factors. In their research, the correlations Roberts and associates (2007) obtained for personality traits were comparable to those of socioeconomic status and cognitive ability, with interactionist approaches to personality and behaviour becoming increasingly the norm (Bandura, 1999; Fournier, Moskowitz, & Zuroff, 2008; Judge & Zapata, 2014). Even Allport’s (1968) foundational work in trait theory addressed this interplay, asserting that inconsistent acts or habits are not proof of a trait’s (or disposition’s) nonexistence, and that situational demands do play a part in determining behaviour and enacting dispositions. As not all observed behaviour can be accounted for by the interaction between personality traits and situation (Bowers, 1973; Sherman, Rauthmann, Brown, Serfass, & Jones, 2015), more complex interactionist models are needed to conceptualise this unexplained variance. While there is no current consensus on how to study psychological situations, multiple conceptual models have been developed (Rauthmann, Sherman, & Funder, 2015).

2.4.4 Disposition and Cognition

Cognitive perspectives to human behaviour consider both the individual and its perception of the environment, thus building upon trait theory to provide a more holistic model of human behaviour and its assessment. To explore trait-situation interaction, Endler (1983) distinguished mechanistic interactionist models, where the situation influences a person’s behaviours, from reciprocal interactionism models. These
reciprocal models view behaviour as determined by situation and person, while acknowledging the influence of person-situation interplay on resultant behaviour, by selecting or changing situations in certain ways. This situation-focus interactionalist approach takes concepts from the behaviourist tradition to experimental psychology, renewing them into terms like *vicarious learning*, *modelling* and *self-reinforcement* (Mischel, 2017). These terms reflected a significant shift from behaviourism, moving beyond the situation to include the cognitive processes by which situations were perceived, attributed meaning and appropriate behaviour selected. Dispositions here are presented as dynamic cognitive interactions between personal and situational factors. By acknowledging trait theory’s limitations, the domains of personality, cognitive and social psychology have extended Endler’s (1983) models to provide new perspectives, often contributing to each other’s work. Given the recent rise of cognitive psychology in recent decades, researchers here have provided cognitively-orientated explanations for how an individual’s cognition could interact with situation to induce behavioural patterns (i.e., dispositions). As a key critic of trait theory, Mischel’s work within interactionalism sought to explore this situational coefficient in behaviour, postulating that dispositions are best understood as if-then propositions, a conditional view of disposition focused on local predictability (Wright & Mischel, 1987).

To Mischel, behaviour may be predicted through the identification of clusters of if-then, conditional behaviour contingencies. Mischel’s model removed the causal emphasis of stable traits and dismissed past behaviour summaries from consideration in favour of viewing dispositions as probable behaviours in specific situations (Wright & Mischel, 1987). This view connects with Ryle’s (1949, cited in Ryle, 2009) behaviourist analogy of the brittleness of glass outlined in section 2.4.1. However, Mischel’s work extended this view of dispositions to include how the situation is processed by the individual, forming a social *cognitive-affective processing* (CAPS) approach (Mischel, 1999; Mischel & Shoda, 1998) in which behaviour is dependent on the psychological features of the situation that are perceived and evaluated as meaningful for that individual (Shoda, Wilson, Chen, Gilmore, & Smith, 2013). These features, or cognitive-affective units, include all social, physiological and psychological aspects of the individuals that prompt stable interactions, such as encoding strategies, intelligence, regulatory strategies, goals, expectancies, beliefs, values and affective responses, which inform a reciprocal interactionalist perspective of behaviour (Mischel, 1999). Through online
diaries, data showed that individuals differed reliably in the types of stress-triggering psychological situations and maladaptive coping strategies (Shoda et al. 2013). These perceptions cause patterns to form in how individuals react to a situation, or signatures, which interacts with the situational demands and inherent traits of the individual to produce behaviour. Even when behaviour is understood as a product of dynamic interactions between person and situation, dispositions can still be understood as patterns in behaviour. Nonetheless, this model acknowledges that some behaviours remain inconsistent (Mischel & Shoda, 1998; Shoda et al. 2013).

Mischel's theory was an extension of Rotter's earlier social learning approach, which is cognitive in all but name. Through Rotter’s attempt to explain behavioural variation outside the psychodynamic models of Freud and Jung (Rotter, 1954), he formed a model building on Dollard and Miller’s (1941) social learning theory. Also building on behaviourism while acknowledging the complexity of dispositions, a response hierarchy was developed to represent individuals’ potential responses, in which signatures were strengthened links between cue and behaviour via reinforcement. Miller (1944) also emphasised the role of goals and motives in directing behaviour, and the conflict that could arise from this force, positioning Miller closer to humanists (to be discussed). To Rotter, behaviour potential referred to both overt behaviours and covert cognitive activity (Rotter, 1982). However, it is his emphasis on an individual’s cognitive evaluations and expectancies that positions his theory as cognitively-orientated. Individuals’ covert cognitive activity included psychological situations that increased sensitivity to certain cues, which in turn, activated expectancies about whether reinforcement will occur (Rotter, 1951). As such, behaviour potential (i.e., disposition) is a joint function of both expectancy and reinforcement; certain goals may be more important than others, and even valued ones may have a negative expectation of obtainment (Judge & Zapata, 2014). However, Rotter did not emphasise the role of goals, motives and drive as did Miller (1944).

In this view, an individual’s behaviour across all situations can be described as a mean level disposition, whereas a signature refers to the situational patterns in how behaviours are dispersed across contexts around this mean level (Fournier, et al. 2008; Mischel, 2004). The two work together to inform behaviour, but little is provided to explain what contributes to the forms of these dispositions or signatures. Attempts to identify clusters of similar situational responses, or behavioural signatures, have found
that idiographic patterns of behaviour across situations were a meaningful aspect of personality (Fournier et al. 2008; Furr, 2009; Rotter, Chance, & Phares, 1972; Smith, Shoda, Cumming, & Smoll, 2009). As such, dispositions may not only originate from situational cues, social norms, or innate characteristics, but also an individual’s perceptions of the situation. While individuals adjusted their behaviour to varying degrees based on identical situational cues, attempts to identify the psychological construct/s behind these processing variations continue (Fleeson & Law, 2015; Sherman, et al. 2015; Rauthmann et al. 2014; Sutton, 2015).

Recognising this need to identify the constructs of cognitive processing, Rotter was also one of the first cognitive theorists to recognise individual differences in need, regarding it as a simple psychological construct that accounts for the directionality of behaviour (Rotter, 1954). Rotter presented six needs: (1) recognition-status, (2) protection-dependency, (3) dominance, (4) independence, (5) love and affection, and (6) physical comfort. Unlike Murray, he did not regard need as some state of deprivation, but as simply a learned construct that accounted for the directionality of behaviour, thus keeping his theory from being viewed as truly humanistic (see section 2.4.5). By contrast, Mischel only briefly included goals in his theory (Mischel, 1999). Such conceptualisations are not surprising, as Bandura and Rotter were both students of Lewin, whose cognitive and field theory of personality has proved a foundational work for many (Bandura, 1999; Judge & Zapata, 2014; Rotter, 1954; Twenge & Campbell, 2017).

Extending Lewin’s conceptualisation of behaviour as the interaction of person, environment and psychological state with a life space (Lewin, 1936), Bandura regarded behaviour as acquired through observational learning. He positioned motivation as a significant part of this process, determining the difference between learning a behaviour and engaging in the behaviour (Bandura, Grusec, & Menlove, 1967). As his theory extended, Bandura also sought to identify the constructs of processing. Bandura (1997) regarded self-efficacy as an individual’s sense of agency or capability toward a particular act, extending behaviourism’s external rewards and punishment to an internal system. The motivational element of his theory was also conceptualised as a form of self-regulation, a cognitive process of reinforcing self-talk based on personal standards and evaluations of behaviour. This cognitive process may become maladaptively skewed, with negative self-talk found to be common among those with depression and
anxiety (Flett, Hewitt, Blankstein, & Gray, 1998). Ultimately, Bandura’s self-efficacy theory focuses on expectancies for success, categorised as either *outcome expectations* (beliefs that certain behaviours will lead to certain outcomes) or *efficacy expectations* (beliefs that ability to perform the behaviour to elicit an outcome). These expectations are distinct, as an individual may believe a particular behaviour will elicit an outcome but may not believe themselves capable of performing the behaviour and achieving the outcome. As such, Bandura proposed that individuals’ efficacy expectations are the major determinant of goal setting, activity choice, willingness to expend effort, and persistence (Eccles & Wigfield, 2002).

Like Mischel and Rotter, Bandura adopted an active perspective to human behaviour, believing it possible to develop and alter these cognitive processes. Bandura took a broad theoretical perspective on social learning, differing from the work of Rotter and Mischel. Although focused on self-agency, Bandura’s extended theory includes a societal and cultural perspective (Bandura, 1997). This culminates in Bandura’s conceptual *reciprocal determinism*, touched upon in section 2.4.2., in which the components of person (including cognition, attitudes and beliefs), behaviour and environment interact to determine behaviour. As such dispositions can be viewed as products of dynamic interactions between self, situation and behavioural feedback and evaluation.

Like Bandura, Kelly (1955, 1963) also drew on Lewin to view humans as proactive agents, who were motivated to develop personal constructs from their interactions by gathering and evaluating feedback. When new information was encountered, Kelly saw that as a time when a newer, healthier construct needed to be made. Such constructs were mostly conscious, but Kelly postulated these constructs were stored at varying levels of awareness, with the lowest using a ‘feeling of knowing’ (Twenge & Campbell, 2017). By emphasising personal agency in behaviour, Kelly’s work continues to provide the foundation for constructivist psychology (Judge & Zapata, 2014). Indeed, most cognitive psychologists have contributed to psychology through emphasising individual agency in behaviour. Kelly’s personal constructs were related to *role*, a psychological process and ongoing pattern of behaviour that reflect a person’s understanding of the people around them (Kelly, 1955). This interpersonal understanding is directly linked to the individual’s personal construct system. As individuals were regarded as active agents, any maladaptive constructs may be altered with therapy, where individuals...
could be taught to improve and strengthen their self-concept and be given opportunities to try out new constructs to interpret reality (Judge & Zapata, 2014). By extension, maladaptive, or simply undesirable, behaviours present in any professional may potentially be reversed through a systematic retraining of behaviour.

Particularly Kelly and Bandura’s work carried humanist leanings, as both emphasised personal agency in determining behaviour. Socio-cognitive and humanist fields have a rich shared history, with the concepts of behaviour, needs, motivation and self-concept common among them (Hickes & Mirea, 2012; Shahar, 2013). However, differences in emphasis allow these constructs to be examined differently within these two perspectives. Social-cognitive theory has been criticised for its omission of unconscious motives as an inner trait, rather emphasising the objective truth of the environment (Claessens, 2010). Bruner (1990) claimed that even the more sensitive social learning theories are no more than revised behaviourist approaches by adhering to objectivist conceptions of knowledge justification. As such, while reciprocal models acknowledge the interaction of person on situation, it is limited to view behaviour as composed of discrete representations and only deemed valid to the degree that it reflects the objective realities of the situation (Myers, 2010). Where social-cognitive theory would first examine how situational cues were perceived and processed, humanists would look at how perceived needs and self-concept were being met through the situation.

Dispositions within a holistic or humanist interactional view represent the totality of an individual’s unique cognitive, behavioural and affective tendencies (Bandura, 1999), making attempts to condense these into descriptive trait and situational categories inherently difficult. Several have drawn upon a humanist paradigm, where the process of an interacting environment and person as perceived by the individual inevitably includes their psychological state and their current psychological needs. As such, dispositions may also include situational perceptions, that when processed with certain acquired habits or innate trait tendencies, will produce behaviour. By extension, understanding dispositions must extend to these psychological states and needs, and how they may influence human behaviour and disposition in either type of interactional approach. More complex perspectives of these psychological states view them as informing behaviour by generating trends or dispositions to act in certain settings (Aronoff & Wilson, 2014). In these domains of social psychology, the units outlined by
Mischel, Rotter and Bandura are placed within higher order constructs that continue to parallel and build those within personality and cognitive psychology.

2.4.5 Disposition and Need

By understanding dispositions as stable patterns (learned, selected or inherited) shaped by active and unique perceptions of environment, the role of needs or innate human drives must be investigated as a factor shaping these perceptions. In the search for an alternative to the two dominant paradigms of the time, psychoanalysis and behaviourism, humanistic psychology emerged upon a largely psychodynamic foundation. In this tradition, much of current personality research builds upon the humanist emphasis of personality as a sum of a person. Current trends in psychotherapy research position human behaviour within a lens that is notably more concerned with a holistic, person-centred understanding of relational processes (Todd & Bohart, 2006). Theories that explain behaviour as an interaction between a person’s core genetic characteristics, their socio-cultural environment and current psychological state or needs are generally identified as humanistic (Judge & Zapata, 2014). These psychological states determine dispositions – how situations (i.e., social environments/experiences) are selected, cues processed and traits enacted, shaped themselves by motives and their driving needs (Twenge & Campbell, 2017).

This humanist conceptualisation of core human needs is driven by a deeply entrenched human need for self-actualisation within the human mind. To theorists such as Goldstein (1939), Maslow (1950, 1962, 1970), Rogers (1947, 1954, 1959) and Murray (1936, 1938, 1951, 1968) this core drive predicates different levels of needs, met by adaptive motivations, and prompts variances in how situations are selected and perceived. The specific needs outlined by Rogers (1959), the place of motivations and goals to Miller, Bandura and Mischel (Bandura, 1989a; Miller & Dollard, 1941; Mischel, 1999), or the personal constructs of Kelly (1955), all parallel or build directly upon these humanist theorists. While all acknowledge the role of culture in behaviour formation, they also saw the precedence of cultural expectations over personal choices as damaging to wellbeing (Judge & Zapata, 2014), as did Bandura (1989b; 1994) to self-agency and Miller (1941) in the delay of gratifying goals. However, no cognitive theorist position needs as the prominent driving force of human behaviour. As such, dispositions may also reflect motivated needs through the overt behaviours enacted, as
well as in more covert behaviours concerning situational preference or avoidance and the evaluation of situational feedback.

The drive for *self-actualisation* was conceptualised after a shift toward positive psychology, and was identified as a common theme in the psychologically healthy (Judge & Zapata, 2014). Goldstein (1939) first put forward that humans’ drive to actualise their potential was the only true need, with all others being manifestations of this need. Situations were therefore evaluated in terms of meeting this need by individuals, contributing to changes in their physical and psychological wellbeing. Goldstein illustrated how situations which cause anxiety prompt behavioural tendencies toward order and norms in children, as challenging anxiety is perceived by them as a rewarding step toward *self-actualisation* (Goldstein, 1939). Maslow (1950, 1962, 1970) extended this concept by distinguishing between types of needs and their motives. Basic biological needs (d-needs) were driven by deficiency motives, which are satisfied once the goal has been achieved. Like Murray’s later (1968) primary and secondary needs, once all basic needs are met, higher needs (b-needs) driven by growth motives could be realised. Meeting these higher needs for belonging and love, esteem, and self-actualisation led to greater biological efficiency and a richer ‘inner life’, while failure to meet these needs negatively affected the psychological state (Maslow, 1970). However, these needs required favourable conditions to be met; the highest of Maslow’s needs, self-actualisation, was thought to only be achieved by 1% of the population (Judge & Zapata, 2014). Maslow (1962) suspected this was due to the devaluing of individuals’ instincts for perceiving ‘good conditions’ for meeting needs, which would innately address the needs vital for wellbeing. As such, this suggests that individuals may be disposed to act, in favourable conditions, in ways that address basic human needs.

Unlike Maslow, Rogers believed self-actualisation was achieved by all fully functioning people through two needs related to *self-concept*. However, like Maslow, an individual’s perception of the situation was centred upon meeting these needs, with socio-cultural and genetic factors as secondary influencers in the psychologically healthy (Rogers, 1947). The notion of *self* was conceptualised as a gestalt of the conscious and unconscious totality of existence (*phenomenal field*), made up of perceived notions of self and relations to other people, places and things (Rogers, 1959). Rogers (1947) saw the *self* as a “basic factor in the formation of personality and in the determination of behaviour” (p. 361) that developed over time and was capable of
reorganisation. A fully functioning person meets two positive needs of self-concept: a positive self-regard and self-actualisation, provided through interactions of genuineness, acceptance and empathy (Rogers, 1959). To Rogers, a dysfunctional person had adopted a persona inconsistent with their true or ideal self, prompting behaviours and self-characteristics inconsistent within their actual self, causing distress (Judge & Zapata, 2014). This discrepancy occurred when external expectations were perceived as more important than the internal perceptions of self-concept. Reducing the size of this discrepancy and restoring a sense of trust in the innate actualising tendency is therefore the focus of client-centred, later person-centred, therapy (Rogers, 1951). This suggests that maladaptive or antisocial behaviours may be expected in situations in which individuals are unable to act on innate dispositions that address basic psychological needs.

This notion of conflict in self-concept is common among many social and cognitive theorists. Rogers’ perspective has much in common with Kelly’s roles and personal constructs, as he too believed that individuals would need assistance to update constructs when inconsistencies occurred (Kelly, 1955). Kelly’s concept of role is close to Rogers’ actual self, and shares linkages with Bandura’s self-efficacy (1999), as all are personal perceptions of self that may be confounded by social norms or external expectations. The positioning of positive self-regard and self-actualisation as key aspects of psychological wellbeing was also put forward by Miller (1941), where being blocked from acquiring a goal was found to generate aggressive behaviours; this connects to Rogers’ (1959) conceptualisation of frustration causing maladaptive behaviours. Even Bourdieu’s concept of field was considered arenas of conflict (Mohr, 2013), where new rules in the social game can cause crisis in identities (Zipin & Brennan, 2003). This suggests that while individuals remain active constructors of their own behaviour, they may also perceive an obligation to engage socially advantageous dispositions and behaviours at the cost of those more beneficial to their general wellbeing.

If need conflict is a common feature of human perception and behaviour, it is vital that these perceptions can be examined, altered and developed so that productive behaviours can be enacted. Murray (1936, 1938, 1968) extended the psychodynamic perspectives of Freud and Jung, believing individuals to have central conscious and unconscious needs. Murray (1938) defined needs as a “construct … which stands for a force in the brain
region, a force which organizes perception, apperception (expectation), intellection, conation and action … to transform in a certain direction an existing, unsatisfying situation” (pp. 123–124). These needs were formed through *thema*, the interaction of *press* (environmental factors) and personality factors that caused behavioural patterns or norms. *Press* was made up of both the objective situation and the subjective perception of the individual (Judge & Zapata, 2014). Murray’s primary physical (e.g., water, harm avoidance, or passivity) and secondary psychological needs (e.g., achievement, order, or rejection) were sensitive to cultural norms, processed within the unconscious superego and, like Maslow and Rogers, orientated toward the highest good (Murray, 1936). The effects of these needs are therefore most obvious in behaviour when a deficit exists between current need state and addressed need state (Murray, 1968). Like the theorists outlined above, the distress caused by this or when two needs were in conflict was also hypothesised as the origin of neurosis (Murray 1951). Like Rogers, the difficult process of making unconscious thoughts conscious was thought to promote greater psychological wellbeing (Judge & Zapata, 2014). However, Murray viewed these needs as psychological deficiency states; once addressed they no longer affected human behaviour. In his cognitive approach, Rotter altered Murray’s construct to define needs as simple psychological constructs that always function within behaviour. This is yet another example of humanists’ contributions, and their limitations.

Critics of these humanist theories question the assumption of inherent good or inherent actualising tendencies, and whether these can realistically be linked to behavioural tendencies (Geller, 1982; Reeve, 2014; Twenge & Campbell, 2017). For example, Rogers’ notion of *self-regard* has not been found to be a cross-cultural need (Heine, Lehman, Markus, & Kitayama, 1998). While Murray’s needs have been found to have unconscious components (McClelland, 1985), many were not found to be universal, psychologically important or used to initiate voluntary behaviour (Reiss & Havercamp, 1998; Reiss, 2004). Despite these discrepancies, the contributions of these theorists paved the way for conceptualising and measuring the role of the individual within a holistic, interactionalist approach to behaviour that could more richly consider the role of perception and need on behaviour.
2.4.6 The Reasoned Action Approach

With such extensive and varied theories of human behaviour, finding a single conceptualisation for disposition is challenging. Such a conceptualisation would need to account for dispositions’ link to behavioural patterns, though accommodate the contributions of reinforced behaviours, social norms, inherited traits, cognitive perceptions as well as human needs and motives. Extending upon both cognitive and humanist thought in the late 1960s, and sharing their dissatisfaction with reliance upon demographic characteristics or personality to predict specific actions, the work of Fishbein and Ajzen (Ajzen, 2002, 2005; Fishbein & Ajzen, 1975, 2005, 2010; Fishbein; 1963, 1967) has produced a number of models, including the Theory of Planned Behaviour (TPB), the Reasoned Action Approach (RAA) and Theory of Reasoned Action (TRA) (Montaño & Kasprzyk, 2015). Given recent consolidations, these theories will be discussed under the encompassing RAA model (Fishbein & Ajzen, 2010), which combines the behavioural and normative dimensions of TRA with the control dimensions of TPB (Montaño & Kasprzyk, 2015). Fishbein (1967) initially presented intentions (i.e., dispositions) as the immediate antecedent of behaviour, with intentions, in turn, as a function of attitude toward the behaviour. This theory held close ties to expectancy-value theory, specifically Fishbein’s (1963) model, where beliefs about behavioural outcomes were deemed as determining attitudes. The term ‘reasoned action’ has prompted many to assume this model perceives individuals as deliberate and rational agents at all times (Maden, Ellen, & Ajzen, 1992; Trafimow, 2009), much like the theories of Bourdieu and Mead previously discussed. Fishbein and Ajzen (2010) argue that the term has been misinterpreted, and that it refers simply to the process the model outlines, in that social behaviour and intentions are presented as following in a reasonable, consistent and often automatic fashion from their beliefs (Fishbein & Ajzen, 2010).

The RAA model assumes some degree of need for relatedness within human behaviour by adding subjective norms to the model to represent perceived social pressures to act (Fishbein & Ajzen, 1975). This addition differs from the universal nature of Maslow (1970) and Murray (1968), in that this need to consider social norms accounts for socio-cultural differences, but also reflects an active and adaptive self-concept similar to that outlined by Rogers (1959) and Kelly (1955). A later modification (Ajzen & Fishbein, 1980) saw a wide range of socio-cultural factors explicitly included in the theory, with
each presented as factors that could directly or indirectly influence the behavioural and normative beliefs of an individual. This consideration reflected Bourdieu’s (1994) social spheres of action (i.e., fields) and shared understanding for appropriate conduct (i.e., doxa). A further addition sought to recognise that not all behaviour is under volitional control (Ajzen, 1985, 1988) by introducing the construct of perceived behavioural control as an additional predictor of both intention and behaviour, with very close similarities to Bandura’s (1977) notion of self-efficacy (Fishbein & Ajzen 2010; Madden, Ellen, & Ajzen, 1992).

The acknowledgement of unconscious behaviours within this framework accommodates trait theory, which presents personality traits as background factors that dictate set response tendencies in any given context that connect to evaluative, malleable and externally-directed attitudes (Ajzen, 2005). Its place as a background factor reflects the limitations of personality traits as direct predictors of specific behaviours, without discounting their effect on broad dispositions, such as racial prejudice (Fishbein & Ajzen, 2010). Further connections to cognitive theorists were confirmed during a 1991 workshop involving five prominent theorists – Bandura, Becker, Fishbein, Kanfer and Triandis – with the aim of consolidating their theories of behaviour (Fishbein & Ajzen, 2010). The consolidated framework found that behaviour primarily required: (a) strong positive intention to perform; (b) no environmental constraints; and (c) the necessary skills. However, other background factors included: (d) positive cost-return evaluation; (e) more social pressure to perform than not perform; (f) consistency with self-image and personal standards; (g) positive emotional result to performing; and, (h) perceived self-efficacy to perform the behaviour (Fishbein, 2000; Fishbein & Ajzen, 2010).

As such, the RAA model occupies much of the shared space between the theories previously discussed in this literature review. In its most current form, behaviour follows reasonably and often spontaneously from dispositions, the active and cumulative beliefs an individual holds about a certain behaviour. These dispositional beliefs come from a variety of sources, including individual (e.g., personality traits, emotion, values, past behaviour), social (e.g., education, age, gender) and information (e.g., knowledge, media, intervention). However, given the vast number of potentially relevant background factors, these are captured as a part of subsequent dimensions and are not a direct part of this conceptual model (Fishbein & Ajzen, 2010). The beliefs these factors form can be divided into three types: (1) likelihood of positive or negative
consequences (i.e., behavioural beliefs); (2) approval or disapproval by valued social factions (i.e., normative beliefs); and (3) feelings of self-efficacy toward task (i.e., control beliefs) (see Figure 2.1). These three predictors of intentions can take on varying weights, so that intention becomes a unique combination of attitudinal, normative, and control considerations, and although conceptually distinct may also overlap in their functioning (Fishbein & Ajzen, 2010, p.204).

![Figure 2.1 The Reasoned Action Approach (RAA) (Fishbein & Ajzen, 2010).](image)

Each of these beliefs types underlie a more direct determinant of intention, and thus behaviour. For behavioural beliefs, this direct determinant is *attitude toward the behaviour*, defined as a latent disposition or tendency to evaluate and respond with some degree of favourableness or unfavourableness to a psychological object (Fishbein & Ajzen, 2010). Within the framework, these attitudes are conceptualised as either a cognitive attitude (i.e., objectively-orientated) or affective attitude (i.e., subjectively-orientated). However, Fishbein and Ajzen (2010) argue that affect is ultimately assessed as a cognitive evaluation rather than pure emotion, and so prefer more neutral terms – namely, *instrumental* and *experimental attitudes* – to capture occasional distinctions measured between the two attitude types. Attitudes are a central element of many conceptions of behaviour previously discussed, such as Allport (1935) and Dewey
(1988). Unlike these models, in which subsequent investigations found attitude to be a poor predictor of actual behaviour (Abelson, 1972; Bohner & Wänke, 2002; Diez & Raths, 2007; Lalljee, Brown, & Ginsberg, 1984), the RAA model has demonstrated attitude is a significant predictor of behaviour (Ajzen & Albarracin, 2007; Fishbein & Ajzen, 1975; Vogel & Wänke, 2016). Fishbein and Ajzen (1974) noted that this inconsistency between attitude and behaviour was improved by measuring attitudes and behaviours at the same level of specificity. That is, rather than using global attitudes toward discipline to predict use of classroom discipline behaviours, Fishbein and Ajzen (1975) would posit such a link would be best captured by specific antecedents (i.e., attitudes toward classroom discipline). As normative and control beliefs were also identified as behavioural predictors, these combined to make intentions a stronger predictor of behaviour (Nisson & Earl, 2015).

Normative beliefs, concerning approval or disapproval by valued social factions, are also informed by individuals’ motivation to comply with prescribed norms. These normative beliefs thus dictate the strength and nature of the more direct determinant of intention, perceived norm (i.e., perceived social pressure). The perceived norm encompasses the total social pressure experienced with respect to any given behaviour, broken down into the normative influence of perceived injunctive and descriptive norms (Fishbein & Ajzen 2010). Conceptually, these two types of norms can be distinguished by the adage ‘do as I say, not as I do’ and its reversed corruption ‘do as I do, not as I say’; the former referring to injunctive norms representing what behaviour ought to be performed as expected by relevant others, and the latter referring to descriptive norms representing what behaviour is or is not observed as being performed by relevant others (Fishbein & Ajzen, 2010). While this model addresses the influence of a social norm and a predication for relatedness, it avoids becoming culturally exclusive by simply accounting for this influence without providing a list of universal needs that guide behaviour as Maslow’s (1962, 1970) conceptualisation of behaviour.

Both motivation to comply and group identification have been found to add very little to the prediction power of this model, with general normative beliefs returning stronger associations (Fishbein & Ajzen, 2010). However, several researchers have sought to add self-identity as an additional predictor (Case, Sparks & Pavey, 2016; Haydon, Obst, & Lewis, 2018; Obschonka, Silbereisen, Cantner, & Goethner, 2015; Terry, Hogg, & White, 1999), claiming that it contributes significant additional variance in intention and
behaviour. This addition makes intuitive sense, as social interactions typically require some filtering of self-image (i.e., different behaviours performed with parents than peers). This concept of self-concept and its maintenance is also common across several theories (Bandura, 1994; Kelly, 1955; Miller, 1941; Murray, 1968; Rogers, 1959). While partially represented through motivation to comply and identification with referent in injective and descriptive norms, this model may not adequately address this dimension of intention. The next determinant of intention to be discussed, *perceived behavioural control* is defined as bringing one’s influence to bear on one’s own functioning and environmental events (Montaño & Kasprzyk, 2015), and also reflects Bandura’s (2006) personal agency. While the precedence of cultural expectations over personal choices is presented as delaying the gratification of goals or needs to damage wellbeing (Bandura, 1994; Kelly, 1955; Miller, 1941; Murray, 1968; Rogers, 1959), the devalued position of ‘need’ within the RAA model presents no such outcome. While linkages to self-concept and identity are assumed within this model, it is only implied through other existing dimensions, with Fishbein and Ajzen (2010) seeing “little value in pursuing self-identity as it is currently operationalized” (p. 293).

The third and final direct determinant of intention is *perceived behavioural control*, which is informed by control beliefs. The perceived behavioural control construct is defined as representing the degree to which an individual believes they are capable of performing the behaviour (Fishbein & Ajzen, 2010). *Perceived behavioural control* reflects several other control constructs including agency (Wigfield & Cambria, 2010), autonomy (Ryan & Deci, 2009), control (Skinner, 1996), locus of control (Rotter, 1982) and self-efficacy (Bandura, 1999). However, like self-efficacy, the RAA acknowledges that cognitive perceptions of self interact with and may be confounded by social norms (Bandura, 1999). Indeed, Bandura’s conceptualisation of self-efficacy has been found to be “virtually identical” with Fishbein and Ajzen’s perceived behavioural control (Fishbein & Ajzen, 2010, p. 161). Thus, assuming attitudes and perceived norms support the behaviour, the intention to perform should grow stronger with the strength of perceived behavioural control. The perceived behavioural control construct itself is captured best when items measure both *perceived capacity* (the belief that one is capable of performing behaviour) and *perceived autonomy* (the perceived degree of control over performing behaviour) (Fishbein & Ajzen, 2010). However, these beliefs and the behavioural intentions they form will only be performed if there is actual
control over the behaviour. As such, this third determinant also interacts with *actual control*, which relates to relevant skills, obstacles and resources that may facilitate or inhibit the intended behaviour.

The model has been widely used in social psychology and health promotion, but has remained fairly uncommon in education research (McEachan et al. 2016). This may be due to psychologists’ and other behavioural scientists’ focus on individuals and what motivates their behaviours, in contrast to sociologists’ and other social scientists’ emphasis on the importance of the social environment as a determinant of action (Fishbein & Ajzen, 2010). However, in light of findings that this model can account for 50–60% of the variance in intentions and 30–40% in behaviour (Fishbein & Ajzen, 2010; Gold, 2011), this model provides an interesting alternative to existing investigations. To conceptualise and measure disposition within education, researchers appear to have generally relied on existing frameworks used with educational fields with socio-cultural foci. The RAA model has been built upon such works, like Bandura’s (1986, 1997) social cognitive theory, in addition to other psychologically-orientated frameworks such as Triandis’ (1977) theory of subjective culture and interpersonal relations, Fisher and Fisher’s (1992) information-motivation-behavioral skills model, and Bagozzi and Warshaw’s (1990) theory of trying (Fishbein & Ajzen, 2010).

The RAA model also draws on many assumptions from other socio-cultural, trait, socio-cognitive and humanist conceptualisations of human behaviour, combining their strengths to provide a model which can predict behaviour by identifying the behavioral, normative, and control beliefs. As these serve as the underlying determinants of intention to perform, this model may also identify important information about the kinds of beliefs that would have to be changed to effect a change in intentions and behaviour (Fishbein & Ajzen, 2010). By conceptualising the underlying behavioural, normative and control beliefs of intentions to act, this model will aid in understanding dispositions and potential linkages to motivation. The work of the theorists already discussed prompt more specific questions about how we act to address our needs, gratify our motives and accomplish our goals, and how a sense of self may impact upon these functions to achieve wellbeing and optimum human functioning through behaviour (Twenge & Campbell, 2017).
2.4.7 Disposition in Summary

While all perspectives of human functioning infer dispositions from overt behaviour, all extend beyond that to explain and control dispositions’ predictive potential in different ways (see Table 2.1). In its simplest forms, dispositions are behavioural inclinations determined by the environment and past experiences, where dispositions are strengthened or weakened depending on the type of outcome elicited. Some of these extensions position people as inherently social beings, and view dispositions as learned and selected habits that reflect social norms, used to enhance social standing and function. However, the power of the individual to act in disregard to social norms – for better or worse – illustrates the existence of individual difference and agency. Within personality, dispositions or traits as consistent patterns in behaviour provides a measurement of this difference. A growing body of research has established genetic origins for some patterns, presenting the notion of dispositions as innate, stable and unconscious personality traits. This would shape dispositions as representative of unchanging biological structures. However, with evidence of situational moderation upon these traits, interactionalist perspectives appear to better reflect the reality of human behaviour today. As the most stable personality traits, an individual’s character carries with it certain needs and motives that humanists present as an additional explanation and predictor of behaviour.

Table 2.1

<table>
<thead>
<tr>
<th>Theoretical Perspective</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Behaviourism</td>
<td>Dispositions as wholly external factors leading to predictable patterns in behaviour.</td>
</tr>
<tr>
<td>Socio-cultural</td>
<td>Dispositions as an internal process of selecting or adapting to beneficial social norms of behaviour.</td>
</tr>
<tr>
<td>Personality</td>
<td>Dispositions as inborn, internal factors that produce predispositions, activated in certain conditions, leading to predictable, categorical patterns in behaviour.</td>
</tr>
<tr>
<td>Socio-cognitive</td>
<td>Dispositions as an internal process of selecting behaviours based on perceptions of self and situation.</td>
</tr>
<tr>
<td>Humanistic</td>
<td>Dispositions as an internal interaction between genetic characteristics, socio-cultural environment and current psychological state or needs.</td>
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For dispositions, this means that some likely represent stable, situationally-determined semi-conscious internal constructs about self and culture, a psychological process which forms ongoing patterns of behaviour. Other, less complex dispositions may be adaptive behavioural inclinations used to achieve social goals and assume a social role, or even simple habitual behaviours displayed to reinforcement. Generally, as a set of latent psychological traits, dispositions are seen to depend on context to be manifested, but have been found to remain relatively stable within those contexts once displayed (Day, Kington, Stobart, & Sammons, 2006; Eccles, 2009), but are not immune to change (Mischel, 1969). Consequently, disposition is a construct that is formed of conditioning, cultural norms, values, attitudes, beliefs, situational cues, needs, motivations, goals, and individuals’ ideal and actual identities, best captured through a holistic socio-cognitive perspective. The RAA model provides a framework through which all these factors may be considered, but in which three core dimensions can be identified as the immediate determinants of disposition through which specific behaviours may be explored.

The areas of motivation and self-concept are commonly linked areas of research for personality, cognitive and social research. Once an interactionist perspective is adopted for human behaviour, it seems obvious that behaviour comes from a drive to achieve something, that we have needs, and that this also interacts with situation to grow and maintain a ‘person within place’ – the notion of self-concept and broader social identity. It indicates that dispositions can be broadly inherent, activated by external factors, or reactive and shaped by external and internal factors. However, both types of disposition are those of an active individual, suggesting that many dispositions are capable of some degree of change over time. Through perception and evaluation, such dispositional changes will likely reflect personally beneficial or externally dictated norms. However, socio-cognitive and humanist theories suggest that external influences can also prompt maladaptive behaviours in areas where individuals’ basic needs are impinged (Ajzen, 2005; Rogers, 1951; Shoda et al., 2013). Theories centred upon an active, perceptive individual contribute a theoretical context in which behaviour can be altered. While disposition and motivation are conceptually distinct, the field of motivation centres upon those behaviours capable of purposeful change. These ideas will now be explored further, using the concepts outlined by Maslow, Murray, Rogers, Bandura, Kelly, and Goffman as a foundation.
2.5 Motivation

Theories of motivation seek to explain why people behave in a particular way, an aim that shares striking resemblance to that of dispositional research, examined in the previous section. Where disposition remains a broad conceptual prelude to behaviour, motivation is not as conceptually reliant on overt behaviour. Disposition may encompass all that shapes behaviours, whereas motivation centres upon what is within an individual’s control to change. The notion of need and drive is deeply tied to the study of motivation, so it is unsurprising that many of those theorists discussed above are also contributors to the field of motivation theory. Maslow’s (1950) distinction between d-needs and b-needs conceptualised the differences between people Maslow regarded as on varying levels toward self-actualisation. Rogers’ (1954) notion of an innate actualisation tendency provided a model for understanding both positive and negative behavioural choices. Bandura’s (1986, 1989) self-regulation understood behaviour as selected through a process of observation, evaluation and reaction, which contributed to feelings of anticipated outcomes and self-efficacy. Even Goffman’s (1959) position of impression management and Bourdieu’s (1999) habitus provide a conceptualisation for what motivates behavioural choices. This section will therefore provide linkages where possible to the foundational works of the theorists already examined, as well as making linkages to education where applicable.

The process whereby goal-directed activities are instigated and sustained is a definition of motivation that captures what is central to most modern conceptualisations (Chen, 2001; Schunk, Meece, & Pintrich, 2014). There exists shared terminology across motivational research to describe the three types of motivation found in human behaviour, categorised over recent decades: intrinsic, extrinsic and altruistic (Freeman, 1992). Broad definitions distinguish these terms by the drive of the motivation: intrinsic motivation from the pleasure or enjoyment of the act itself; extrinsic motivation from a stimulus outside the act itself; and altruistic motivation from promoting someone else’s welfare, even at the cost of the individual (Ryan & Deci, 2000; Schunk et al. 2014). Due to the aims of this study, theories of motivation will be divided across three of the most prominent paradigms (Cook & Artino, 2016; Richardson, Karabenick, & Watt, 2014). Each makes cognitive assumptions, and views motivation as an interaction between the individual and their social context. They also share notions of competence beliefs, value and attribution, although these of course differ in definition and emphasis. Generally,
competence beliefs refer to beliefs of goal attainability, value to the expected result of attaining the goal, and lastly, attributions to what controls the attainment of the goal (Schunk et al. 2014). However, the actual terminology and emphasis of these components vary, forming three distinct ways to conceive of motivation.

2.5.1 Expectancy-Value Theory of Motivation

Expectancy-value theory positions both expectancies of success and reasons to engage in a task as pivotal to understanding motivation and predicting future choices, engagement, perseverance and achievement (Schunk et al. 2014). To be motivated to act, an individual needs both the conviction that they can succeed and expect short- or long-term personal gain. These expectancies may change during a task, as experiences of failure and expectations of its continuance may lead to the task being abandoned. Of course, this is relative to the value of the task to the individual: the greater the reward, the higher the level of persistence. As such, motivation relies on positive expectancies and values. Although expectancy-value theory is a cognitive theory, its generalised application differs from social cognitive theory’s task/context/goal specific outlook (Cook & Artino, 2016; Eccles & Wigfield, 2002). However, it does presume that individuals are motivated to learn and adjust to their environment. As such, the directionality of behaviour and how levels of attention are decided are a central focus.

Like social cognitive theory, these assumptions are from Lewin’s foundational work in the area. Lewin (1935) proposed that level of aspiration could be used to measure the cognitive process of decision making. A level of aspiration was the standard set by an individual based on past experiences with the task. Although the original research was conducted on ring-toss games only (Lewin, 1935; Lewin, Festinger, & Sears, 1944), some of the theory’s features have been found to be generally applicable. Though level of aspiration becomes expectancies in the modern theory, they have been found to result in higher feelings of success when achieved than from objective levels of achievement (Eccles, 2005a; Weiner, 1992). The role of prior experiences has also been found to determine the level of aspiration for future tasks (Forster-Heinzer, Holtsch, Rohr-Mentele, & Eberle, 2016; Weiner, 1992); past successes lead to future increases in aspiration, and past failures to future decreases in aspiration. This is reflected in the role of the practicum in pre-service teachers’ motivation to teach and ability-beliefs. Pre-service practicum experience has been identified as the largest source of motivation,
inspiration and self-efficacy beliefs among pre-service teachers (Sinclair, 2008; Sutherland, Howard, & Markauskaite, 2010). During these experiences, pre-service teachers experience all the realities of teaching as a full-time profession (Buchanan et al. 2013). Studies have found that pre-service teachers generally report a higher sense of teaching efficacy than in-service teachers due to these highly supported and limited experiences with the task (Kim & Cho, 2014; de la Torre Cruz & Casanova Arias, 2007).

Lewin’s work was supplemented with that of Atkinson’s theory of achievement motivation. As such, this theory also shares many similarities with Bandura’s social cognitive theory. Atkinson’s theory provided a framework through which needs, expectancies and values could be conceptualised and examined through three key concepts, where behaviour is a function of two learned, stable motives (i.e., motive to approach success, and motive to avoid failure), probability of success and incentive value (Atkinson, 1964). These stable motives of achievement resemble Bandura’s concept of self-efficacy, as it too reflects a capacity to experience pride in accomplishments (Atkinson, 1964). An individual with a high motive for success (i.e., high approach success, low failure avoidance) will approach achievement tasks, while one who has a high fear of failure (i.e., low approach success, high failure avoidance) will avoid them. Different measures were developed for ‘motive to approach’ (Atkinson, 1958; McClelland, Atkinson, Clark, & Lowell, 1953) and ‘motive to avoid’ (Mandler & Sarason, 1952). Atkinson’s second concept, probability of success, was measured using the same ring-toss method devised by Lewin. It was assumed that this captured both subjective expectancies of success beliefs, as well as environmental influences via task difficulty. The third concept, incentive value, is an individual’s sense of pride in the accomplishment, directed and informed by the individual’s motives for success or failure, and inverse to task difficulty and incentive value of success.

Like Lewin, Atkinson wished to specify the mathematical relations between the components of his theory. Atkinson gave numerical values to these concepts, defining incentive value as minus the probability of success (Schunk et al. 2014), meaning that people will value difficult tasks more than easier ones. As such, researchers did not need to measure incentive value if probability of success could be determined. This prompted an enduring focus on probability or expectation of success, while incentive value was largely ignored (Schunk et al. 2014; Weiner, 1992). Through these calculations, it was
found that motivation is highest for tasks of intermediate task difficulty (Weiner, 1992). Atkinson’s examination of cognition and beliefs transitioned motivational research away from its previous behaviourist focus on stimulus and response. It also distinguished between beliefs of capability (expectancy of success) and beliefs about the value and incentive to complete the task (motives, and incentive value) (Schunk et al. 2014). However, like dispositional research, motivation has also moved toward a more interactionist perspective, and current models place more emphasis on situational influences.

From these foundations, Eccles, Wigfield and colleagues (Eccles, 1993, 2005a, 2009; Eccles & Wigfield, 2000, 2002; Wigfield, Byrnes, & Eccles, 2006) created the contemporary expectancy-value theory. Like Lewin and Atkinson, it centres on expectancies for success and subjective perceptions of value. Its social cognitive perspective is based in many of the theories of personality, social and developmental psychology, and as such has been used extensively in these fields (Schunk et al. 2014).

The model is complex (see Figure 2.2), and yet only includes two of Atkinson’s three concepts: expectation of success and subjective task value, excluding Atkinson’s motives. However, Atkinson’s motives could be seen as integrated within the affective reactions and memories that form value beliefs. It furthers this humanist perspective by allowing for socio-cultural factors, trait factors and perceptions, as well as development over time. In this model, achievement behaviour is predicted by the internal expectancy and value beliefs of the individual, producing overt achievement-related choices and performances (Eccles, 2005a). These beliefs can be ascertained by asking questions such as: ‘Why should I do this task?’ or ‘Am I able to do this task?’ (Wigfield & Eccles, 2002). Of the two, expectation of success is more positively correlated to behaviours of determination and success (Wigfield, Tonks, & Klauda, 2009).
The next stage of the model is affective reactions and memories. Although not as well examined as the expectancy and value components, these are activated in anticipation of a task to produce positive or negative expectations and values through either conditioning or direct association (Schunk et al. 2014). For instance, a negative experience during a task may produce a conditioned negative response to a future similar experience, including negative affective reactions and memories that would lead to a less task value and specific or generalised achievement avoidance in that field. It is alongside goals and general self-schemata, which influence both values and expectancies. Goals are cognitive representations of what the individual is aiming to achieve in the short or long-term, shaped by self-schemata. For instance, someone who holds the idea that they are a person who helps others may set a long-term goal to become a teacher. Self-schemata concern individuals’ beliefs and self-concepts of themselves, linking this to Rogerian self-concepts and Bandura’s self-efficacy judgements, as it contains both actual and ideal selves and domain-specific beliefs (Eccles, 1983). These beliefs are in turn shaped by domain-specific perceptions of the task’s demand and interpretations of the social environment of the task. Interestingly, this includes personally perceived gender roles and stereotypes, suggesting that certain
actions may be developed and reinforced due to the gender norms of the surrounding cultural context.

It is important to note that it is the individual’s perception of these shaping forces that is the focus of this model, and not reality itself. Therefore, subjective task value is divided into four types, the first three of which have been found to be empirically distinct factors (Eccles & Wigfield, 1995). A task may be interesting or enjoyable (interest or intrinsic value), provide useful mastery skills or help achieve a future goal (utility or extrinsic value), hold personal importance or affirm self-concept (importance or attainment value), or may see other tasks neglected (opportunity costs) (Cook & Artino, 2016). These four components work together to form the achievement value for a task, however, can be articulated separately into conscious value statements (Eccles, 2005a).

Even within each factor, value statements can reflect distinctly different goals or self-concepts. For instance, though flexible work hours could be an extrinsic value for two early career teachers, one may have dependents and the other be an amateur sportsperson. As such, an identical extrinsic value rating could be paired with the attainment value of either being a good parent or being a competent athlete to produce a unique and complex motivation profile for every individual.

As mentioned above, expectation beliefs (i.e., expectancies of success, self-concept and ability beliefs) were found to be significant predictors of actual achievement, while task values were not (Wigfield et al. 2009). However, interestingly, task values were better predictors for choice behaviours than expectancy beliefs (Durik, Vida, & Eccles, 2006; Eccles, 2005a). These findings suggest that improving task results may be done through developing appropriate expectancy and self-competence beliefs, rather than by attempting to encourage interest and value in the task (Schunk et al. 2014). However, increasing interest and value in the task have been found to lead to long-term benefits of continued participation in the field (Fernet et al. 2017); this is of particular relevance to ITE programs. Transitions to both pre-service training and in-service teaching can be a time of uncertainty and change for early career teachers (Sinclair, 2008), representing a period of expectation, doubt and uncertainty toward their aptitude to teach (Buckworth, 2017). As early career teachers’ expectations readjust at entry to ITE or service, and aptitude in content and pedagogy develops through training and experience, the requirements of the profession may become better addressed within these teachers. This early career experience, or ‘reality shock’ (Kim & Cho, 2014), has also been connected
to decreasing perceptions of ability and teacher efficacy at a time of overload and acquiescence to new role expectations (Andrews et al. 2007; Beauchamp & Thomas, 2009). While some degree of adjustment to expectations may be beneficial, too much may degrade task interest and value to the individual long-term (Kim & Cho, 2014; Roth, Assor, Kanat-Maymon, & Kaplan, 2007). This is likely due to the reported corrosive effects of extrinsic motives on the intrinsic motives (Deci et al. 1999), which are more closely associated with task persistence and mastery (Ryan & Deci, 2009). The general methodology employed by Eccles, Wigfield and associates has been used by multiple other studies to utilise the expectancy-value model. This methodology involves surveying expectancies and values at two time points, in order to establish how well these values and expectations predict future achievement. It has been used to measure achievement motivation in school subjects, as it was originally devised by Eccles and associates (Eccles et al. 1983), expanding to mathematics, English, sports, information technology across countries as diverse as Australia, Germany, Turkey, Norway, and the United States (Eccles, 2005b; Kilinç, Watt, & Richardson, 2012; Simpkins & Davis-Kean, 2005; Watt et al. 2012). Some gender differences have been identified within self-perceptions of ability, following the socio-cultural context’s gender stereotypes and norms (Eccles, Wigfield, & Schiefele, 1998; Jacobs & Simpkins, 2005; Watt, 2005), but moderated by the individual’s support of gender roles. Ethnic differences in perceptions of self and task have also been identified, with African-American students’ perceptions of ability not related to actual achievement, unlike their Caucasian classmates (Graham, 1994; Rodgers, 2008). The distinct patterns in expectancies of each gender and ethnic group also appeared to impact their values, with stereotype threat shaping not only individuals’ expectancy beliefs, but also what they should value as part of their self-concept (Harackiewicz et al. 2014; Thoman & Sansone, 2016).

Broadly, these studies have found that individuals are motivated to undertake tasks that they believe they can master and have high task value for them (Eccles, 2005b; Schunk et al. 2014). Expectancy-value theories have strong empirical support in educational settings, focusing on these two concepts within a specific socio-cultural context (Schunk et al. 2014). This theory combines the strengths of cognitive and humanist psychology to position motivation as a product of subjective perceptions of task, self and context that develops and may be altered over time to produce choice and commitment behaviours (Eccles, 2005a). However, literature outlining the benefits of
intrinsic versus extrinsic forms of motivation raise questions about how these motivations form (Cerasoli & Ford, 2014; Finkelstein, 2009; Grant, 2008). While expectancy-value theory contains intrinsic and extrinsic constructs and provides a way to generally conceptualise motivation formation, it does not distinguish between intrinsic and extrinsic motivation. For this purpose, self-determination theory provides a framework through which the development and implications of these motivation types can be understood.

### 2.5.2 Self-Determination Theory of Motivation

Self-determination theory is another that reconnects with the humanist concept of needs, and is deeply connected to Murray’s (1968) conceptualisation of need, formed from the work of Ryan and Deci (Deci, 1980; Deci, Cascio, & Krusell, 1975; Deci et al. 1999; Deci & Ryan, 1985, 2002; Moller, Deci, & Ryan, 2006; Ryan & Deci, 2009). Their theory positions the three needs of autonomy, competence and relatedness as explaining much of human behaviour (Twenge & Campbell, 2017), however, unlike Murray’s implicit focus, self-determination theory centres on explicit intrinsic motives (Cook & Artino, 2016). Self-determination is the process of utilising will, with will being understood as the capacity for individuals to choose how to satisfy their needs (Deci, 1980). As such, individuals will not experience intrinsic motivation for a task unless it is addressing a need and if they themselves were able to exercise choice in how it is addressed.

The need for competence is similar to Weiner’s (1986) assumed need for understanding and mastery, connecting to a need to feel competent and act capably with others and their environment. Autonomy refers to a need for a perceived internal locus of control for actions that promote feelings of control and agency, while relatedness refers to the need to belong to a group (Twenge & Campbell, 2017). Recent research has emphasised the importance of autonomous motivation in adaptive behaviours and general wellbeing, where autonomous motivation is contrasted with controlled motivation, in which individuals perceived themselves as subject to forces imposed by others (Roth, 2014; Ryan & Deci, 2009). As autonomous individuals are more likely to pursue inherently enjoyable tasks, most productive tasks occur when intrinsically motivated (Cook & Artino, 2016). In this way, self-determination theory proposes that motivation varies in both quantity and quality, and type and orientation.
Self-determination theory provides a conceptualisation of how to promote this productive intrinsic motivation and enhance motivation in the face of external pressures. To do this, a cognitive evaluation theory acts as a subtheory to explain how external factors impact intrinsic motivation, as self-determination theory attempts to explain all human behaviours. The subtheory positions extrinsic factors as affecting intrinsic motivations through two processes: (1) a change in perceived locus of causality, and (2) a change in feelings of competence and self-determination (Deci, Cascio, & Krusell, 1975). However, Ryan and Deci also recognised that not all important behaviours are intrinsically motivated, and so created the organismic integration theory as a second sub-theory (Twenge & Campbell, 2017). These conceptualisations have established a distinction between autonomous and controlled motivations (see Figure 2.3).

![Figure 2.3 Self-Determination Theory (Cook & Artino, 2016).](image)

Autonomous motivations involve behaviours performed with volition and choice, and is divided into three subtypes: identified regulation, whereby individuals perform acts because they identify with the value of the activity; integrated regulation, whereby individuals have internalised the activity by reciprocally assimilating it with other
aspects of self; and, *intrinsic regulation*, whereby individuals perform the act because it is deeply interesting (Ryan & Deci, 2000, 2009).

By contrast, *controlled motivations* involve behaviours performed with a sense of pressure or compulsion, divided into two subtypes: *external regulation*, whereby individuals perform due to reward or punishment with little internalisation in the company of the enforcer; and, *introjected regulation*, which entails a superficial adoption of acts despite no level of internalisation (Roth, 2014; Ryan & Deci, 2009). Research suggests that controlled motivations lead to shallow behavioural functioning and decreased wellbeing (Roth & Assor, 2012; Ryan & Deci, 2009). These forms of extrinsic motivation are joined by *amotivation*, an absence of motivation, no anticipation of positive result and no feelings of capacity (Roth, 2014).

The most vital feature of this theory is that the greater an act is internalised and integrated within the individual’s sense of self, the more intrinsically motivated they become to enact it. Internalisation requires that the values and goals of a task become important to the individual, while integration requires that these value and goals are then fully assimilated into the individual’s sense of self (Cook & Artino, 2016). This process depends on whether the three basic psychosocial needs of self-determination theory are being met: the more autonomous, competent and related an individual feels in a task, the more likely they are to be or become intrinsically motivated to engage in that task. Environments that do not meet these needs set up the conditions for alienation and psychopathy, producing less productive and adaptive individuals (Deci et al. 1999). It has been found that beginning teachers’ autonomous motivations are linked to the mastery-goals of achievement goal theory (Kim & Cho, 2014; Roth et al. 2007), and as such are under the same risk of degradation in current reform and loss of protective functions against burnout (Fernet et al. 2012; Paine et al. 2016).

Self-determination theory provides a framework to differentiate between optimum and damaging levels of situational conflict. As discussed earlier in this review, while Bourdieu (1994), Mead (1934) and Goffman (1959) presented environmental conflicts with self-concept as easily adaptable, Durkheim (1897) emphasised the importance of purpose and meaning to protecting against maladaptive behaviours. Research applying self-determination theory to teachers’ work and functioning linked autonomous motivations to feelings of vitality and energy (Moller et al. 2006), whereas controlled motivations were linked to teachers’ exhaustion levels, which were found to be strongly
negatively correlated with their sense of meaning and self-actualisation in their work (Moller et al. 2006; Pines, 2002). Roth and associates (2007) also found positive correlations between teacher energy and sense of accomplishment, and negative correlations between autonomous motivations and burnout. This suggests that autonomous motivations can act as a protective factor against feelings of exhaustion, perhaps enabling teachers to better withstand periods of conflict or challenge. Ferret and colleagues (2009) strengthened this finding, identifying self-efficacy as positively correlated with intrinsic and identified motivations, and negatively with introjected and external. The most common reasons for choosing a career in teaching have been identified as largely autonomous, including a desire to work with children, intellectual engagement and contributions to society (OECD, 2005; Richardson & Watt, 2010; Watt & Richardson, 2008). Though contextual factors may inhibit autonomous motivations, other controlled motivations, such as work hours and conditions, may also be determined by contextual factors in the degree to which they may facilitate the internalisation and integration of these controlled tasks (Roth, 2014).

Self-determination theory regards humans as having a base tendency to explore and develop new skills, striving to assimilate these new experiences into a harmonious sense of self (Deci & Ryan, 2000). However, this process may become inhibited by context, emphasising the relevance of context in predicting individuals’ behaviour, growth and mental health – specifically in providing opportunities to satisfy the three psychosocial needs of autonomy, competence and relatedness (Ryan & Deci, 2000). Job pressures, defined as ‘pressures from above’ like perceived time restraints, conformity expectations from authority and colleagues, and inferred competency from standardised evaluation of students, lowered teachers’ satisfaction of their needs and impaired their autonomous motivation (Taylor, Ntoumanis, & Standage, 2008), increased feelings of burnout (Fernet, Austin, Trepanier, & Dussault, 2013) and had negative implications for their students (Soenens, Sierens, Vansteenkiste, Goossens, & Dochy, 2012). For teachers, situational support for autonomy, competence and relatedness provides more opportunities to work within and adjust their personal beliefs and ideal professional self by satisfying intrinsic motivations and integrating external expectations and regulations (Deci & Ryan, 2008).

Self-determination theory postulates that an ultimate need of individuals is the ability to determine and regulate their actions based on their own choices rather than extrinsic
rewards or pressure, made possible by feeling autonomous, competent and related in their actions, and thus integrating or internalising the task (Chen, 2001; Deci & Ryan, 1985). Similarly, in expectancy-value theory, self-schemata inform individuals’ expectations of self and perceived task value (Eccles, 1983). This need for agency, self-reflection and self-expression also acts as an overarching concept in many theories of behaviour, namely as selfhood (Dewey, 1988), character (Wright & Goodstein, 2007), self-efficacy and self-regulation (Bandura, 1999), self-actualisation (Goldstein, 1939; Maslow, 1970; Rogers, 1959), self-reinforcement (Mischel, 1999), self-concept (Kelly, 1955; Rogers, 1959), self (Rogers, 1959; Ryan & Deci, 2009), self-schemata or self-perceptions (Atkinson, 1964; Eccles, 1983), and mindsets (Ames, 1992; Dweck, 2000; Nicholls, Cheung, Lauer, & Patashnick, 1989). These conceptualise a broad psychological structure in which behaviours, motivations and experiences are collected, examined and replicated (Johnson & Lerner, 2015). Its central role in both disposition and motivation is clear from its overarching position in many of these theories so far discussed. However, while the two theories of motivation already outlined provide explanation of motivation development and specifically how different motivation types may form, they do not provide a meaningful model to understand why intrinsic motivation is connected to performance and intrinsic motivations may be supported. For this purpose, the following section will briefly examine a third and final theory of motivation.

2.5.3 Achievement Goal Theory of Motivation

In achievement goal theory, an individual’s mindset toward self, their tasks and their performances can positively or negatively orientate their behaviour (Dweck & Yeager, 2012). Also referred to as goal orientation theory, this theory is also deeply connected to the needs outlined by Maslow, Rogers and Murray (Schunk et al. 2014). It too assumes that people have different needs, cognitively represented as goals, which motivates behaviours to address these goals. Within all goal theories, motivation is understood as the integrated patterns of beliefs that influence the initiation, direction, magnitude, perseverance, continuation and quality of goal-directed behaviour (Dweck & Elliot, 1983), and as such building upon the theories of motivation already outlined (Cerasoli & Ford, 2014). Made up of goal setting theories, goal context theories and goal orientation theories, these goal theories are distinguished by their focus on the motivational process: goal setting on performance standards, goal properties and goal
choice; goal content on the purpose and product of goals; and, goal orientation on why and how goals are approached and achieved (Cook & Artino, 2016). As a social-cognitive perspective, goal orientation theory emphasises how individuals think of themselves, their tasks and their performances.

As such, goal theory specifies the often subconscious purposes that direct both adaptive and maladaptive behaviours and cognition (Maehr & Zusho, 2009). The work of Elliot and Dweck (1988) laid the foundation for achievement goal theory, in which each of the achievement goals was thought to run a “different ‘program’ with different commands, decision rules, and inference rules, and hence, with different cognitive, affective, and behavioural consequences” (p. 11). As such, goals allow certain behaviours, thoughts and emotions to be linked to and understood as a holistic system, which within most conceptualisations, could be considered dispositions. Similar to self-efficacy beliefs, achievement goal theorists examine these ability beliefs at a deeper level in an attempt to understand the purpose of the outcomes individuals strive for (Dweck, 1992). Its focus is on why individuals want to attain a goal and how they approach and engage with the relevant task (Schunk et al. 2014), with clear linkages to behaviour and disposition.

Most theories share two common goal orientations: mastery goal orientation and performance goal orientation. A mastery orientation is a focus on mastering a task by directing the individual’s attention on the task, often represented as a self-set standard for self-improvement, developing new skills, improving competence or achieving an accomplishment (Cook & Artino, 2016; Dweck & Leggett, 1988; Schunk et al. 2014). By contrast, a performance orientation is a focus on how the competence or ability shown through a task will be judged by others, directing the individual’s attention on self. This includes goals such as beating peers, avoiding appearing incompetent or seeking public recognition (Ames, 1992; Dweck & Leggett, 1988). Elliot and Harackiewicz (1996) found two distinct types of performance goal orientations, performance approach and performance avoidance goals, to differentiate between goals orientated to gain better performance than others and goals orientated to avoid seeming incompetent. Performance-approach goals have been found to be more associated with higher achievement than mastery goals, which are associated most with increased interest and dedication (Senko, Durik, & Harackiewicz, 2008). However, debate is ongoing as to whether these achievements of performance approach facilitate or impede
wellbeing (Senko, Hulleman, & Harackiewicz, 2011). Outside of these two common orientations, Pintrich and associates (1993) developed an extrinsic goal orientation, compromising of goals such as doing schoolwork for rewards or avoiding trouble. Nicholls and associates (1989) also conceptualised two other orientations: work avoidance, goals focused on avoiding work and having easy tasks, and academic alienation, goals focused on beating the system and completing tasks at the last minute. Despite these two goals showing initial differences (Nicholls et al. 1989), they were soon combined into a single revised work avoidance (Duda & Nicholls, 1992).

Attributions and mindsets are central to how all these orientations are conceptualised and demonstrated (see Table 2.2). Dweck (2000) regarded these orientations as representations of underlying mindsets or dispositional attitudes and beliefs. Implicit beliefs about ability influence resilience and performance, as these beliefs guide self-theories about the nature of self and task (Yeager & Dweck, 2012). Though originally theories of intelligence, these mindset orientations can now be extended to general ability or personality (Yeager & Dweck, 2012). Regardless of the applied concept, these theories exist on a continuum from incremental to entity mindsets (Yeager & Dweck, 2012), with an incremental mindset being that ability is developed over time, commonly held by those with a mastery goal orientation. This mindset allows the individual to seek opportunities that will increase task-related abilities, where they thrive on challenge and overcome initial failure (Cook & Artino, 2016). This mindset can be held in conjunction with low ability confidence, as feelings of competence arise when tasks are fully engaging and push ability, and failures are more likely to be attributed to lack of effort (McCoach & Flake, 2018).
Table 2.2
*Mindsets, Orientation and Behaviours of Achievement Goal Theory (Dweck, 1986)*

<table>
<thead>
<tr>
<th>Theory of Intelligence (or Ability or Personality)</th>
<th>Goal Orientation</th>
<th>Confidence in Present Ability</th>
<th>Behavioural Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental Theory (Incremental Mindset)</td>
<td>Learning (Mastery) Goal</td>
<td>If high</td>
<td>Seeks challenge High persistence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If low</td>
<td>Seeks challenge High persistence</td>
</tr>
<tr>
<td>Entity Theory (Entity Mindset)</td>
<td>Performance Goal</td>
<td>If high</td>
<td>Seeks challenge Higher persistence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If low</td>
<td>Avoids challenge Low persistence</td>
</tr>
</tbody>
</table>

By contrast, an *entity mindset* is linked to a performance goal orientation, where ability is subconsciously assumed to be a stable, fixed trait. As ability is innate and cannot be changed, these individuals are concerned with how their performance relates to those around them and seek out easy, low-effort goals to improve confidence and encourage perseverance (Cook & Artino, 2016). Failures are given greater importance for these individuals and successes are often forgotten, leading them to relinquish goals quickly and adopt self-sabotaging behaviours. Though high ability confidence can negate these patterns, low ability confidence often leads to disengagement as a distraction for what they believe is a lack of innate ability (McCoach & Flake, 2018). As mindsets relate to particular behavioural tendencies, the similarities between motivations and dispositions via self- and task-beliefs becomes apparent.

These mindsets also closely link to Weiner’s (1985) *attribution theory*, where motivation is impeded when failure is attributed to stable factors. Mindsets are related to the controllability and stability dimensions of Weiner’s theory, where factors of controllability (i.e., personal responsibility for outcomes inside individual control; limited personal responsibility for outcomes outside control) and stability (i.e., stable outcome will occur again; unstable outcome may not occur again) are linked through an attribution-emotion sequence (Weiner, 1986). These affective reactions are used to guide future adaptive or maladaptive motivational behaviours (Schunk et al. 2014). However, unlike attribution theory, controllability beliefs vary by individual in goal orientation theory and are not fixed for the task or individual (Cook & Artino, 2016).
Instead, mindsets are domain- and situation-specific and change with age; early incremental mindsets typically shift to entity mindsets by 12 years of age (Dweck, 2000). As such, both theories are dualistic and understand behaviour as a combination of possible innate tendencies and acquired patterns of thinking and acting.

Multiple affective outcomes have been linked to mastery goals, such as pride and satisfaction in success and guilt in failure (Ames, 1992; Cook & Artino, 2016). Cognitive outcomes, such as metacognitive, self-regulatory and deep processing have also been associated with these goals (Anderman & Wolters, 2006; Meece, Anderman, & Anderman, 2006). Ames (1992) found early negative relations between performance goals and several cognitive and behavioural outcomes, however, did not differentiate between performance approach and performance avoidance types as established by Elliot and Harackiewicz (1996). Recent research has shown that the positive effects of performance goals are more evident when these are differentiated (Darnon, Harackiewicz, Butera, Mugny, & Quiamzade, 2007). While poor outcomes continue for performance avoidance approaches, the benefits of performance approach include higher achievement scores on tests than mastery orientation, possibly as they activate effort in contexts that emphasise normative comparisons (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). Overall, Pekrun, Elliot and Maier (2006, 2009) found that individuals’ psychological wellbeing was more positively related to mastery goals than performance goals. However, performance-orientated goals cannot be viewed as entirely negative. Specifically, performance approach goals can instil competitive and communication skills, however, only under certain limited contextual conditions (Gillet, Lafrenière, Vallerand, Huart, & Fouquereau, 2014; Midgley, Kaplan, & Middleton, 2001).

These outcomes have also been identified in educational contexts, although only recently to teachers’ own achievement motivations (Butler, 2014). Multiple measures have been developed and produced similar findings, illustrating the key differences between goal orientations (Butler, 2007; Cho & Shim, 2013; Nitsche, Dickhauser, Fasching, & Dresel, 2011). Goal theory was used as a predictive tool to determine which teachers were likely to seek support, where it was found that those with mastery goal orientations were more likely to seek assistance when experiencing stress (Nitsche et al. 2011), as well as association with constructive problem-solving strategies (Parker, Martin, Colmar, & Liem, 2012). Most importantly, a mastery orientation toward
teaching was associated with an interest in teaching and job satisfaction, and acted as a protective factor from burnout, while work avoidance (Nicholls et al. 1989) and performance were associated with high burnout and low satisfaction (Papaioannou & Christodoulidis, 2007; Parker, Martin, Colmar, & Liem, 2012). It was also found that teachers’ own goal orientations impacted their teaching practice, having a direct impact on their students’ own goal orientation mindsets (Butler, 2014; Schunk et al. 2014). However, the early career experience of expectation adjustment or ‘reality shock’ has also been connected with the degradation of mastery goals, which in the long-term may begin to isolate teachers from their perceptions of self and task (Cook & Artino, 2016; Kim & Cho, 2014). Recent education reforms have tended to emphasise a performance orientation via standardised testing, ranking tables and performance-based pay, where judgement by others is the main determinant of achievement (Paine et al. 2016). While performance-approach goals often produce higher levels of achievements, overemphasis risks the degradation of the task interest, task dedication and task wellbeing that a mastery goal orientation provides (Senko et al. 2008; Senko et al. 2011).

The most important element of goal orientation theory is that an incremental mindset can be acquired (Dweck, 2000), and that these mindsets are more susceptible to contextual factors though personal dispositions toward certain types of goal orientations may exist (Schunk et al. 2014). Epstein (1989) developed six dimensions that could be used to positively affect motivation toward mastery goal orientations under the acronym T.A.R.G.E.T. (i.e., task, authority, recognition, grouping, evaluation, time). These include finding personal meaning in tasks, task diversity, establishing a level of reasonable challenge, choice and control over tasks, individual focus for success, promoting private evaluations, repositioning mistakes as opportunities, and devising adjustable plans to meet goals (Meece et al. 2006). These factors can be applied in all settings where individuals need to complete tasks (Butler, 2014; Wentzel, 2015). Recent research has begun to examine the characteristics of recent educational reforms, finding them to be promoting performance orientated goals and undermining mastery orientated goals in both students and teachers (Butler, 2014; Ryan & Brown, 2005). The behaviours having to be adopted to meet these externally determined tasks appear to clash with how teachers may choose to approach teaching (i.e., a mastery orientation) (Blume, 2011; Wellman, 2007). As such, achievement goal theory and all theories
outlined within this review include reference to some aspect of self or self-concept. This role will be explored briefly in greater detail in the next section.

2.5.4 Motivation in Summary

While all perspectives of motivation outlined here aim to explain and predict individuals’ behaviour, they each contribute a distinct perspective to this field. First, expectancy-value theory provides a broad conceptualisation of where the goal-directed behaviours of motivation sit within the interaction of other biological, social and perceptive factors. These factors directly inform the perceptions of the individual, which go on to direct their motivational evaluations of task demand, task return and overall expectancies of success. Specific motivational constructs have been connected to specific behavioural patterns (i.e., *expectancies of success* with actual achievement, or *task value* with choice behaviours), providing particular approaches to behavioural change dependent on the desired outcomes. For instance, improving test results may be more effectively achieved through enhancing expectancy and self-competence beliefs rather than encouraging topic interest. While this model implies that differences in motivation can result in categorically distinct behavioural patterns, self-determination theory extends this by conceptualising three clear types of motivation and their impact on behaviour.

Reconnecting more with humanist *needs* than the expectancy-value model, self-determination theory presents individuals’ need for autonomy, competence and relatedness as guiding them toward activities and behaviours that address these and allow for internalised regulation. Within this model, the greater an act is internalised or integrated within the individual’s sense of self, the more autonomously motivated they become to enact it. It also provides a framework to differentiate between optimum and damaging levels of situational conflict. This is done by understanding motivation on a continuum of external to internal regulation, reflecting that not all behaviour can be the result of purely internal regulation. Through this model, intrinsic motivation has been found to positively associate with behaviours such as task persistence, task attention and self-efficacy (Moller et al. 2006; Pines, 2002; Roth et al., 2007). Further, extrinsic motivation (i.e., external regulation) results in higher rates of stress, dissatisfaction and impaired intrinsic motivations (Fernet et al. 2013; Soenens, Sierens, Vansteenkiste, Goossens, & Dochy, 2012; Taylor, Ntoumanis, & Standage, 2008). While this model
shows the importance of internalised motivations for positive behaviours, it does not conceptualise the nature or value of intrinsic motivation during the process of undertaking behaviour.

Achievement goal theory extends the needs of self-determination theory by conceptualising motivation as integrated patterns of beliefs that influence the initiation, direction, magnitude, perseverance and quality of goal-directed behaviour (Dweck & Elliot, 1983). The main focus of this model is not on whether a task or behaviour is internally or externally regulated, but rather what occurs once the decision has been made to undertake it and its impact on the behavioural outcome. The added detail this model provides allows individuals to be understood by why they want to attain a goal as well as how they approach and engage with the task (i.e., orientations) (Schunk et al. 2014), while still accommodating an intrinsic-extrinsic distinction. These orientations are representations of underlying mindsets that guide self-theories about the nature of self and task, existing on a continuum from incremental to entity mindsets (Yeager & Dweck, 2012). An incremental mindset leads to a perception that the ability to perform any given task is developed over time, directing behaviours related to seeking opportunities to improve ability and overcome failure (Schunk et al. 2014). By contrast, an entity mindset views this ability as fixed, leading to behaviours focused upon seeming competent to others through seeking easy, low-effort goals (Cook & Artino, 2016). Mindsets are domain- and situation-specific and change with age. As such, mindsets toward any given behaviour may be shaped toward more beneficial incremental mindsets, which have been connected with multiple affective and cognitive outcomes such as higher satisfaction and self-regulation (Ames, 1992; Cook & Artino, 2016; Meece et al. 2006). This provides another perspective for how goal-directed behaviours may be formed and potentially changed, regardless of whether the behaviour is intrinsically or extrinsically motivated.

These three theories of motivation each contribute to the conceptualisation of how individuals may be motivated to behave through how they perceive a task and their ability, have internalised a task into their sense of self, or how they view the nature of ability itself. Combined, they extend each other to emphasise the individual as an active, perceptive agent whose motivations may be altered to foster more beneficial behavioural outcomes dependent on the individual’s needs or goals. Motivations clearly have a connection to behaviour, as different motivations can be seen to elicit
behavioural patterns. As such, motivations should be understood as an aspect of
disposition, shaping the predominantly malleable aspects of behaviour. The theories
already discussed also assign some label to the construct of selfhood as a structure
created by this active individual through which to evaluate and direct motivation and
behaviour. The following section will examine this construct further, clarifying its role
in the theories of disposition and motivation.

2.6 Teachers’ Self and Identity

Many of the theories of behaviour and motivation discussed in this chapter position
some element of self as a regulatory function, a reference point from which other factors
such as experiences, social norms, attitudes, personality traits, expectancies or goals are
organised so that choices can be made, actions shaped or planned, and then regulated
and examined (Johnson & Lerner, 2015; McClelland, Ponitz, Messersmith, & Tominey,
2010). Its overarching nature means self can be understood as both an antecedent to
learning as well as a product (Platow, Mavor, & Bizumic, 2017). As such, it is
important to briefly outline this concept in order to understand the full implications of
theories of behaviour and motivation within an interactionalist approach. Given the
breadth of self and identity literature, this section will only attempt to define these
concepts and provide general outlines of how they are formed and function, specifically
examining how multiple identities can form, interact and conflict amongst teachers.

A longstanding distinction has been attempted between notions of a private, internal self
and a public, external person (Jenkins, 2008). However, the self exists within the social
context (Baumeister & Bushman, 2009), represented by self-concept: the total body of
information an individual has about themselves stored in long-term memory
(Baumeister, 1995; Twenge & Campbell, 2017). James’ (1890) foundational distinction
between the subjective experiences of ‘me’, beginning with self-recognition, and the
early self-concept ‘I’ awareness of the self as observable by others, still forms the two
dimensions of self-concept (Twenge & Campbell, 2017). Synonymous with self-
identity, these self-concepts remain relatively stable, but are influenced by others’
evaluations, particularly those close to us (Sparks, 2001).

Self-identity comprises one of multiple identities that an individual may hold at any one
time. Generally, Gee (2000) recognises that identity suggests a ‘kind of person’ within a
particular context; while one might have a ‘core’ or self-identity, there are multiple
forms of this identity as one operates across different contexts. These identities form through a combination of internal evaluation and membership of various social and cultural groups, constantly reforming to reflect context, personal histories and anticipated futures (Paris, Byrnes, & Paris, 2001). Encompassing more than *self, identity* is also a cognitive structure that incorporates all psychological patterns of functioning, interpersonal behaviour and commitments to roles and values (Côté, 2009). These are made up of components, such as physical attributes, social categories, dispositions, skills, values, aptitudes and/or interests (Johnson & Lerner, 2015). These components facilitate an understanding of who we are and who others are in any given context, done through a socio-cultural process of identification (Jenkins, 2008). This process highlights the links between identity and behaviour; identifying who or what something is – including self – will likely guide interactions.

The distinction between the *self*, or *personal-identity*, and *professional-identity* has become an interest of education literature in an attempt to understand the elusive ‘other’ component of teachers’ work to join knowledge and skill. As a form of organisational or professional identity, a teaching identity refers to a pattern of behaviour that is collectively agreed to as ‘the way things are done’ with the professional context (Jenkins, 2008). The process of institutionalisation begins with habitualisation, where individuals begin to share the same pattern of activities to possess a sense that they are performing a given identity (Jenkins, 2008). Like all social roles, these patterns are subject to external expectations that also need to be accepted by a recruit before they can habituate institutional patterns of behaviour and assume their professional identity (Jenkins, 2008). However, these expected identities do not always align with the realities of the role, or with how a recruit anticipated the role to be (Reid, 2015). An identity crisis can occur when there is a sense of identity confusion, behavioural and characteristic disarray, which prompts a lack of commitment to recognised roles (Côté & Levine, 2002).

Professional identities are therefore not a direct reflection of the prescribed roles and functions of a profession, as it also encapsulates the values, aspirations, and beliefs of the individuals’ self (Beauchamp & Thomas, 2009). Emphasising the individuals’ perceptions, Erikson (1968) viewed *professional identity* as the product of a systematic process of evaluating, identifying and organising a perception of self within a particular role. Stard and Prusak (2005) propose that these identities are defined by the narratives
people tell about themselves or hear about others and their roles. These narratives may form two types of professional identities: actual identity, reflecting the reality of the task for the individual and designated identity, reflecting a reality which is expected to be either now or in the future (Stard & Prusak, 2005). As one of multiple identities, the nature of these informs a fluid sense of selfhood or self-schemata (Eccles, 2005a).

When two related identities differ considerably, the resulting conflict can produce feelings of low self-esteem, dejection, shame and fear of punishment (Barnett, Moore, & Harp, 2017). In teacher education literature, these divides between anticipated and actual experiences and identities have been linked to similar affective consequences and to burnout and early career attrition (Fernet et al. 2017; Pfitzner-Eden, 2016). It is proposed that as a large proportion of teachers are motivated to teach for intrinsic or altruistic reasons (OECD, 2005; Richardson & Watt, 2010; Watt & Richardson, 2008), though the behavioural patterns or dispositions that these produce may conflict with those expected from teachers on an organisational level, including increased reporting and standardised test scores (Paine et al. 2016; Roth, 2014; Taylor, Ntoumanis, & Standage, 2008). By potentially reducing the task value of teaching for teachers, this conflict may undermine their expectancies for success in their career, making them feel less self-determined (Eccles, 2005a; Ryan & Deci, 2009). Within a social-cognitive perspective, this context would also impact on the self-efficacy, self-regulating self-talk and psychological state of the individual, altering their dispositions toward more maladaptive tendencies (Bandura, 1999; Rogers, 1959; Shoda et al. 2013).

Understanding dispositions and motivation as informing and expressing a sense of self and teaching identity provides a structure through which the two concepts can be linked. Teachers’ teacher dispositions and career choice motivations to teach inevitably reflect how they understand teaching, and provide a regulatory process through which teacher dispositions evolve and strengthen, and motivations are reformed and enacted. In the assessment of dispositions, the concepts of motivation and identity inevitably form some role, dependent on whether dispositions are conceived as a type of stable trait or learned behavioural pattern. As the literature has illustrated, the nature of disposition is subjective and complex, making this concept potentially discrepant with current educational aims that seek to standardise teaching by explicitly codifying teachers’ observable conduct (Damon, 2007; Welch, Pitts, Tenini, Kuenlen, & Wood, 2010).
Due to these aims, much of the current research into teacher dispositions seeks to outline observable behaviours displayed by effective teachers for uses such as targeted recruitment and induction, the design and implementation of professional development and the comprehensive evaluation of teachers (Stronge, Ward, & Grant, 2011). Rather than review the measures of each of the theorists covered in this review, the next section will examine how teacher dispositions have been and are currently being assessed in educational settings. These measures can be divided into three distinct approaches to disposition assessment. The theoretical assumptions of these measures, whether explicit or implicit, will be discussed in terms of the behaviourist, socio-cultural, personality, cognitive, humanist, motivation and identity theorists outlined in previous sections.

2.7 Assessing Teacher Dispositions and Motivations

Now that disposition, motivation and related concepts have been theoretically examined, this section will explore current approaches to their measurement. It is vital to examine these instruments and their development in order to inform further research, particularly that seeking to examine both factors simultaneously. Most recently, attention has turned to dispositions and their use in improving the quality of teachers around the world. The charge toward disposition assessment began in the United States during the 1990s, when attitudes was changed to dispositions as one of three key areas of assessment in national accreditation documents (NCATE, 2002). It was changed in response to the perceived vagueness of attitudes that were generally only addressed by religious teacher training institutions, and that attitudes had been found poor predictors of actual behaviour (Bohner & Wänke, 2002; Diez & Raths, 2007). In their foundational paper on the potential benefits of disposition assessment, Katz and Raths (1985) defined disposition as a descriptive concept to refer to a summary of actions observed. This was distinct from the previous attitudes, which like other associated terms discussed in this review such as traits, habits and beliefs, was classified as a pre-disposition to act (Katz & Raths, 1985). Disposition allowed for a distinction between pre- and actual behaviour, providing a better linkage to the other two assessment concepts of knowledge and skills; knowledge and skill can only reflect a teacher’s competence if they are exhibited frequently and appropriately. Unlike skills, dispositions could also be used to describe undesirable aspects of teachers and be used as selection and exclusion criteria (Katz & Raths, 1985).
This argument was largely responsible for the inclusion and emphasis of dispositions in ITE programs, and went on to inform many subsequent disposition assessments. However, disposition research still lacks the instructive gravitas of knowledge or skill (Hill-Jackson & Lewis, 2010). Perhaps in reaction to its descriptive usage, approaches such as that of Comb (1972, cited in Hill-Jackson & Lewis, 2010, p. 62) have been used to understand dispositions alongside attitudes and beliefs in order to holistically identify how one is disposed to behave. Broader than Katz and Raths’ original (1985) definition, NCATE (2008) has provided its own definition of dispositions:

Professional attitudes, values, and beliefs demonstrated through both verbal and non-verbal behaviors as educators interact with students, families, colleagues, and communities. These positive behaviors support student learning and development. NCATE expects institutions to assess teacher dispositions based on observable behaviors in educational settings. The two teacher dispositions that NCATE expects institutions to assess are fairness and the belief that all students can learn. Based on their mission and conceptual framework, professional education units can identify, define, and operationalize additional teacher dispositions. (p. 89–90)

This definition and its earlier versions have acted as a keystone for the majority of dispositional assessment in the United States and throughout the world (Forss, Kiukas, Rosengren, & Silius-Ahonen, 2016; Peterson, 2016). However, other research has produced measures using different terminology and requiring vastly different measurements, including non-academic capabilities in Australia (AITSL, 2015), professional values and principles in the United Kingdom (SEDA, 2017), and values in New Zealand (Education Council, 2017). In their review of evaluative disposition instruments, Young and Wilkins (2008) identified thirteen categories within the most commonly assessed teacher candidate dispositions: (1) acceptance of feedback, (2) critical thinking, (3) enthusiasm, (4) ethics, (5) leadership, (6) personality, (7) professional growth, (8) reflectivity, (9) relationships, (10), respect for students, (11) self-confidence, (12) service, and (13) work habits. These categories may be assessed through three distinct approaches to dispositional assessment, divided by how they view dispositions: as behaviours, belief statements, or personality traits (O’Neill et al. 2014).

The most widely adopted perspective toward disposition assessment is as behaviours, prompting numerous checklists, rubrics and Likert scales to be developed. The simplest of these behavioural assessments are conducted as a pre-screening self-assessment
(Wasicsko, Wirtz, & Resor, 2009) or by an objective observer in the field (Notar, Riley, Taylor, Thornburg, & Sharp, 2008). This approach has been used widely in the United States, with each institution formulating its own criteria and assessment tools (albeit with varying degrees of statistical evaluation of these tools; Damon, 2007). The Perceptual Admission Model, for example, allowed candidate teachers to assess their disposition fit for teaching, from which three to five percent of candidates were precluded from admission (Wasicsko, Wirtz, & Resor, 2009).

For external observation assessments, candidate teachers generally report that most of the simpler dispositions assessed (i.e., punctuality) are adequately recorded using checklists, however, more complex dispositions were not correctly noted or captured (Conderman & Walker, 2015). Where it is recognised that dispositions may develop slowly over the course of teacher training, self-completed tools may be supplemented by these in-field assessments (Rike & Sharp, 2008; Taylor & Wasicsko, 2000). The combination of self- and observer-assessment makes it difficult for the candidate to influence their result, and provides context to their exhibited disposition (O’Neill et al. 2014). However, when assessments are anonymous or private (and thus not connected to accountability), admission or grades, manipulation of self-reported tools would likely be less prevalent. An integrated checklist approach, in which the specific dispositions are integrated into coursework, has been noted as being particularly efficient at fostering positive dispositions in graduate teachers (Payne & Summer, 2008). Indeed, Misco and Shively (2007) argue that the development of teaching-aligned dispositions can occur when pre-service teachers have consistent exposure to disposition-heavy learning experiences in their training program.

Personality assessments like the Teacher Dispositions Form (Stewart & Davis, 2009) and other personality tests used by Australian universities such as the University of Melbourne (Sautelle, Bowles, Hattie, & Ariffin, 2015) are used to assess a more stable view of dispositions. This entity view is also often accompanied with efforts to raise academic entry standards to ITE programs (O’Neill et al. 2014). This reliance on psychometric or psychodynamic assessment is favoured in the United Kingdom, where a candidate’s suitability to teach is established through one of several commercial proprietary tests (Klassen & Kim, 2017). Despite their popularity in some circles, personality tests have been found to be extremely susceptible to manipulation by subjects, and have very low validity for predicting job performance (Morgeson et al.
Patterson et al. 2016). Some view the use of personality tests, and the entity view of disposition it represents, as a “damaging myth” (Darling-Hammond, 2006, p. ix) that may bar many suitable teachers from the workforce (Scott & Dinham, 2008). However, as with the interactionalism of disposition and behaviour already discussed, many educational psychologists believe that relatively stable concepts like personality interact with environmental factors through professional learning to shape pre-service and in-service teachers’ dispositional outcomes (Klassen & Kim, 2017; Kunter, Kleickmann, Klusmann, & Richter, 2013).

A more humanist approach focuses disposition assessment on beliefs statements and self-reflection. Dispositions are assessed using open-ended questions in interviews or written response formats, focused upon the individuals’ teaching philosophy or motivations (Cosgrove & Carpenter, 2012; Diez, 2006). There are also cases of journaling (Dottin, 2009; Schussler, Stooksberry, & Berclaw, 2010) and portfolios (Carroll, 2012; Dee, 2012) being used to evidence teacher performance. However, this approach can be overly subjective (in responses and evaluation of those responses) to be reliably applied as a screening tool for teacher candidates. Currently, a humanist approach has been adopted by the Australian Federal Government to supplement the current reliance on candidate university entrance scores, focused on their six non-academic capabilities of motivation to teach, interpersonal and communication skills, resilience, self-efficacy, conscientiousness and organisational and planning skills (AITSL, 2015). These are currently being assessed through interviews and written submissions at the point of ITE program entry (Ingvarson, 2016). However, some universities, like the University of Tasmania and Curtin University, accept the Teacher Capability Assessment Tool (TCAT) online assessment in lieu of other written responses or interviews, made up of multiple choice and open questions across six modules (Bowles, Hattie, Dinham, Scull, & Clinton, 2014; TCAT, 2017). This represents the two distinct approaches currently employed by Australian institutions to assess ITE candidates’ dispositions or ‘non-academic capabilities’.

For such a complex concept, it appears that no one approach to dispositions will adequately capture its scope or development (Diez, 2010; Klassen & Kim, 2017). Approaches to disposition assessment draw upon two fundamentally different types of evidence: values and empirical evidence (Borko, Liston, & Whitcomb, 2007), with a seeming divide between an epistemology of intelligence and of the mind (Diez, 2006).
The *Teacher Disposition Scale* (TDS) (West et al. 2018) was developed with this consideration, with the aim to provide a balanced, versatile survey tool designed within an Australian context. It examines five key dispositions through 24 behaviour descriptions compiled by highly experienced teachers and empirically validated. This tool can provide greater quantities of data than observations or self-reflections, exhibit strong psychometric properties, and use self-reflections to assess individuals’ intended behaviours. The present study hopes to contribute to bridging this divide between values and empirical evidence by providing an empirical measurement for disposition built by community consultation (i.e., the TDS scale) and linked to another psychological construct, motivation. This will help to move dispositions beyond its hollow, descriptive definition and provide psychological meaning and explanatory value. This may allow dispositions to be evaluated as a malleable psychological product of present perceptions and values, rather than a fixed measure of individuals’ capacity for certain future behaviours.

A humanist approach is more common among studies of motivation, which cannot be measured via a behavioural checklist or other objective observation. As such, all motivations are self-reported, primarily through either through scale instruments, open-ended reflections or interviews (Fernet et al. 2008; Lassila, & Uitto, 2016; Richardson & Watt, 2006; Sinclair, 2008). In relation to career motivation, Thomson and associates’ (2012) use of the *Reasons for Teaching Scale* (RTS) and *Career Statement Scale* (CSS) was able to cluster candidates as ‘enthusiastic’, ‘visionary’ and ‘conventional’ dependent on their motivations to teach. Such instruments further illustrate the linkage between disposition and motivation, with several aiming to predict teachers’ future behaviour from their current motivations. This is also the case in the *Work Tasks Motivation Scale for Teachers* (WTMST), designed to assess five motivational constructs toward six work tasks, such as class preparation and teaching (Fernet et al. 2008), though this is done by establishing respondents’ type of motivation toward a given task. The *Factors Influencing Teaching Choice* (FIT-Choice) Scale also enabled motivational profiles to be established and certain career trends established (Watt & Richardson, 2008, 2012; Watt et al. 2012). These methods provide a way for candidate beliefs to be grouped and assessed, while still respecting the individualism of each student. Links between teacher behaviour and self-efficacy levels were also identified (Muijs, Chapman, Collins, & Armstrong, 2010). The growing preference for
self-reported scales in disposition assessment illustrates the distinction in focus between dispositional and motivational assessment, regardless of data collection method employed: whereas dispositional instruments seek to identify patterns in overt behaviour, motivational instruments seek to identify patterns in inclinations (i.e., motivational orientation) toward a task, from which behavioural patterns are then inferred. Thus, in order to establish changes over time and identify associations between these two constructs, a self-reported motivational scale was chosen for this study to mirror developing trends in dispositional assessment.

2.8 Summary

According to House and associates (1996), the utility of dispositions as theoretical constructs should be judged by the degree to which they can be specified, assessed and shown to predict behaviours. However, despite little consensus of what dispositions are, dispositions continue to be promoted as an essential part of the entry and exit requirements of ITE programs around the world today. This review has illustrated that there are still major issues surrounding dispositions in education. These include identifying and examining an explanatory definition of disposition, identifying useful theoretical concepts related to this definition and the development of disposition assessment tools in an Australian context. While some research has already been done toward linking disposition with other constructs (Muijs et al. 2010; Thomson et al. 2012) and in studying the career motivations of teachers (Richardson & Watt, 2006; Watt & Richardson, 2012; Watt et al. 2012), more needs to be done to evidence this link to supplement current and potentially worthwhile efforts to use dispositions as selection criteria and accreditation assessment for Australian teachers.

Given the gaps in recent research previously undertaken as discussed in this literature review, the present study aimed to address this through the following aims:

- To identify changes in the teacher dispositions and career choice motivations in pre-service training to entry into the teaching profession.
- To identify patterns of associations, and how these change over time, between teacher dispositions and career choice motivations among pre-service and beginning teachers.

The purpose of this study will be discussed in greater detail with hypotheses, created from the research and literature reviewed here, in the subsequent chapter.
Chapter Three: Methodology

3.1 Introduction

The previous chapter reviewed the literature on teacher dispositions and career motivations in teaching. It also discussed teacher attrition and identity formation among early career teachers. To close, the previous chapter examined the literature about how disposition and motivation could interact to improve the teaching experiences of these early career teachers. By better understanding how dispositions and motivation interact among early career teachers, disposition assessment and strategies to increase teachers’ satisfaction with their career will become more accurately informed. This chapter will describe and justify the methods of the current investigation, namely: the purpose of the study; the sample; the data collection instruments; and the analytical approach.

The first section outlines the purpose of the study, which builds upon the research and literature discussed in the previous chapter. This purpose is reflected in the research questions and hypotheses also outlined in this section. The second section describes and justifies the research design and theoretical foundations. The third section discusses the data collection instruments. Data collection procedures and analytic approach are discussed in the fourth and fifth sections, respectively.

3.2 Purpose of the Research

The primary purpose of this research was to investigate the nature of teacher dispositions and career choice motivations, their development and how they are associated across pre-service to early in-service teachers. Specifically, the current study compared two cohorts (i.e., 1st year pre-service, 4th year pre-service) followed longitudinally for one year, collecting data on their self-reported career choice motivations and teacher dispositions. This permitted investigation of: (1) changes in teacher dispositions and career motivation over the course of teacher training and entry to field, by focusing on key times of transition and change; and (2) changing inter-relations between dispositions and motivations over this time. This allowed changes over time to be examined, both longitudinally and between cohorts, in addition to changes in the degree of correlations to be investigated.
3.2.1 Research Questions and Hypotheses

The following research questions guided the current investigation. These focused on the changing nature and inter-relationships of pre-service teachers’ dispositions and motivations over the pre-service and initial entry to service period.

1. Do teacher dispositions and career choice motivations change from pre-service training to entry into the teaching profession?

There were four main hypotheses related to this question. Specifically, (1) it was hypothesised that task demand (a career choice motivation) would increase from 1st to 2nd year, before decreasing as respondents became more skilled and capable at teaching in their initial teacher education (ITE) (i.e., demands of teaching become easier to meet) and increasing again upon entry to service. While pre-service teachers do consider teaching a demanding profession (Liston, Matalon, Hare, Davidson, & Casey, 2006; Richardson & Watt, 2006), within expectancy-value theory perception of task demand is also susceptible to adjustments to new task information, as it a core perception used to determine a task’s value. In this theory, the cultural milieu will also determine task value, in which teaching is generally considered a secure and undemanding profession (Barber & Mourshed, 2007; Paine et al. 2016; Watt et al., 2012). This socio-cultural perception often informs pre-service teachers’ conceptions of ITE and their teaching career, particularly at 1st year when their own experiences in teaching are at their most limited. Therefore, task demand for teaching will likely be considered low before ITE, increasing as the reality of teaching becomes more familiar during ITE, and spiking again as in-service realities are experienced. Spikes in task demand at times of transition are generally associated with ‘reality shock’, where the demands of teaching are greater than anticipated, leading to feelings of burnout (Kim & Cho, 2014; Lanas & Kelchtermans, 2015).

(2) It was expected that perceived ability (a career choice motivation), interpersonal communication skills (ICS) and teacher efficacy (teacher dispositions) would increase over the pre-service period, before a further increase in ICS upon entry into the field and a decrease in ability and teacher efficacy. That is, skill-based constructs (i.e., ICS) were expected to increase with practical experience to make the task easier. By contrast, constructs relating to self-belief (i.e., ability and teacher efficacy) are more vulnerable to conflict between expectations and realities (i.e., ‘reality shock’), due to their crucial
role in establishing expectancies of success. Expectancies of success are another core perception used to determine a task’s value, and therefore participation, within expectancy-value theory. With new task information, doubts of ability and teacher efficacy will likely occur, which will see these constructs rated more lowly at 2nd year pre-service and again at 1st year in-service.

(3) **Motivation to teach (MTT)** was anticipated to initially decline from 1st year to 2nd year, then increase again by 4th year, before again declining upon entry into teaching (1st year in-service). All types of motivation have been identified as vulnerable to reality-expectation conflict (Kim & Cho, 2014; Watt & Richardson, 2012). These potential declines at transition points were hypothesised to reflect the interplay of individuals’ evaluations of expectancies of success versus task value. Both are likely to decrease in key transition points (i.e., into 2nd year pre-service and 1st year in-service), as task demand increases and perceived ability and efficacy to achieve these new demands are increasingly subject to self-doubt. As such, MTT is expected to similarly decline, as individuals are more highly motivated to undertake valued tasks that they can achieve (Eccles, 2005a). However, as skills to meet these demands (e.g., ICS) develop during ITE, it is expected that MTT will increase at 4th year pre-service, when task demand has decreased and perceived ability and teacher efficacy has increased due to ITE.

(4) Career choice motivations of **intrinsic career value (ICV)** and **social utility value (SUV)** were expected to be rated highly across all time points, though slightly decline at times of transition (i.e., 2nd year pre-service and 1st year in-service) as these motivations undergo the same reality-expectation conflict as above. Despite these expected changes, these value ratings were expected to remain relatively high due to greater task persistence exhibited by intrinsically motivated (i.e., more internally regulated) individuals in self-determination theory (Ryan & Deci, 2009). By contrast, **personal utility value (PUV)** (i.e., non-teaching lifestyle motivators) was expected to increase across all pre-service time points as the respondents’ age (and therefore family/lifestyle considerations such as childcare or financial pressures) increased. PUV was also expected to drop upon entry to service, as extrinsic motivation is linked to low task-effort and task-attrition (Durik, Hulleman, & Harackiewicz, 2015), and teaching attrition rates have been shown to be high in the first three to five years of service (Weldon, 2015).
2. Is there a correlation between particular teacher dispositions and career choice motivations among pre-service and beginning teachers?

There were three main hypotheses related to this question. Specifically, (5) it was hypothesised that ICV and SUV (career choice motivations) would positively correlate with willingness to learn (WTL), ICS and conscientiousness (teacher dispositions). Both motivation constructs are internally regulated and therefore associated with mastery-orientated goals in achievement goal theory (Schunk et al. 2014). This prompts more adaptive teaching skills, task-perseverance and higher performance (Kim & Cho, 2014; Roth et al. 2007). As such, these two motivation constructs were anticipated to correlate with skill and social-orientated dispositions.

(6) It was expected that task return (a career choice motivation) and MTT (a teacher disposition) would not be associated when ICV and/or SUV were rated highly. Task return (e.g., salary, social status) can be classified as an extrinsic motivation construct, as it relates to extrinsic inducements (i.e., regulation) to teach, while ICV and SUV relate to intrinsic inducements to teach. In self-determination theory these task inducements exist on a continuum, indicating that while both extrinsic and intrinsic motivators may be present simultaneously, this would result in weakened regulatory power for both motivations (Ryan & Deci, 2009; Tang, Wong, & Cheng, 2016). Thus, it was expected that a correlation between task return and MTT would be evidenced when ICV and/or SUV ratings were low.

(7) Lastly, perceived ability (a career choice motivation) was expected to positively correlate with teacher efficacy (a teacher disposition). An individual’s perceived ability to perform assigned roles has been found to directly link to feelings of self-efficacy and connected patterns in behaviour (Morris, Usher, & Chen, 2017; Pendergast, Garvis, & Keogh, 2011). Motivations derived from self-perceived ability could thus be expected to positively correlate with dispositions around teacher efficacy, as this disposition relates to a teacher’s belief in their ability to perform as a teacher, which could influence how teachers feel they can perform their social role (Rockoff, Jacob, Kane, & Stalger, 2011). This also reflects the proposed association within the Reasoned Action Approach’s (RAA) perceived behavioural control, in which individuals’ perceived capacity beliefs echo Bandura’s (1977) construct of self-efficacy (Fishbein & Ajzen, 2010).
3.3 Research Design

In consideration of the study’s research questions, a quantitative approach was used to investigate changes in the teacher dispositions and career choice motivations of pre-service and early career in-service teachers over time. Specifically, this study adopted a survey design to examine the teacher dispositions and career choice motivations of pre-service and early career in-service teachers. The current study’s research questions were well-suited to a quantitative survey design, as it: was applicable to a range of situations; collected adequate data with few resources; was minimally disruptive to respondents; better facilitated follow-up of geographically dispersed in-service teachers; distilled the complex social realities to perceptible numbers; and, supported assessment of conceptual, latent variables (Johnson & Christensen, 2008; Punch, 2003).

This survey design has been used across several previous studies of teachers’ dispositions (Boone, Fite, & Reardon, 2010; Ripski, LoCasale, & Decker, 2011; Weasmer, Woods, & Coburn, 2008) and career choice motivations (Manuel & Hughes, 2006; Richardson & Watt, 2006; Sinclair, 2008; Watt & Richardson, 2008, 2012), but has seldom been used to connect these two dimensions of inquiry. Empirical evidence of a relationship between these two fields could advance an understanding of the interplay of motivation, disposition and identity within developing teachers (Beauchamp & Thomas, 2009; Damon, 2007; Harwell, 2011). This evidence could then contribute to improvements in the relevance and consistency of teacher development and assessment techniques, by linking desirable teacher dispositions to particular career choice motivations.

Shaughnessy, Zechmeister and Zechmeister (2015) outline the three types of survey research: cross-sectional, successive independent samples and longitudinal. For the purpose of this research, a combination of cross-sectional and the longitudinal approaches was implemented. Specifically, a longitudinal panel approach was selected, as this was most appropriate when the aim of the study was to assess trends across time within the time constraints of a PhD program (Shaughnessy et al. 2015). By allowing data to be collected from the same group of individuals on more than one occasion over a period of time, this longitudinal panel design enabled the researcher to determine both time and cohort effects, making it stronger than a cross-sectional design alone (Payne & Payne, 2004). This allowed investigation about the extent to which specific individuals
have changed their views over time, as determined by changes in individuals’ responses over multiple occasions.

3.3.1 Site

The study was conducted in the School of Education at a large regional university in NSW, Australia. There are 18 higher education institutions in New South Wales that provide 120 accredited teaching degrees (NESA, 2017). These are largely undergraduate degrees ($n = 95$) provided by 11 public institutions (NESA, 2017). The university is a public institution and the state’s second largest provider of internal (i.e., regular and ongoing tutorials and lectures on-campus) ITE programs (DET, 2016a). It also reported the state’s fourth highest undergraduate retention rate in 2014 (DET, 2016b).

In 2015, the university’s education programs had approximately 1,395 (987 female; 408 male) internal students enrolled across 15 undergraduate education programs (DET, 2016a; UOW IRGR, 2016). The study was conducted on the main campus, serving approximately 64% of the total student population (UOW, 2013). All core undergraduate subjects in the university’s School of Education are delivered face-to-face at the main campus, providing on-campus lectures and tutorials for students to attend.

3.3.2 Sample

Participants were 378 pre-service teachers aged between 17- to 54-years selected mostly from the Bachelor of Primary Education ($n = 256$) and associated Bachelor of Primary Education (Dean’s Scholar) ($n = 15$) programs. These education programs all require four years of study. Participants were recruited through core subject lectures, which were sometimes also attended by students enrolled in other initial teacher education programs: Bachelor of Primary Education – The Early Years ($n = 30$), Bachelor of Physical and Health Education ($n = 42$), Bachelor of Physical and Health Education (Dean’s Scholar) ($n = 1$), Bachelor of Mathematics Education ($n = 19$) and Bachelor of Science Education ($n = 15$).

Participants were recruited while in attendance at a core lecture for either a first-year subject of 429 students ($n = 306$) or a fourth-year subject of 203 ($n = 72$) of their teaching degree, comprising the study’s two cohorts to be followed longitudinally for one year. The 1$^{st}$ year sample consisted of 215 females (70.3% female, $M_{\text{age}} = 19.67$
years, \( SD = 3.90 \) and the 4\textsuperscript{th} year sample consisted of 60 females (83.3\% female, \( M_{\text{age}} = 23.54 \) years, \( SD = 4.88 \)). These gender distributions largely reflected the 2015 Australian Department of Education and Training data on higher education student enrolment for the ITE programs in NSW (DET, 2016\textsuperscript{a}). These same cohorts were approached one year later. Respondents at this follow-up time point were now second year pre-service (\( n = 187, 71.1\% \) female, \( M_{\text{age}} = 21.16 \) years, \( SD = 4.70 \)) and first year graduate teachers (\( n = 28, 88.5\% \) female, \( M_{\text{age}} = 24.32 \) years, \( SD = 5.50 \)). The degree of attrition (38.9\% for the 1\textsuperscript{st} year cohort and 61.1\% for the 4\textsuperscript{th} year cohort), particularly in the graduate follow-up, was likely due to incorrect or outdated contact details for graduate teachers or incorrect participants’ self-generated IDs (adopted after consultation with the Human Research Ethics Committee) for 2\textsuperscript{nd} year that would not allow data to be confidently matched.

3.4 Data Collection Instruments

The survey used to collect data in this study combined three sections: demographic and participant characteristic information; a measure of career choice motivations; and a measure of teacher dispositions (see Appendix A). Section One collected demographic information to describe the sample and for potential inclusion as stratification variables or covariates. Section Two comprised the Factors Influencing Teaching Choice (FIT-Choice) scale (Watt & Richardson, 2004) (see Table 3.1), which required participants to rate their agreement to career choice motivation statements. Section Three was the Teacher Disposition Scale, which required participants to rate the frequency of disposition-related behaviours (see Table 3.2).

3.4.1 Section One: Demographic Information

The FIT Choice scale, created and validated by Watt and Richardson (2004), included an initial demographic information section. Demographic information collected included age, gender, current enrolled course, and current year of course. These were used to compare the study’s sample to the broader population and examine any gender or age-based trends.

3.4.2 Section Two: Factors Influencing Teaching Choice Scale

The FIT-Choice scale (Watt & Richardson, 2004) contained three parts, each dedicated to a different aspect of career choice motivations. All items in the FIT-Choice scale were rated on a 7-point Likert scale, indicating the extent to which participants agreed
with each item (see Appendix B). Using this Likert scale, higher scores indicated a stronger agreement that an item reflected their experiences and thoughts about a career choice of teaching. Higher scores thus indicated higher levels of those perceptions, beliefs or experiences.

*Part A: Influencing Factors* asked respondents to rate, on a scale from one (not at all important) to seven (extremely important), their level of agreement to 38 statements that related to factors impacting their choice to pursue a teaching career (e.g., My friends think I should become a teacher). This section contained 12 subscales, which were then condensed into five higher-order motivations, proposed by Richardson and Watt (2006; Watt & Richardson, 2007a) in their theoretical modelling. *Part B: Beliefs about Teaching* asked respondents to rate, on a scale from one (not at all) to seven (extremely), their level of agreement to 14 statements that related to their perceptions of teachers’ work (e.g., Do you think teachers have a heavy workload?). This section contained four subscales, which were then condensed into two higher-order motivations (Richardson & Watt, 2006). Finally, *Part C: Your Decision to Become a Teacher* asked respondents to rate, on a scale from one (not at all) to seven (extremely), their level of agreement to six statements that related to their experiences of social dissuasion and satisfaction with teaching as a career choice (e.g., Were you encouraged to pursue careers other than teaching?). This section contained two subscales, forming part of one new higher-order motivation and one existing motivation from *Part A*. These higher-order motivations and their subscales are outlined in greater detail below.

**3.4.2.1 Part A: Influencing Factors**

Part A measured participants’ perceptions of the factors that impacted their choice to pursue a teaching career. Each of the 38 statements were prefaced with the statement ‘I chose teaching because …’ related to the personal characteristics and experiences that may have led respondents to choose a teaching career. Each subscale was part of an overarching higher-order motivation that connected subscales with common theoretical underpinnings (Watt & Richardson, 2007a). The names of some motivations were altered in this study from their original form to more succinctly reflect their theoretical basis (e.g., ‘self-perceived ability’ to ‘ability’). The six motivations and 12 subscales of Part A are discussed in greater detail below.
The motivation socialisation encompassed motivational factors influenced by significant others, such as family, friends and colleagues (Watt & Richardson, 2007a, 2012). It was made up of the subscales prior teaching and learning experiences and social influences from Part A, in addition to the subscale social dissuasion in Part C (discussed in section 3.4.2.3). The subscale prior teaching and learning experiences was made up of three items concerning positive learning experiences or role models (e.g., I have had good teachers as role models). The next subscale, social influences, was comprised of three items about the opinions of the respondents’ social network (e.g., My family think I should become a teacher).

The motivation ability referred to self-beliefs about current competence and likelihood of success as a teacher. The motivation did not contain any subscales, as it was a single-subscale motivation. It was made up of three items addressing self-perceived abilities (e.g., I have the qualities of a good teacher). Intrinsic career value was also a single-subscale motivation. It comprised of three items assessing respondents’ desire for a teaching career (e.g., I like teaching).

Personal utility value assessed for career choice due to reasons unrelated to the act of teaching itself. It was made up of three subscales, time for family, job transferability and job security. The subscale time for family contained five items about the aspects of teachers’ work that may be conducive to family life (e.g., As a teacher I will have a short workday). The subscale job transferability related to the aspects of teachers’ work that may offer work-flexibility over three items (e.g., A teaching qualification is recognised everywhere). Lastly, the job security subscale comprised three items that evaluated respondents’ desire for a job stability (e.g., Teaching will be a secure job).

The motivation social utility value identified motivational factors influenced by a strong desire to make a social contribution or to give back to society in a meaningful way. It was made up of four subscales, make social contribution, shape future of children/adolescents, work with children/adolescents, and enhance social equity, capturing a different aspect of this subscale in three items each. Make social contribution related to a desire to provide a service to the community (e.g., Teachers made worthwhile social contributions), while shape future of children/adolescents identified a motivation to positively shape students’ life outcomes (e.g., Teaching will allow me to shape the next generation). Work with children/adolescents captured a desire to simply work with children (e.g., I like working with children/adolescents),
while enhance social equity assessed for a motivation to raise students’ life outcomes within a broader social lens than make social contribution (e.g., Teaching will allow me to work against social disadvantage).

Lastly, the fallback career motivation was also a single-subscale motivation, and as such, its three statements were all that was required to measure this construct. The motivation identified motivational factors influenced by failure in first-choice career or uncertainty in desired career. These statements presented teaching as a back-up, short-term or default option (e.g., I was unsure what career I wanted).

### 3.4.2.2 Part B: Beliefs about Teaching

Part B measured participants’ beliefs about the teaching profession. The 14 items related specifically to the rewards and demands of teaching to produce two motivations, task return and task demand. The motivation task return was made up of two subscales, salary and social status, to capture what respondents perceived as being acquired through teaching. The first subscale, salary, measured respondents’ perception of pay in two items (e.g., Do you think teaching is well paid?). The second subscale, social status, measured respondents’ perceptions of the status of teaching among the community across six items (e.g., Do you believe teaching is a well-respected career?).

The second motivation, task demand captured what respondents believed was required of them to teach. It was made up of two subscales of three items each, difficulty and expertise. In difficulty, items captured respondents’ opinions about teachers’ work load (e.g., Do you think teaching is hard work?), whereas expertise related to the complexity of the work (e.g., Do you think teachers need high levels of technical knowledge?).

### 3.4.2.3 Part C: Your Decision to Become a Teacher

Part C measured participants’ experiences with social dissuasion and career satisfaction in their teaching career. It was made up of six items, divided evenly between one single-subscale motivation, satisfaction with choice, and one subscale, social dissuasion, of the aforementioned motivation socialisation (see section 3.4.2.1). This social dissuasion subscale measured the influence of others’ specifically discouraging opinions about a career in teaching (e.g., Did others tell you teaching was not a good career choice?). The motivation satisfaction with choice related to respondents’ current satisfaction with choice of a teaching career (e.g., How happy are you with your choice of becoming a teacher?).
3.4.2.4 Development, Reliability and Validity of the FIT-Choice Scale

Developed by Watt and Richardson (2004), the Factors Influencing Teaching Choice (FIT-Choice) scale drew upon expectancy-value theories (as adapted by Eccles et al. 1983). Its development was guided by the three major variables of self, value and task as identified by Eccles and associates to predict choice (Watt & Richardson, 2007a). It also drew together recurring themes from teacher education literature related to teaching career choice, in addition to ability-related beliefs within broader career choice literature (Richardson & Watt, 2006). By locating these themes within the expectancy-value theory, this instrument provided a comprehensive and coherent model to guide a systematic inquiry of why individuals chose a teaching career.

Empirical testing of the scale provided sound evidence of reliability, as well as convergent and divergent construct validity (Watt & Richardson, 2007a). Reliability of FIT-Choice subscales was found to be high, ranging from Cronbach’s alpha of .90 to .97 (Watt & Richardson, 2007a). Construct validity was also shown, demonstrating the expected nine factors comprising the FIT-Choice scale (Watt & Richardson, 2012). The scale was also found to function similarly well across Australian and international teachings samples, at various levels of pre- and in-service (Kilinç, Watt, & Richardson, 2012; Richardson & Watt, 2006; Watt & Richardson, 2007b; Watt et al. 2012).
<table>
<thead>
<tr>
<th>Motivation</th>
<th>Definition</th>
<th>Subscales</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socialisation</strong></td>
<td>Motivational factors influenced by own experiences or significant others, such as family, friends and colleagues.</td>
<td>Social Influences, Prior Teaching &amp; Learning Experiences, Social Dissuasion</td>
</tr>
<tr>
<td></td>
<td>Example: (B3) My friends think I should become a teacher.</td>
<td></td>
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<tr>
<td><strong>Ability</strong></td>
<td>Beliefs about current competence and likelihood of success as a teacher.</td>
<td></td>
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<td></td>
<td>Example: (B5) I have the qualities of a good teacher.</td>
<td><strong>Social Influences</strong>, Prior Teaching &amp; Learning Experiences, Social Dissuasion</td>
</tr>
<tr>
<td><strong>Intrinsic Career Value</strong></td>
<td>Individuals’ desire in and desire for a teaching career.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example: (B1) I am interested in teaching.</td>
<td></td>
</tr>
<tr>
<td><strong>Personal Utility Value</strong></td>
<td>Choice of teaching due to reasons independent of career content.</td>
<td><strong>Time for Family, Job Transferability, Job Security</strong></td>
</tr>
<tr>
<td></td>
<td>Example: (B2) Part-time teaching could allow more family time.</td>
<td></td>
</tr>
<tr>
<td><strong>Social Utility Value</strong></td>
<td>Motivational factors influenced by a strong desire to make a social contribution or to give back meaningfully to society.</td>
<td>Make Social Contribution, Shape Future of Children/Adolescents, Work with Children/Adolescents, Enhance Social Equity</td>
</tr>
<tr>
<td></td>
<td>Example: (B6) Teaching allows me to provide a service to society.</td>
<td></td>
</tr>
<tr>
<td><strong>Fallback Career</strong></td>
<td>Motivational factors influenced by failure in first-choice career or uncertainty in desired career (i.e., teaching as back-up).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example: (B11) I was unsure what career I wanted.</td>
<td></td>
</tr>
<tr>
<td><strong>Task Return</strong></td>
<td>Beliefs about what a teaching career offers a teacher.</td>
<td>Salary, Social Status</td>
</tr>
<tr>
<td></td>
<td>Example: (C1) Do you think teaching is well paid?</td>
<td></td>
</tr>
<tr>
<td><strong>Task Demand</strong></td>
<td>Beliefs about what a teaching career requires of a teacher.</td>
<td>Difficulty, Expertise</td>
</tr>
<tr>
<td></td>
<td>Example: (C2) Do you think teachers have a heavy workload?</td>
<td></td>
</tr>
<tr>
<td><strong>Satisfaction</strong></td>
<td>General rating of current satisfaction with choice of a teaching career.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Example: (D3) How satisfied are you with your choice of becoming a teacher?</td>
<td></td>
</tr>
</tbody>
</table>
3.4.3 Section Three: Teacher Disposition Scale

The third and final section of the collated survey instrument was the *Teacher Disposition Scale* (TDS) (West et al. 2018). This instrument was designed to measure the frequency with which participants believed they exhibited key disposition-related behaviours in their teaching. Participants were directed to respond according to their current level of actual behaviour. All 26 items in the TDS were scored on a 7-point Likert scale, from zero (never) to six (all the time), for participants to rate the perceived frequency of each disposition-related behaviour. Using this Likert scale, the higher the respondents’ score, the more frequently that behaviour was reported as displayed in their teaching. Higher subscale scores thus indicated higher levels of that disposition as perceived by the respondent. These behaviours were placed into one of five subscales: *MTT* (five items), *teacher efficacy* (seven items), *ICS* (seven items), *WTL* (four items), and *conscientiousness* (three items). For a list of all items, refer to Appendix B.
<table>
<thead>
<tr>
<th>Subscale</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motivation to Teach</strong></td>
<td>Commitment of attaining a sense of accomplishment from work and relationships in teaching.</td>
</tr>
<tr>
<td></td>
<td>Example: (21) Demonstrates a passion and responsibility for students’ learning.</td>
</tr>
<tr>
<td><strong>Teacher Efficacy</strong></td>
<td>Belief in personal and professional ability to affect student learning.</td>
</tr>
<tr>
<td></td>
<td>Example: (2) Approaches the teaching profession with adequate preparation.</td>
</tr>
<tr>
<td><strong>Interpersonal Communication Skills</strong></td>
<td>Adapting communication to accommodate individuals’ needs.</td>
</tr>
<tr>
<td></td>
<td>Example: (5) Engages in effective problem solving strategies.</td>
</tr>
<tr>
<td><strong>Willingness to Learn</strong></td>
<td>Employing flexible strategies, cooperation and feedback to optimise learning.</td>
</tr>
<tr>
<td></td>
<td>Example: (17) Seeks support and advice from others.</td>
</tr>
<tr>
<td><strong>Conscientiousness</strong></td>
<td>Committing to preforming teaching thoroughly and dutifully through self-discipline and organisation.</td>
</tr>
<tr>
<td></td>
<td>Example: (24) Shows a commitment to teaching.</td>
</tr>
</tbody>
</table>
3.4.3.1 Development, Reliability and Validity of the TDS

Recently developed by West and colleagues (2018), the TDS was derived from interviews with formally recognised, highly accomplished teachers about the characteristics of effective teachers, from national frameworks and from the disposition research literature. From data collected through interviews with highly accomplished teachers, emerging dispositions were aligned with national disposition guidelines (AITSL, 2015). Linking back to the qualitative data and disposition literature, specific items were designed to reflect specific behaviours aligned with each core disposition. In this process, two of the seven non-academic capabilities (i.e., dispositions) outlined in the guidelines were not included in the TDS scale: organisational and planning skills, because these were identified as more relevant to behaviour than to disposition, and; resilience, as it was shown not to be a valid factor during scale development (see Appendix C). The AITSL’s (2015) guideline reference material was used to generate definitions for each disposition (see Table 3.3).
Table 3.3
*Comparison of AITSL (2015) Non-Academic Capabilities and Teacher Disposition Scale (TDS) Subscales*

<table>
<thead>
<tr>
<th>AITSL Non-academic Capability</th>
<th>AITSL Definition</th>
<th>TDS Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation to teach</td>
<td>Commitment of attaining a sense of accomplishment from work and relationships in teaching (Nahal, 2010).</td>
<td>Motivation to Teach (MTT)</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>Belief in personal ability to affect student learning, in addition to general belief in the teaching profession to affect student learning (Rockoff et al. 2011).</td>
<td>Teacher Efficacy</td>
</tr>
<tr>
<td>Strong interpersonal and communication skills</td>
<td>Awareness and acceptance of others’ context and perspectives established, so communication may be adjusted to each individual’s needs (Allington &amp; Johnston, 2000, cited in Barber &amp; Mourshed, 2007).</td>
<td>Interpersonal Communication Skills (ICS)</td>
</tr>
<tr>
<td>Willingness to learn</td>
<td>Repertoire of flexible strategies that utilise cooperation, are subject to meaningful self-scrutiny, and are focused on optimising learning (Allington &amp; Johnston, 2000, cited in Barber &amp; Mourshed, 2007).</td>
<td>Willingness to Learn (WTL)</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Persistent commitment to perform teaching thoroughly and dutifully, by utilising self-discipline and organisation (Bastian, 2013).</td>
<td>Conscientiousness</td>
</tr>
</tbody>
</table>

Empirical testing of the scale provided sound evidence of reliability and convergent and divergent construct validity (West et al. 2018). Factor analysis prompted the formation of five factors to comprise the final scale. Reliability analysis (Cronbach’s alpha) suggested acceptable to very good reliability for all subscales (ranging from .70-.87). Subscale correlations ranged between a Pearson’s correlation of -.18 and .62 (West et al. 2018) (see Appendix C).
3.4.4 Approval

To collect data from the selected site and students, permission was sought from several sources. Organisational and individual ethics approval was secured as follows:

3.4.4.1 Human Ethics Committee

Consistent with ethical requirements of the university, the study was reviewed and approved by the university’s Human Research Ethics Committee – Social Sciences. This committee granted permission on 05/03/2015 for this study to be conducted (HE15/073) (see Appendix D).

3.4.4.2 Subject Coordinators in Core Education Subjects

In order to recruit student samples, permission was sought from the subject coordinators for each group of pre-service teachers. The investigator identified and approached each relevant academic staff member and explained the aims and method of the study. This contact procedure also included an email from the investigator with a cover letter, information sheet, and evidence of ethical approval. All subject coordinators granted permission for this study to be explained and data collected during a negotiated time in the lecture.

3.4.4.3 Participants’ Permission

During the agreed lecture time, participants were provided an information sheet and oral information about the study and survey instrument. Surveys were circulated to attending students, and students were free to decline participation by returning a blank survey. Students were informed that completing the survey represented tacit consent to having their data included in the study. Participants were asked to generate a unique code based on fixed personal information (e.g., their date of birth) on the top left corner of the survey cover sheet (see Appendix A). This code allowed participants’ initial responses to be linked to any follow-up responses a year later. All but the 4th year follow-up was conducted in-person, where surveys were distributed in the core lecture. For the 4th year follow-up, potential participants were sent a maximum of two emails and two phone calls over two weeks, if no response was received, directing them to an online version of the survey instrument should they wish to participate. After two weeks, the online survey instrument was disabled and compiled for data analysis.
3.5 Procedure

Participants were recruited and responded to the surveys in core Education lectures at a large regional university in New South Wales, Australia. The two cohorts provided two natural groupings from which data were collected at two time points (see Figure 3.1). Teacher dispositions and career choice motivations were anticipated to differ depending on training stage. As such, the study sought to collect data from students prior to their first in-service immersion via practical experience days in the program’s first year, and before their final in-service immersion via internship in the program’s fourth year. These samples were again surveyed after one year, now surveyed as pre-service teachers with one year of pre-service training and early career in-service teachers in their first year post-graduation.

This first data collection point was in 2015 for both cohort groups. Both samples comprised those who consented to participate in the study at their group’s first data collection point: entrance to (1st year) or enrolment in final year (4th year) of a teaching degree. The instruments took approximately 15 minutes to complete, with 5 minutes allotted for introduction and questions. First year students completed the survey during the first fortnight after commencing a teaching degree, but before most classes had begun to transmit new teaching career information.

Fourth year students completed the survey just prior to their final six-week internship, in order to collect data before these participants were exposed to significant changes in role information and identity. Such a change might be anticipated once the participants completed their final internship, after which many would receive job offers and begin to view themselves more as in-service teachers than pre-service teachers. In addition to completing the survey, contact details were requested from 4th year students so that participants could be contacted at a follow-up one year later. Requested contact information included two active email addresses and one phone number that were kept separately from completed surveys. Per ethical principles of voluntary participation, participants could decline to provide their contact details without consequence. In all, 58 respondents chose to provide contact details.
These two cohorts were surveyed again, just over one year later, using the same surveys. The responding samples were now either a year into a teaching degree (second year) or six months following graduation, respectively. The 2nd year students (formerly 1st year cohort) completed these instruments in the first fortnight of their second year, marking one year of new role information through their coursework and in-school practica. Of the 187 respondents, 86 were identified as returning respondents from the initial data collection. The in-service teachers (formerly 4th year students) completed these instruments in May 2016 – providing sufficient time to ensure a large majority were working as in-service teachers and had exposure to new role information. Of the 58 respondents contacted from the 4th year cohort, 26 chose to participate and all of these were working in the teaching field. In both groups, only participants with follow-up data were analysed for changes over time.

### 3.6 Plan for Data Analysis

The collected data were entered into the *Statistical Package for Social Sciences* (SPSS) software for analysis. Analysis was applied to disposition subscales and motivations, across two different instruments (see Tables 3.2 and 3.3). The motivations of FIT-Choice comprised one or more subscales (see Appendix B), but were encompassed in the general higher-order motivation definition.

Guided by the study’s two research questions, seven hypotheses were generated. The first research question, and four associated hypotheses (H1 to H4), were focused on...
investigating change in motivation and dispositions across the pre-service and immediately in-service period (see Table 3.4). However, given that data were not fully longitudinal, direct comparisons of all year groups were not viable. Instead, a series of t-tests were run to investigate likely changes over time. Specifically, change from baseline to follow-up in the 1st and 4th year groups were investigated using paired samples t-tests. This served to identify changes in motivation or dispositions over this one-year period, though could only use a constrained sample of returning respondents. Independent samples t-tests were then conducted to evaluate cross-sectional differences between 1st and 4th year respondents, to estimate (with available data) whether any change might be expected across a pre-service degree.

Table 3.4

Summary of Hypotheses

<table>
<thead>
<tr>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1</strong> Task demand would increase at both follow-ups (2PS &amp; 1IS) from initial levels (1PS &amp; 4PS).</td>
</tr>
<tr>
<td>Ability, ICV and teacher efficacy would steadily increase at pre-service time points (1PS, 2PS &amp; 4PS), and continue to increase (ICS) or decline (ability &amp; teacher efficacy) at 5IS.</td>
</tr>
<tr>
<td><strong>H2</strong> MTT would decrease at both follow-ups (2PS &amp; 1IS) from initial levels (1PS &amp; 4PS).</td>
</tr>
<tr>
<td>ICV and SUV would decrease at both follow-ups (2PS &amp; 1IS) from initially strong levels (1PS &amp; 4PS). PUV would steadily increase at all time points (1PS to 1IS).</td>
</tr>
<tr>
<td><strong>H3</strong> SUV and ICV would positively correlate with each other and WTL, ICS and conscientiousness at 1PS and 4PS.</td>
</tr>
<tr>
<td>Task return and MTT would correlate when ICV and/or SUV were rated lowly (IPS &amp; 4PS), but would positively correlate when ICV and/or SUV were rated lowly (1PS &amp; 4PS).</td>
</tr>
<tr>
<td><strong>H4</strong> Ability and teacher efficacy would positively correlate at 1PS and 4PS.</td>
</tr>
</tbody>
</table>

The second research question, and its three associated hypotheses (H5 to H7), were investigated using bivariate correlations to evaluate the strength and directionality of
associations between a priori specified variables (see Table 3.4). Specifically for hypothesis six, a median split was required to create high and low \( ICV \) and/or \( SUV \) groups from the 1\textsuperscript{st} and 4\textsuperscript{th} year sample. Where it was possible, in light of sample size restrictions, Fisher’s \( z \)-test was used to contrast the correlations between cohorts to give more accurate interpretations of difference.

### 3.7 Summary

The methodology used in this study of early career teachers’ teacher dispositions and career choice motivations supported the collection of data from two groups of early career teachers across two time points. This chapter has discussed the purpose and design of this study, the survey instrument used to collect the data, the data collection procedure, and how analysis was carried out. The hypotheses tested in this study were based on existing literature and theoretical frameworks outlined in the previous chapter. The next chapter will report the results of this study’s data analysis. These results will outline findings in three key areas: teacher dispositions; career choice motivations; and changes over stage of participants’ early career.

Chapter Four: Results
4.1 Introduction

The previous chapter reviewed the methodology of the present study, outlining the design and instruments in relation to literature of teacher dispositions and career choice motivations. There it was argued that a combination of cross-sectional and longitudinal approaches would be optimal to estimate, within constraints of a PhD thesis, correlations between teacher dispositions and career motivations and their development over time. To close, the chapter outlined a plan for analysis related to the study’s hypotheses. This chapter will describe the results of these analyses. The first section outlines the sample characteristics in terms of career choice motivations and teacher dispositions, as well as initial explorations and actions on the data. The second and third sections summarise the findings for each research hypothesis, by research question. The fourth section addresses other emergent, exploratory findings of these analyses – albeit with the caveat of their explanatory, yet relevant (to theory and previous research) nature.

4.2 Initial Data Exploration

4.2.1 Investigation Potential Sample Bias Due to Longitudinal Attrition

As an initial step in data exploration, the composition of each cohort was compared at its initial and follow-up data collection. In the 1st year cohort \( (n = 306) \), 86 (28.1%) returned to participate as 2nd years. These returning respondents made up 46.0% of the 2nd year follow-up. As expected, the mean age for these two groups increased from 1st year \( (M = 19.67) \) to 2nd year \( (M = 21.16) \), although this exceeded the one year between data collection periods \( (M_{diff} = 1.48 \text{ years}) \). In the 1st year cohort, males made up 29.7% of respondents, which decreased slightly but significantly at the one-year follow-up (to 28.9% of respondents), \( \chi(1) = 84.49, p <.001 \). However, the magnitude of this difference remains small (0.8%). As such, while the extent of attrition suggests that the longitudinal analyses may not provide complete representativeness of the cohort, there were few substantial differences found in the characteristics of these initial and follow-up samples.

In the 4th year cohort \( (n = 72) \), 26 (36.1%) returned to participate as 1st years in-service. As expected, the mean age for these two groups increased from 4th year \( (M = 23.54) \) to 1st year in-service \( (M = 24.32) \) at a rate that reflected the one year between data collection periods. In the 4th year cohort, males made up 16.7% of respondents, which
decreased moderately but non-significantly at the one-year follow-up (to 11.5% of respondents), \( \chi^2(1) = .14, p = .713 \). As such, while the extent of attrition suggests that the longitudinal analyses may not provide complete representativeness of the cohort, there were few substantial differences found in the characteristics of these initial and follow-up samples.

### 4.2.2 Data Normality

Data were next explored to ensure assumptions of statistical tests. First, skewness of the subscales was evaluated within each cohort, such that a z-skewness score > 4 indicated extreme skewness (and thus required transformation). Adopted analyses were deemed to be sufficiently robust to less-extreme violations of normality. Of the instruments’ 14 subscales across four possible time points, 12 were identified as highly skewed for at least one time point. As a first step, these highly skewed variables were winsorised (extreme values, as identified by boxplots, replaced with the next highest/lowest non-extreme value). This corrected eight highly skewed variables in at least one time point. Where normality was not achieved, subscales were transformed. In all, one of three transformations (i.e., Exp, Lg10, LnGamma) was applied at each remaining time point based on the distributions of the data. All but one transformation (*fallback career in the 2\(^{nd}\) year follow-up of the 1\(^{st}\) year sample) was successful in correcting non-normality. In this final case, the closest transformation was adopted (i.e., Lg10).

To ensure results were not unduly influenced by the presence or absence of extreme data points, all analyses were run separately with the raw and transformed variables. In cases where statistical significance differed between these analyses, results with transformed data are reported but are indicated as such. Lastly, as transformed means are rarely easily interpretable, where descriptive statistics are reported untransformed means are provided. These are indicated as \( M_{UT} \) to denote the reporting of an untransformed mean where the statistical test has reported results after transformation.

### 4.2.3 Reliability
Once adjusted for skewness, the reliability of each subscale was evaluated. As shown in Table 4.1, most subscales satisfied an acceptable level of reliability of $\alpha = .70$ or above (Field, 2013). Exceptions in the 1st year cohort were intrinsic career value (ICV) and fallback career (from a total of 14 subscales) and in the 4th year cohort were socialisation influences, ICV and conscientiousness (from a total of 14 subscales). This suggests the need to consider the results of analyses with ICV, fallback career, socialisation influences and conscientiousness with caution in the current sample.

Table 4.1

FIT-Choice and TDS Subscale Reliability

<table>
<thead>
<tr>
<th>Variable Name</th>
<th># of Constituent Items</th>
<th>1st year sample</th>
<th>4th year sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socialisation</td>
<td>9</td>
<td>.72</td>
<td>.69</td>
</tr>
<tr>
<td>Ability</td>
<td>3</td>
<td>.81</td>
<td>.71</td>
</tr>
<tr>
<td>ICV</td>
<td>3</td>
<td>.65*</td>
<td>.54</td>
</tr>
<tr>
<td>PUV</td>
<td>11</td>
<td>.83</td>
<td>.84</td>
</tr>
<tr>
<td>SUV</td>
<td>12</td>
<td>.90</td>
<td>.84</td>
</tr>
<tr>
<td>Fallback</td>
<td>3</td>
<td>.69*</td>
<td>.74</td>
</tr>
<tr>
<td>Return</td>
<td>8</td>
<td>.86</td>
<td>.82</td>
</tr>
<tr>
<td>Demand</td>
<td>6</td>
<td>.76</td>
<td>.84</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>3</td>
<td>.83*</td>
<td>.87</td>
</tr>
<tr>
<td>Motivation</td>
<td>5</td>
<td>.88*</td>
<td>.89</td>
</tr>
<tr>
<td>Efficacy</td>
<td>7</td>
<td>.93*</td>
<td>.87</td>
</tr>
<tr>
<td>ICS</td>
<td>7</td>
<td>.88*</td>
<td>.87</td>
</tr>
<tr>
<td>WTL</td>
<td>4</td>
<td>.79</td>
<td>.79</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>3</td>
<td>.76</td>
<td>.64</td>
</tr>
</tbody>
</table>

Note. Cronbach alphas are reported for transformed subscales (indicated by *) where non-normality was evident. Socialisation = socialisation influences, Ability = ability, ICV = intrinsic career value, PUV = personal utility value, SUV = social utility value, Fallback = fallback career, Return = task return, Demand = task demand, Satisfaction = satisfaction with choice, Motivation = motivation to teach, Efficacy = teacher efficacy, ICS = interpersonal communication skills, WTL = willingness to learn, Conscientiousness = conscientiousness.
4.3 Changes in Career Choice Motivation and Teacher Dispositions

The following section will report on the findings of this study’s first research question: Do teacher dispositions and career choice motivations change from pre-service training to entry into the teaching profession? This was investigated via paired-samples t-tests (to evaluate within-samples changes at one-year follow-up) and independent-samples t-tests (to evaluate differences between 2nd and 4th year cohort ratings). Descriptive statistics have been provided for the two complete cohorts and follow-ups (see Table 4.2), as well as their constrained samples used in testing (see Table 4.3).
Table 4.2

Descriptive Statistics for Career Choice Motivations and Teacher Dispositions by Time Point

<table>
<thead>
<tr>
<th>Subscale</th>
<th>1st Year PS</th>
<th>2nd Year PS</th>
<th>4th Year PS</th>
<th>1st Year IS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>Range</td>
</tr>
<tr>
<td>Social</td>
<td>299</td>
<td>4.59</td>
<td>0.98</td>
<td>2.22 – 7.00</td>
</tr>
<tr>
<td>Ability</td>
<td>300</td>
<td>5.75</td>
<td>0.80</td>
<td>4.00 – 7.00</td>
</tr>
<tr>
<td>ICV</td>
<td>303</td>
<td>5.97</td>
<td>0.96</td>
<td>3.00 – 7.00</td>
</tr>
<tr>
<td>PUV</td>
<td>294</td>
<td>4.32</td>
<td>0.98</td>
<td>1.67 – 6.51</td>
</tr>
<tr>
<td>SUV</td>
<td>296</td>
<td>5.83</td>
<td>0.78</td>
<td>3.33 – 7.00</td>
</tr>
<tr>
<td>Fallback</td>
<td>302</td>
<td>1.59</td>
<td>0.75</td>
<td>1.00 – 3.33</td>
</tr>
<tr>
<td>Return</td>
<td>298</td>
<td>4.74</td>
<td>0.84</td>
<td>2.58 – 6.50</td>
</tr>
<tr>
<td>Demand</td>
<td>302</td>
<td>5.85</td>
<td>0.65</td>
<td>3.83 – 7.00</td>
</tr>
<tr>
<td>Satisf.</td>
<td>303</td>
<td>6.23</td>
<td>0.78</td>
<td>4.33 – 7.00</td>
</tr>
<tr>
<td>Motiv.</td>
<td>295</td>
<td>5.41</td>
<td>0.65</td>
<td>3.60 – 6.00</td>
</tr>
<tr>
<td>Efficacy</td>
<td>297</td>
<td>4.99</td>
<td>0.88</td>
<td>2.57 – 6.00</td>
</tr>
<tr>
<td>ICS</td>
<td>296</td>
<td>4.87</td>
<td>0.89</td>
<td>2.57 – 6.00</td>
</tr>
<tr>
<td>WTL*</td>
<td>297</td>
<td>4.98</td>
<td>0.76</td>
<td>3.25 – 6.00</td>
</tr>
<tr>
<td>Consc.*</td>
<td>299</td>
<td>5.18</td>
<td>0.81</td>
<td>3.00 – 6.00</td>
</tr>
</tbody>
</table>

*Note.* Due to survey length and lack of specific hypotheses, asterisk denotes subscales omitted from the one-year follow-up survey instrument.


Table 4.3

Constrained Sample Descriptive Statistics for Career Choice Motivations and Teacher Dispositions by Time Point

<table>
<thead>
<tr>
<th>Subscale</th>
<th>1st Year PS</th>
<th></th>
<th></th>
<th></th>
<th>2nd Year PS</th>
<th></th>
<th></th>
<th></th>
<th>4th Year PS</th>
<th></th>
<th></th>
<th></th>
<th>1st Year IS</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>Range</td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>Range</td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>Range</td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>88</td>
<td>4.57</td>
<td>1.01</td>
<td>2.56 – 7.00</td>
<td>88</td>
<td>4.56</td>
<td>0.90</td>
<td>2.22 – 6.56</td>
<td>26</td>
<td>4.14</td>
<td>0.84</td>
<td>2.44 – 5.89</td>
<td>26</td>
<td>3.83</td>
<td>0.80</td>
<td>2.44 – 5.22</td>
<td></td>
</tr>
<tr>
<td>Ability</td>
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<td>1.00 – 4.33</td>
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<td>3.33 – 6.00</td>
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Note. Due to survey length and lack of specific hypotheses, asterisk denotes subscales omitted from the one-year follow-up survey instrument.
4.3.1 Task Demand

An increase in task demand (i.e., the difficulty and expertise teaching requires) over time was anticipated, as teaching is generally considered a comfortable, secure profession with many personal benefits in Western societies (Barber & Moursed, 2007; Paine et al. 2016; Watt et al. 2012). Some level of expectation-adjustment is also common in the face of new experiences, regardless of the value the task holds (Constantine, 2017; Cook & Artino, 2016), though task demand was expected to decrease during ITE as pre-service teachers became more skilled. Results indicated a significant change from 1st to 2nd year, \( t(88) = -2.79, p = .007, d = 0.40 \), but a non-significant change from 4th year to in-service, \( t(25) = 0.27, p = .792, d = 0.04 \). On average, the 1st year cohort initially perceived the teaching profession as carrying less task demand \( (M = 5.84, SD = 0.63) \) than they indicated one year later \( (M = 6.09, SD = 0.63) \). The 4th year cohort, by contrast, rated task demand similarly at both late pre-service \( (M = 6.02, SD = 0.62) \) and upon entry to the field \( (M = 5.99, SD = 0.81) \). An independent-samples t-test further indicated a non-significant difference between 2nd year and 4th year ratings, \( t(167) = -0.95, p = .343, d = 0.15 \) (2nd year: \( M = 6.03, SD = 0.64 \); 4th year: \( M = 6.06, SD = 0.58 \)) (differences between means for paired- and independent-samples t-tests are due to inclusion of full sample in the independent samples t-tests) (see Figure 4.1). While these data are not fully longitudinal, so cohort effects may condition differences from 2nd to 4th year, these results suggest that entrants to ITE perceived initially lower levels of task demand of the profession, which then increased by 2nd year before remaining high into 4th year and into service (1st year in-service). While the initial increase in task demand was expected, the lack of a significant downward trend from 2nd year levels as despite further ITE was not anticipated.
It was also expected that self-perceived ability (a career choice motivation) and teacher efficacy and ICS (teacher dispositions) would increase over the course of pre-service training, before decreasing on entry into the field with the exception of ICS. This is due to the notion that skill-orientated constructs (i.e., ICS) would likely increase with practical experience. Constructs relating to self-belief (i.e., ability and teacher efficacy) are often questioned upon entry to the workforce (Buckworth, 2017). For clarity, the results of these analyses will be presented separately for each variable.

### 4.3.2 Ability, Teacher Efficacy and Interpersonal Communication Skills

Results of the paired-samples t-tests indicated no significant change from 1st to 2nd year ($t(83) = 0.96, p = .338, d = 0.15$), or from 4th year to in-service ($t(25) = 1.49, p = .150, d = 0.33$). On average, 1st year pre-service perceived their ability similarly ($M = 5.83, SD = 0.77$) to 2nd year pre-service ($M = 5.74, SD = 0.71$), while 4th year pre-service perceived their ability similarly ($M = 5.94, SD = 0.68$) to 1st year in-service ($M = 5.65, SD = 1.03$).

Independent-samples t-tests, however, indicated a significant difference between 2nd and 4th year ratings, ($t(165) = -2.22, p = .028, d = 0.26$) (2nd year: $M = 5.65, SD = 0.85$; 4th year: $M = 5.85, SD = 0.66$) (see Figure 4.2). While a significant increase in ability

**Figure 4.1** Task Demand Mean Scores across Time Points. * Indicates significant change.
ratings were observed from 2nd to 4th year as expected, contrary to expectations there were no identifiable changes in the rating of ability from 1st to 2nd pre-service or 4th pre-service to 1st in-service.

Figure 4.2 Ability Mean Scores across Time Points. * Indicates significant change.

4.3.2.2 Teacher Efficacy

Results of the paired-samples t-tests indicated a significant change from 1st to 2nd year \( t(85) = 3.70, p < .001, d = 0.11 \), and a significant change from 4th year to in-service \( t(25) = -5.11, p < .001, d = 0.12 \). On average, 1st year pre-service perceived their teacher efficacy as lower (\( M_{UT} = 4.97, SD_{UT} = 0.85 \)) than 2nd Year pre-service (\( M_{UT} = 5.05, SD_{UT} = 0.63 \)), while 4th year pre-service perceived their teacher efficacy as lower (\( M_{UT} = 5.10, SD_{UT} = 0.73 \)) than 1st year in-service respondents (\( M_{UT} = 5.18, SD_{UT} = 0.65 \)). Independent-samples t-tests indicated no significant difference between 2nd and 4th year ratings, \( t(165) = -1.14, p = .146, d = \) (2nd year: \( M_{UT} = 5.02, SD_{UT} = 0.66 \); 4th year: \( M_{UT} = 5.13, SD_{UT} = 0.63 \)) (see Figure 4.3). These results suggest that perceived teacher efficacy significantly yet modestly increased throughout ITE and into service.
4.3.2.3 **Interpersonal Communication Skills**

Results of the paired-samples t-tests indicated a significant change from 1st to 2nd year $t(85) = -3.99, p < .001, d = 0.04$, and a significant change from 4th year to in-service $t(25) = 3.14, p = .004, d = 0.23$. On average, 1st year pre-service perceived their ICS more highly ($M_{UT} = 4.78, SD_{UT} = 0.87$) than 2nd year pre-service ($M_{UT} = 4.75, SD_{UT} = 0.74$), while 4th year pre-service perceived their ICS as lower ($M_{UT} = 4.80, SD_{UT} = 0.82$) than 1st year in-service respondents ($M_{UT} = 4.98, SD_{UT} = 0.75$). Independent-samples t-tests indicated a non-significant difference between 2nd and 4th year ratings, $t(165) = -0.32, p = .752, d = 0.10$ (2nd year: $M_{UT} = 4.80, SD_{UT} = 0.75$; 4th year: $M_{UT} = 4.87, SD_{UT} = 0.70$) (see Figure 4.4). This suggests that there was a significant yet modest decrease in respondents’ perceived competence in ICS between their first and second years of ITE.

*Indicates significant change.

![Figure 4.3 Teacher Efficacy Mean Scores across Time Points](image-url)
Motivation to Teach

An additional expectation was that \( MTT \) would fall at points of transition, namely the two follow-ups at 2\(^{nd}\) year and more severely again at entry to service. All motivation has been identified as instable at times of readjustment to task realities (Kim & Cho, 2014; Watt & Richardson, 2012), and so this general motivational subscale was anticipated to decline at these points. Results of the paired-samples t-tests indicated a significant change from 1\(^{st}\) to 2\(^{nd}\) year \( t(87) = 5.17, p < .001, d = 0.21 \), and a significant change from 4\(^{th}\) year to in-service \( t(25) = -3.54, p = .002, d = 0.38 \). On average, 1\(^{st}\) year pre-service perceived their \( MTT \) more highly \( (M_{UT} = 5.44, SD_{UT} = 0.64) \) than 2\(^{nd}\) year pre-service \( (M_{UT} = 5.31, SD_{UT} = 0.59) \), while 4\(^{th}\) year pre-service perceived their \( MTT \) as more highly \( (M_{UT} = 5.40, SD_{UT} = 0.59) \) than 1\(^{st}\) year in-service respondents \( (M_{UT} = 5.15, SD_{UT} = 0.72) \). Independent-samples t-tests indicated no significant difference between 2\(^{nd}\) and 4\(^{th}\) year ratings, \( t(164) = -0.78, p = .440, d = 0.08 \) (2\(^{nd}\) year: \( M_{UT} = 5.30, SD_{UT} = 0.58 \); 4\(^{th}\) year: \( M_{UT} = 5.35, SD_{UT} = 0.60 \) (see Figure 4.5). This suggests that there was a moderate decrease in respondents’ perceived \( MTT \) over the course of ITE, continuing lower into service. However, contrary to expectations, 2\(^{nd}\) year were not significantly different from 4\(^{th}\) year ratings. While these data are not fully longitudinal, so cohort effects may condition differences from 2\(^{nd}\) to 4\(^{th}\) year, these results may suggest that

**Figure 4.4** Interpersonal Communication Skills Mean Scores across Time Points.

* Indicates significant change.

### 4.3.3 Motivation to Teach

An additional expectation was that \( MTT \) would fall at points of transition, namely the two follow-ups at 2\(^{nd}\) year and more severely again at entry to service. All motivation has been identified as instable at times of readjustment to task realities (Kim & Cho, 2014; Watt & Richardson, 2012), and so this general motivational subscale was anticipated to decline at these points. Results of the paired-samples t-tests indicated a significant change from 1\(^{st}\) to 2\(^{nd}\) year \( t(87) = 5.17, p < .001, d = 0.21 \), and a significant change from 4\(^{th}\) year to in-service \( t(25) = -3.54, p = .002, d = 0.38 \). On average, 1\(^{st}\) year pre-service perceived their \( MTT \) more highly \( (M_{UT} = 5.44, SD_{UT} = 0.64) \) than 2\(^{nd}\) year pre-service \( (M_{UT} = 5.31, SD_{UT} = 0.59) \), while 4\(^{th}\) year pre-service perceived their \( MTT \) as more highly \( (M_{UT} = 5.40, SD_{UT} = 0.59) \) than 1\(^{st}\) year in-service respondents \( (M_{UT} = 5.15, SD_{UT} = 0.72) \). Independent-samples t-tests indicated no significant difference between 2\(^{nd}\) and 4\(^{th}\) year ratings, \( t(164) = -0.78, p = .440, d = 0.08 \) (2\(^{nd}\) year: \( M_{UT} = 5.30, SD_{UT} = 0.58 \); 4\(^{th}\) year: \( M_{UT} = 5.35, SD_{UT} = 0.60 \) (see Figure 4.5). This suggests that there was a moderate decrease in respondents’ perceived \( MTT \) over the course of ITE, continuing lower into service. However, contrary to expectations, 2\(^{nd}\) year were not significantly different from 4\(^{th}\) year ratings. While these data are not fully longitudinal, so cohort effects may condition differences from 2\(^{nd}\) to 4\(^{th}\) year, these results may suggest that
MTT ratings do not recover to 1st year ratings during the remainder of ITE, instead remaining low after initial falls between 1st and 2nd year.

Figure 4.5 Motivation to Teach Mean Scores across Time Points. * Indicates significant change.

4.3.4 Intrinsic Career Value, Social Utility Value and Personal Utility Value

In relation to ICV and SUV (career choice motivations), it was expected that both would increase over time, though may decrease slightly at both follow-ups, while PUV (a career choice motivation) would increase throughout pre-service (i.e., with age). This distinction reflects the differences between intrinsically and extrinsically regulated motivations, which has been shown to react differently to changes in expectations (i.e., points of transition) (Le Maistre & Paré, 2010). For clarity, the results of these analyses will be presented separately for each variable.

4.3.4.1 Intrinsic Career Value

Results of the paired-samples t-tests indicated a significant change from 1st to 2nd year \( t(86) = 3.07, p = .003, d = 0.91 \), and a significant change from 4th year to in-service \( t(25) = 2.07, p = .049, d = 0.23 \). On average, 1st year pre-service perceived ICV more highly \( (M_{UT} = 6.07, SD_{UT} = 0.88) \) than 2nd year pre-service \( (M_{UT} = 5.89, SD_{UT} = .94) \), while 4th year pre-service perceived ICV as more highly \( (M_{UT} = 6.09, SD_{UT} = 0.89) \) than 1st year in-service respondents \( (M_{UT} = 5.86, SD_{UT} = 1.12) \). Independent-samples t-tests indicated
a significant difference between 2\textsuperscript{nd} and 4\textsuperscript{th} year ratings, $t(166) = -16.58, p < .001, d = 0.44$ (2\textsuperscript{nd} year: $M_{UT} = 5.74, SD_{UT} = 1.02$; 4\textsuperscript{th} year: $M_{UT} = 6.15, SD_{UT} = 0.83$) (see Figure 4.6). This suggests that there were significant decreases in respondents’ ICV at both follow-ups. As expected, these two time points represent times of transition into either ITE or service and correspond to these falls in ICV. However, no significant changes were observed in ICV between cohorts.

**Figure 4.6** Intrinsic Career Value Scores across Time Points. * Indicates significant change.

### 4.3.4.2 Social Utility Value

Results of the paired-samples t-tests indicated a significant change from 1\textsuperscript{st} to 2\textsuperscript{nd} year $t(88) = 2.11, p = .038, d = 0.11$, and a significant change from 4\textsuperscript{th} year to in-service $t(25) = -72.47, p < .001, d = 0.29$. On average, 1\textsuperscript{st} year pre-service perceived SUV more highly ($M = 5.87, SD = 0.74$) than 2\textsuperscript{nd} year pre-service ($M = 5.79, SD = 0.75$), while 4\textsuperscript{th} year pre-service perceived SUV as higher ($M = 5.96, SD = 0.61$) than 1\textsuperscript{st} year in-service respondents ($M = 5.76, SD = 0.76$). Independent-samples t-tests indicated a significant difference between 2\textsuperscript{nd} and 4\textsuperscript{th} year ratings, $t(167) = 9.64, p < .001, d = 0.38$ (2\textsuperscript{nd} year: $M = 5.69, SD = 0.82$; 4\textsuperscript{th} year: $M = 5.96, SD = 0.60$) (see Figure 4.7). This indicates that SUV may follow a similar change pattern to ICV. There were significant decreases in respondents’ SUV at both follow-ups (i.e., points of transition). Unlike ICV, the cross-sectional differences between 1\textsuperscript{st} year pre-service and 4\textsuperscript{th} year pre-service were found to
be significant, albeit modest. This suggests an overall increase in SUV ratings, with slight but significant decreases at transition points.

![Figure 4.7 Social Utility Value Scores across Time Points. * Indicates significant change.](image)

**4.3.4.3 Personal Utility Value**

Results of the paired-samples t-tests indicated a significant change from 1st to 2nd year $t(86) = 2.75, p = .007, d = 0.05$, and a significant change from 4th year to in-service $t(25) = -2.45, p = .021, d = 0.36$. On average, 1st year pre-service perceived PUV more highly ($M = 4.19, SD = 0.92$) than 2nd year pre-service ($M = 4.14, SD = 0.97$), while 4th year pre-service perceived PUV more highly ($M = 4.09, SD = 0.95$) than 1st year in-service respondents ($M = 3.73, SD = 1.03$). Independent-samples t-tests indicated a significant difference between 2nd and 4th year ratings, $t(166) = -7.12, p < .001, d = 0.02$ (2nd year: $M = 4.22, SD = 1.04$; 4th year: $M = 4.20, SD = 0.92$) (see Figure 4.8). This suggests that respondents’ PUV decreased over time. There were significant decreases in respondents’ PUV at both follow-ups, particularly at entry to service (as indexed by a larger effect size).
Correlations between Career Motivations and Teacher Dispositions

The following section will report on the findings of this study’s second research question: Is there a correlation between particular teacher dispositions and career choice motivations among pre-service and beginning teachers? It was expected that intrinsic/altruistic motivation subscales (ICV & SUV) would positively correlate with dispositions WIL, ICS and conscientiousness, as well as ability with teacher efficacy across both time points. Conversely, task return was expected to return a nil correlation with MTT when motivation subscales ICV and SUV were rated highly at both time points. More generally, other constructs noted in the literature for their protective factors (i.e., intrinsic and altruistic motivators) were anticipated to negatively associate with constructs associated with higher rates of attrition (i.e., extrinsic motivators). These expectations were investigated through bivariate correlations to identify the association among teacher disposition and career choice motivation variables. A full correlation table is presented at Table 4.4 for the 1st year cohort and Table 4.5 for the 4th year cohort.

**Figure 4.8** Personal Utility Value Scores across Time Points. * Indicates significant change.

### 4.4 Correlations between Career Motivations and Teacher Dispositions

The following section will report on the findings of this study’s second research question: Is there a correlation between particular teacher dispositions and career choice motivations among pre-service and beginning teachers? It was expected that intrinsic/altruistic motivation subscales (ICV & SUV) would positively correlate with dispositions WIL, ICS and conscientiousness, as well as ability with teacher efficacy across both time points. Conversely, task return was expected to return a nil correlation with MTT when motivation subscales ICV and SUV were rated highly at both time points. More generally, other constructs noted in the literature for their protective factors (i.e., intrinsic and altruistic motivators) were anticipated to negatively associate with constructs associated with higher rates of attrition (i.e., extrinsic motivators). These expectations were investigated through bivariate correlations to identify the association among teacher disposition and career choice motivation variables. A full correlation table is presented at Table 4.4 for the 1st year cohort and Table 4.5 for the 4th year cohort.

**Figure 4.8** Personal Utility Value Scores across Time Points. * Indicates significant change.
Table 4.4

*Correlations for 1st Year Cohort Subscales*

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*Note.* **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). Hypothesised correlations in bold.*
Table 4.5

*Correlations for 4th Year Cohort Subscales*

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<td>D. Conscient.</td>
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*Note.* **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). Hypothesised correlations in bold.*
4.4.1 ICV & SUV – Willingness, Interpersonal & Conscientiousness

Initial correlational analyses sought to investigate the expectation that *intrinsic career value* and *social utility value* (career choice motivations) would positively correlate with *willingness to learn* (WTL), *interpersonal communication skills* (ICS) and *conscientiousness* (teacher dispositions) at both 1st year and 4th year time points to similar degrees. Intrinsic motivations, such as *intrinsic career value* (ICV) and *social utility value* (SUV), are linked to more positive performance traits (Bastian, 2013; Cerasoli & Ford, 2014; Fraser, 2008; Kim & Cho, 2014; Roth et al. 2007). As such, these two motivational constructs are anticipated to relate to disposition constructs associated with highly accomplished teachers, such were WTL, ICS and conscientiousness.

4.4.1.1 Intrinsic Career Value

As anticipated, 1st year results indicated that there was a significant, but small to modest relationship for ICV with: WTL, \( r = .13, 95\% \text{ CI } [.00, .25], p = .040, R^2 = .02; \) ICS, \( r = .21, 95\% \text{ CI } [.09, .33], p < .001, R^2 = .04; \) and conscientiousness, \( r = .25, 95\% \text{ CI } [.12, .37], p < .001, R^2 = .06. \) While these associations were small in terms of the size of association, they were directionally in line with a priori expectations. Among the 4th year cohort, results also indicated that there was a significant relationship of ICV with: WTL, \( r = .27, 95\% \text{ CI } [.04, .50], p = .023, R^2 = .07; \) ICS, \( r = .42, 95\% \text{ CI } [.23, .59], p < .001, R^2 = .18; \) and conscientiousness, \( r = .41, 95\% \text{ CI } [.20, .59], p < .001, R^2 = .17. \) While moderate, these associations indicate that desired behaviours for teachers such as WTL, ICS and conscientiousness may be associated with intrinsic career motivations, with stronger associations evidenced within the 4th Year cohort. To evaluate the magnitude of this difference, a Fisher’s z-test was conducted for each disposition construct. The results showed a non-significant difference between cohorts for WTL (\( z = -1.06, p = .289 \)) and conscientiousness (\( z = -1.31, p = .190 \)), and significantly greater association for ICS, (\( z = -1.71, p = .044 \)). As such, while the association between disposition constructs WTL and conscientiousness and ICV remained similar between 1st and 4th year cohorts, 4th year respondents with strong intrinsic career motivation were more likely to rate their ICS higher than those in 1st year.
4.4.1.2  Social Utility Value

Results indicated similarly significant relationships among 1st Year pre-service between SUV and WTL, $r = .25$, 95% CI [.14, .36], $p < .001$, $R^2 = .06$, ICS, $r = .20$, 95% CI [.10, .32], $p = .001$, $R^2 = .04$, and conscientiousness, $r = .26$, 95% CI [.14, .39], $p < .001$, $R^2 = .07$. Results indicated similarly significant relationships among 4th Year pre-service between SUV and WTL, $r = .28$, 95% CI [.07, .49], $p = .019$, $R^2 = .08$, ICS, $r = .26$, 95% CI [.04, .46], $p = .031$, $R^2 = .07$, and conscientiousness, $r = .29$, 95% CI [.02, .51], $p = .017$, $R^2 = .08$. While small to modest, both cohorts demonstrated positive associations as expected. Fisher’s z-tests indicated non-significant differences in the correlations between SUV and WTL ($z = -.23$, $p = .818$), ICS, ($z = -.46$, $p = .645$) and conscientiousness ($z = -.24$, $p = .810$). This suggests that both intrinsic and altruistic motivations appear associated with positive self-reported teaching behaviours. However, certain positive behaviours (such as ICS) may become more strongly linked to intrinsic motivations toward the end of their ITE.

The assumed and apparent similarities in this hypothesis of the nature of ICV and SUV were confirmed by running additional correlation testing, which evidenced a medium association at 1st year, $r = .58$, 95% CI [.50, .68], $p < .001$, $R^2 = .34$, and again at 4th year, $r = .39$, 95% CI [.18, .61], $p = .001$, $R^2 = .15$. Results indicated that these two constructs were significantly associated, although to a greater degree at 1st year ($z = 1.82$, $p = .034$). This finding echoes the differences identified among the correlations between ICV and SUV and the three disposition constructs, where ICV was found to have one significantly stronger correlation (ICS) at 4th year.

4.4.2  Task Return – Motivation to Teach

It was expected that task return (a career choice motivation) would not correlate with MTT (a teaching disposition) when ICV and/or SUV (career choice motivations) were rated highly (above median) at both 1st year and 4th year time points, but would positively correlate when ICV and SUV were rated lowly (below the median) at both 1st year and 4th year time points. This association was anticipated as intrinsically motivated individuals are more likely to choose and persist in teaching (i.e., have a higher motivation to teach), while motivation through task return (e.g., salary, social status) alone has been identified as a strong dissatisfaction factor, resulting in lower levels of task motivation. As such, respondents were grouped as high or low on ICV and/or SUV
(i.e., above median in both or either construct), using a median split. In support of this hypothesis in the 1st year cohort, results indicated a significant relationship between task return and MTT in the 1st Year low ICV and/or SUV group, \( r = .21, 95\% \text{ CI } [.04, .39], p = .030, R^2 = .04 \), which represented a small association. There was no significant relationship found in the 1st Year high ICV and/or SUV group, \( r = .02, 95\% \text{ CI } [-.13, .16], p = .835, R^2 = .00 \). However, results indicated no significant relationship in either the 4th year low group, \( r = .11, 95\% \text{ CI } [-.26, .46], p = .599, R^2 = .01 \), nor the 4th year high group, \( r = .18, 95\% \text{ CI } [-.14, .51], p = .235, R^2 = .03 \). These results suggest that ratings of task return and MTT become somewhat associated among 1st year respondents with low ICV/SUV ratings, but not in those with high ICV/SUV ratings. While, contrary to expectations, no association was identified among the 4th year respondents with low ICV/SUV ratings, the 4th year high group returned non-significant yet similar-sized association and effect size results as the 1st year low group. This suggests that, in absolute terms, the comparatively smaller size in the 4th year cohort may have constrained detection of this association as significant. This is supported by the similar magnitude of the correlation at 1st year.

### 4.4.3 Ability – Efficacy

It was expected that ability (a career choice motivation) would positively correlate with teacher efficacy (a teaching disposition) at both 1st year and 4th year time points. These constructs both reflected theoretical assumptions that beliefs of task efficacy (i.e., beliefs in own capacity in task) would align with beliefs of ability (i.e., perceived capacity to accomplish task) (Morris et al. 2017; Rockoff et al. 2011). In partial support of this hypothesis, results indicated that there was a significant positive correlation between perceived ability and teacher efficacy in the 1st year cohort, \( r = .26, 95\% \text{ CI } [.15, .36], p < .001, R^2 = .07 \), which represents a small association. Whereas, contrary to expectations there was no significant correlation found between perceived ability and teacher efficacy in the 4th year cohort, \( r = .14, 95\% \text{ CI } [-.11, .38], p = .237, R^2 = .02 \). However, as previously mentioned, the current data are unable to determine whether ability and self-efficacy ratings reflect: (a) are genuinely unrelated by 4th year; and/or (b) a potentially significant, positive association obscured by relativistic judgements of ability within a smaller 4th Year cohort.
4.5 Summary

This chapter reported some of the significant changes across pre-service and in-service teachers in teacher disposition and career choice motivation, as well as the associations between some of these variables. It appeared that there are several significant changes throughout ITE and into service in both teacher disposition and career choice motivation, and that some of these did demonstrate significant associations with each other.

While respondents’ teacher efficacy increased throughout ITE and into service, task demand peaked at 2nd year and remained high into service. The construct ICS dipped at 2nd year before increasing into service, suggesting that skills-based behaviours were adjusted to reality before becoming stronger after ITE, in-service. Conversely, MTT and all three motivation types (ICV, SUV and PUV) fell at both follow-ups, though more severely from 4th year to in-service. This suggested that all motivations were affected by transitions and adjusted expectations.

Associations were identified between self-reported WTL, ICS and conscientiousness ratings and both ICV and SUV, though only the association between ICV and ICS changed significantly between 1st and 4th year. It was found that this association was significantly stronger at 4th year, possibly reflecting differences in how ICV and SUV develop during the course of ITE. An association between ICV and SUV was also identified. The strength of respondents’ ICV/SUV ratings was a factor in the association between task return and MTT. When ICV/SUV ratings were high, no significant association was present between task return and MTT in both high ICV/SUV 1st and 4th year groups. However, only the 1st year low ICV/SUV group returned significant associations between task return and MTT, suggesting that these two constructs become associated when ICV/SUV ratings are low in 1st year, but this is not the case in 4th year. Lastly, ability and teacher efficacy were positively associated in 1st year, though not among 4th year respondents. These results present avenues for further investigation, particularly around early career teacher attrition.

The subsequent chapter will discuss these findings by providing an initial overview. These findings will be discussed in relation to the broad findings of this study. The chapter will then outline the limitations of the study and discuss implications for practice and for future research.
Chapter Five: Discussion

5.1 Introduction

This study aimed to investigate changes in, and associations between, career choice motivations and teacher dispositions across pre-service and early in-service stages of teaching. The previous chapter outlined the results of hypothesis-driven investigations into: (1) changes in teacher dispositions and career motivation over the course of teacher training and entry to field, by focusing on key times of transition and change; and (2) changing inter-reations between dispositions and motivations over this time. This chapter discusses the findings of the study and their implications for understandings of how disposition and motivation may interact amongst pre-service and early in-service teachers at keys points of transition. An overview of findings is presented for each transition point, followed by implications for practice and future research. Finally, this chapter concludes with a discussion of the limitations of the study, a summary of implications and future recommendations and then a general statement of conclusions.

5.2 Overview of Findings

The results outlined in the previous chapter investigated specific self-reported dispositions and motivations pertaining to teaching. Several significant findings emerged when results were considered at three specific time periods, encompassing the process of entry to ITE, undertaking ITE and entry to service. These findings are synthesised and discussed in the following sections.

5.2.1 Entry to Pre-service: 1st to 2nd Year

One of the study’s cohorts was first surveyed in the first two weeks of ITE and again one year later. During this time, the cohort transitioned from mostly recently graduated high school students under 20 years of age, to pre-service teachers with approximately 26 weeks of ITE and four weeks of professional experience (PEx) teaching in NSW schools. During this time, task demand and teacher efficacy ratings increased, while ability remained stable and ICS decreased. However, variables relating to task value \((MTT, ICV, SUV \text{ and } PUV)\) all decreased. This appears to indicate that while respondents remained generally confident in their capacity to teach, with an increased awareness of its demands, their interest in teaching fell during their first year of ITE.
5.2.1.1 Task Demand, Teacher-Efficacy, Ability and ICS

As expected, perceptions of task demand and teacher efficacy had increased by 2nd year, suggesting that while respondents felt teaching was a more difficult profession than they had initially conceived, their belief in their ability to effectively teach had also increased. This suggests that their ITE program may have provided enough exposure to the realities of a teaching career, while simultaneously providing its students with the knowledge and experience to build their sense of teacher efficacy (i.e., belief in personal and professional ability to affect student learning). These findings lend support to research that ‘reality shock’ (or expectation-reality conflict) at transition points may be mitigated by providing support to deconstruct unrealistic expectations while simultaneously providing practical skills to meet new task challenges (Constantine, 2017; Lanas & Kelchtermans, 2015). Within RAA, these features of ITE allow respondents’ expectancies of success (i.e., evaluation of ability to succeed) to remain high for teaching, as the perceived norm (i.e., social pressure related to behaviour) and perceived behavioural control (i.e., capacity beliefs) remain positively orientated toward persisting at teaching (Ajzen, 1991; Fishbein & Ajzen, 2010).

Systematic reflective practice, facilitated through practical teaching experiences, have been linked to adjustments to such teaching expectancies, attitudes and beliefs (Korthagen et al. 2013; Farrell, 2016). Adjustments such as these are likely larger, accurate and permanent if done in response to actual experiences (Korthagen et al. 2013), reflected in the central role of actual control as an environmental factor in the RAA model (Fishbein & Ajzen, 2010). The respondents in the current study therefore likely benefited from experiencing teaching first-hand within the first year of their ITE. These experiences, in addition to coursework and the ITE environment, would have been key contributors to the increase in their ratings of task demand. As sources of efficacy, opportunities for mastery experience, vicarious experience, verbal feedback and emotional arousal were likely present in these early practical experiences and were reflected in increased ratings of teacher efficacy (Bandura, 1997; Pendergast et al. 2011). As no ‘reality shock’ appeared to decrease respondents’ ratings, it is also probable that respondents were led to anticipate challenges and changes to their perceived efficacy as teachers (Pendergast et al. 2011). This presents early PE as a potentially vital factor in prompting respondents to adjust personal expectations of teaching while maintaining high expectancies of their eventual success. Future research
to longitudinally examine the amount and quality of PEx during ITE in relation to efficacy would allow further insight into the development of this disposition.

Conversely, unlike the increase anticipated, ability ratings remained stable during this time. However, this does not preclude the possibility that objective ability did change over this period. That is, the current data are unable to determine whether these results reflect: (a) genuinely constant levels of ability (i.e., that respondents did not become any more capable to teach across their degree); (b) an increasing alignment between perceived ability and increasing actual ability (such that initial estimates are likely higher than actual ability); and/or (c) relativistic judgements of ability at each time point, in comparison to year-level peers, that obscured any increases in objective ability levels (e.g., perceptions of more or less capability remained at constant levels relative to cohort peers). As it is unlikely that ability levels did not change, it may be that respondents’ ability ratings may have become better aligned with reality over the course of learning, as evidenced in metacognitive research (Schraw & Gutierrez, 2015).

Alternatively, self-reported (and other-reported) ability is not developmentally sensitive, as these ratings exist within the reference of similar peers (i.e., ability representative of an average pre-service teacher). It is likely that some combination of these two factors obscured ability change, as increases in teacher efficacy seen during this same time period would be unlikely if respondents believed their teaching ability had not also increased. This supports that respondents were supported to remain confident in their capacity to teach, while simultaneously adjusting their perceptions of teaching’s demands.

Additionally, ICS ratings declined modestly in this period, rather than increasing as expected. While a general increase in ICS from pre-service to in-service was anticipated, resulting from benefits of learning and instruction on communication ability, the significant decrease among 2nd year pre-service teachers’ perceptions of their ICS may evidence the distinction between knowing about effective communication methods and being able to put them into practice. Experiential learning methods, many involving reflective practice, have been noted for their effectiveness when opportunities for overt modelling and systematic feedback are provided (Kurtz, Silverman, & Draper, 2005). However, given that increases in task demand and teacher efficacy suggested PEx or other ITE factors had provided respondents with opportunities to enhance these variables, the decrease in ICS may suggest opportunities to develop this specific
disposition were not as prevalent during the first year of ITE. It may be that ICS is best developed through alternative learning methods, such as problem-based learning or didactic methods (Kurtz et al. 2005). As such, it may be that PEx does not afford enough opportunity for repeated practice and rehearsal (relevant, given the ever-changing nature of a real classroom), or systematic problem-solving discussion that can tailored to pre-service teachers’ specific needs and pace to develop the strong communication skills required of pre-service teachers during PEx. Thus, this decrease in self-reported ICS may indicate a weakness in the first year of ITE training, which resulted in lowered perceptions of ICS. A decrease in ICS did not appear to impact respondents’ overall perception of teacher efficacy at this stage, making this decrease more likely to reflect weaknesses observed in actual communication rather than perceived self-doubt in their ability to communicate. As peer-, supervisor- and parental-communication has been identified as an area of concern for early career teachers once in-service (Mayer et al. 2013; Struyven & Vanthournout, 2014), future research would be needed to examine the effectiveness of different methods in developing pre-service teachers’ communication skills. The potential use of ICS as a screening tool for ITE candidates should also be examined, as the present study indicates that ICS levels prior to ITE entry may not be a good predictor of ICS levels within ITE.

The drive for pre-screening prospective pre-service teachers beyond academic entry scores has been established (AITSL, 2015; O’Neill et al. 2014; Rockoff et al., 2011). The findings of this study suggest that precluding prospective ITE candidates based on perceptions of task demand or self-efficacy may be premature as, on average, these constructs increased over the course of first year of ITE. That said, future research is needed to identify whether certain task demand or self-efficacy beliefs (e.g., pervasive self-doubt that prevents an ITE candidate from being open to new learnings and experiences or levels), at an individual level, may preclude this general trend of positive change. By identifying that both task demand and teacher efficacy rose during the first year of ITE, this study showed that pairing sufficiently high-quality pre-service training with the inevitable new role information from ITE may indeed foster an increased sense of capacity in respondents. This is an important finding, as teachers’ self-efficacy has been identified as a vital factor in both their performance and resilience (Morris et al. 2017; Pas, Bradshaw, & Hershfeldt, 2012; Pfitzner-Eden, 2016). Future research to identify the specific aspects of ITE during the period that protect against increasing
perceptions of task demand, and foster teacher efficacy, could further support these positive and protective changes.

5.2.1.2 Motivations

Respondents’ overall motivation to teach (MTT) decreased during this period, suggesting that they saw themselves as less committed to attaining a sense of accomplishment from work in teaching after one year of ITE. This fall was matched in decreased ratings in all three motivational constructs, intrinsic career value (ICV), social utility value (SUV) and personal utility value (PUV) in this period. While overall ratings remained relatively high for MTT, ICV and SUV and moderate for PUV, this suggested that all motivations to teach, regardless of motivation type (i.e., intrinsic, altruistic and extrinsic), were rated lower after a year of ITE. This finding is supported by research showing that motivation undergoes a degree of ‘reality shock’ to adjust to new task realities (Burke et al., 2015; Constantine, 2017). After a year of ITE, while respondents felt more capable to teach (higher teacher efficacy ratings), they rated the overall value of teaching to them as lower. This may be related to the increased task demand ratings, which interact with task return to evaluate overall value in expectancy-value theory (Eccles & Wigfield, 1995). When task return does not increase with task demand, overall value will likely fall regardless of how capable the respondent rates themselves, which could present issues relating to ITE attrition (Eccles, 2005a). A decrease in task return (i.e., salary, social status) is likely, given respondents’ new experiences with teaching in which its demands (i.e., difficulty and expertise required) were found to be higher than initially perceived upon entry to ITE (see section 5.2.1.1). This is further supported by findings that increased task value leads to long-term benefits of task persistence more so than expectancies of success (Fernet et al. 2017). While increased expectancies of success are predictors of actual achievement (Wigfield et al. 2009), lowered task value ratings indicate that these pre-service teachers may be more likely to leave ITE due to the impact of ‘reality shock’ upon the value of teaching, rather than their feelings of ability to teach.

Self-determination theory extends this finding further, by identifying factors specific to motivational type that may prompt a fall in task value (Ryan & Deci, 2009). For instance, respondents primarily motivated by extrinsic factors would become less motivated if these factors (e.g., time for family, job security, job transferability) are removed or unlike what was anticipated (Roth, 2014). Conversely, respondents
primarily motivated by altruistic or intrinsic factors would have integrated the task into their sense of selfhood or come to purely enjoy the task itself. These factors would be weakened should opportunities to feel autonomous, competent and related become threatened by environments in which imposed goals, overwhelming challenge or a lack of support were present (Cook & Artino, 2016). Not accommodating these factors could have therefore resulted in a dip in the reported value of teaching to respondents, while their confidence in their capacity (i.e., ability and teacher efficacy) and sense of career demands (i.e., task demand) increase. Though reported motivations to teach were still relatively high, whether these early dips in value significantly affect pre-service teachers’ outcomes or wellbeing would need to be investigated in further longitudinal research. While ITE programs may not be able to negate weakening in extrinsic factors, the introduction of course structures to support pre-service teachers’ sense of autonomy, competence and relatedness could be explored to maintain or strengthen entrants’ intrinsic and altruistic motivations to teach. As altruistically and intrinsically motivated teachers report higher levels of satisfaction, perseverance and competence (Fernet et al. 2009; Kim & Cho, 2014; Moller et al. 2006), supporting these motivations throughout ITE would appear to be a potential way to instil and strengthen these qualities in pre-service teachers. Future research examining such links could provide insights into the value of motivation as a screening tool for ITE candidates over present moves toward specific dispositions.

5.2.2 Undertaking Pre-service: 2nd Year to 4th Year

In comparing the cohorts, an estimate (albeit confounded by cohort and year) permitted tentative evaluation of changes from early (2nd) to 4th year pre-service. During this time, pre-service teachers complete an additional 78 weeks of ITE and seven weeks of PEx from 2nd year. The 4th year respondents were about to enter their final PEx, a six-week internship, which leads directly to casual or part-time work opportunities for many (or permanent work for a few). During this time, task demand, teacher efficacy and ICS remained stable. Only ability was rated more highly between these two time points. Overall MTT dispositions remained stable, but both ICV and SUV ratings increased, while PUV ratings decreased over this period. This appears to suggest that while respondents’ perception of the difficulty of teaching and their ability to meet these challenges remained relatively similar, specifically intrinsic and altruistic motivations to teach rose as extrinsic motivations decreased.
5.2.2.1  **Task Demand, Teacher-Efficacy, Ability and ICS**

As expected, respondents’ perceived *ability* was rated higher by 4<sup>th</sup> year than 2<sup>nd</sup> year respondents. However, *teacher efficacy* was rated similarly at both time points, rather than higher at 4<sup>th</sup> year as expected. This is the reverse pattern to that seen from 1<sup>st</sup> to 2<sup>nd</sup> year, within the 1<sup>st</sup> year cohort. Further, given that both constructs relate to self-concept, it was expected that *ability* and *teacher efficacy* should be rated similarly due to their theoretical similarities (Bandura, 1977; Fishbein & Ajzen, 2010). While initially counter-intuitive, it should be noted that the current data are unable to discount cohort effects that might influence this finding. That is, as ability would likely rise with ITE, this finding may not imply that pre-service teachers’ *teacher efficacy* does not change during this time period (but instead may reflect some difference between cohorts, such as the 2<sup>nd</sup> year group rated these factors for the second time while the 4<sup>th</sup> year group was rating these factors for the first time). Conversely, given that positive correlations were found between *ability* and *teacher efficacy* in 1<sup>st</sup> year but not in 4<sup>th</sup> year, it may be that perceptions of ability and task-efficacy diverge (e.g., become more nuanced and multifactoral) across ITE. For instance, while 4<sup>th</sup> year respondents may develop an understanding that they are capable of teaching through ITE coursework, assessment and PEx, they may still doubt their capacity to teach upon entry to service – with its increased expectations and responsibilities – which is near and prominent in their minds.

Ratings of *ICS* and *task demand* were similar at both time points. This may again be due to cohort effects that obscured genuine change or, conversely, it may indicate pre-service teachers’ perceptions of *task demand* remained at the heightened level that occurred over the first year of study. Supporting the latter possibility, inclusion of three weeks of PEx in 1<sup>st</sup> year may have adequately adjusted respondents’ perceptions of *task demand* from which no further increase was necessary to reflect any unexpected realities of teaching (at least not until the realities of full-day teaching sustained over longer periods on entry into the field). By this time, most respondents would have formed supportive networks of peers and staff, a factor which has been found to reduce ‘reality shock’ and perception of demand (Kim & Cho, 2014; Morris et al. 2017). It is thus plausible that these protective factors may keep *task demand* ratings stable in spite of increases in content difficulty and skill expectations across ITE. This could also be true of the stable ratings of *ICS* (although the possibility that *ICS* ratings drop in 1<sup>st</sup> year
and remain low due to inadequate opportunity for development during ITE cannot be conclusively ruled out in the current study).

### 5.2.2.2 Motivations

Ratings of ICV and SUV were higher in 4\textsuperscript{th} year respondents, suggesting that those who continued in ITE (after attrition of those who chose not to finish the degree) were more intrinsically and altruistically motivated at this time point. This recovery of ICV and SUV from a drop in 2\textsuperscript{nd} year, if genuine and not a function of cohort effects (which is a caveat of all cross-sectional research in the absence of large-scale, extended longitudinal data), supports research which finds intrinsic or altruistic motivators are more likely to increase with feedback, supportive relationships and professional experimentation to remedy ‘reality shock’ (Burke et al. 2015; Constantine, 2017). This suggests that respondents’ ITE program may emphasise strengthening factors (e.g., choice, personal agency, optimal challenge, positive feedback, inclusion or respect) in the later years of its coursework (Cook & Artino, 2016), as it is unlikely that erosive factors (e.g., deadlines, imposed goals, negative feedback, or criticism) would be completely absent from any undergraduate setting. Alternatively, a growing familiarity with teachers’ work may have prompted more respondents to feel intrinsically and/or altruistically motivated to teach (Hong, 2012). As such, strengthening factors for such motivations may have been present from the outset of the course, but simply not relevant to more extrinsically-motivated respondents at the time (2\textsuperscript{nd} year).

While MTT was rated similarly highly from 2\textsuperscript{nd} to 4\textsuperscript{th} year, PUV was more highly rated by 2\textsuperscript{nd} year respondents, supporting findings that this construct may interact differently with factors in coursework, such as social support. As PUV represents extrinsic motivators, a teaching career motivated by external factors is unlikely to be as internalised into respondents’ sense of selfhood as intrinsically or altruistically motivated respondents (Ryan & Deci, 2009). The most vital feature of self-determination theory is that the greater an act is internalised and integrated within the individual’s sense of self (i.e., autonomous), the more intrinsically motivated they become to enact it (Eccles & Wigfield, 2002). Tasks that do not meet these needs and are externally regulated set up the conditions for alienation and psychopathy, producing less productive and adaptive individuals (Deci et al. 1999) and has been linked to task attrition (Hobson & Maxwell, 2017; Kaplan & Madjar, 2017). This holds implications for ITE, not only in regard to how pre-service and early career teachers’ self-concept
and goals may direct their expectancies of success, but also how their value beliefs for teaching can be distinguished and understood. For instance, motivation type may be a viable target to help identify pre-service teachers more at risk of attrition, although further research specifically aimed at evaluating this possibility is required. In expectancy-value theory, the type of motivation should be irrelevant to performance or persistence if there remains greater value in the task than cost for the individual (Johnson & Safavian, 2016). However, certain motivational orientations have been identified as leading to higher levels of performance and persistence than others (Moller et al. 2006; Roth et al. 2007; Ryan & Deci, 2009). This suggests pre-service teachers may need to not only be highly motivated to teach, but motivated toward particular gains in order to perform and persist as an effective teacher. Further longitudinal study of these orientations and teacher attrition would help to identify the value in these motivations in ITE programs.

5.2.2.3 Correlations

Over this time period potential changes in correlations between teacher dispositions and career choice motivations in 1st and 4th year respondents were also investigated. As expected, it was found that both ICV and SUV correlated with the teacher dispositions of ICS, willingness to learn (WTL) and conscientiousness at both 1st and 4th year. That is, respondents’ ratings of their intrinsic and altruistic motivation to teach were associated with their self-reported behaviours relating to a range of desirable teacher dispositions also identified by several investigations of quality teachers (AITSL, 2015; NCATE, 2008; O’Neill et al. 2014). It was also confirmed that these two motivational constructs, ICV and SUV, were also positively associated. This finding is supported by research in which intrinsic and altruistic motivations serve similar functions and lead to similar short- and long-term outcomes (Grant, 2008). However, while altruistic or prosocial motivation has at times been considered a type of intrinsic motivation (Mintrop & Ordenes, 2017), they can be distinguished by the primary drive for expending effort; namely interest or enjoyment in intrinsic motivation and a desire to benefit others in altruistic motivation, respectively (Ryan & Connell, 1989). The finding of this motivational association with teacher dispositions WTL, ICS and conscientiousness is a novel finding in the literature. While no evidence could be found in support of or in opposition to this specific finding, given the dearth of research linking motivation and disposition, this finding is tentatively supported by literature establishing links between
other related dispositions (i.e., agreeableness, empathy and helpfulness) with intrinsic motivation in non-teaching contexts (Finkelstein, 2009; Grant & Berry, 2011; Liang & Chang, 2014). This finding carries implications for both admission and assessment in ITE, as it suggests that some dispositions could be broadly assessed through motivation. Given the changes observed in disposition ratings after ITE entry in the current study, it may be that specific dispositions may not remain stable enough to infer future performance in ITE and into service. As such, candidate and pre-service teachers’ motivations toward teaching may be better suited for the purpose of assessing pre-service teachers’ development of effective teacher dispositions. However, as illustrated by the current study and existing motivational theory (Cook & Artino, 2016; Deci & Ryan, 2008; Twenge & Campbell, 2016), motivations are capable of change over time, bringing the validity of screening ITE candidates based on non-academic capabilities such as disposition or motivation into question. Further research to identify if alternative motivational constructs could associate with dispositions, while also remaining more stable than motivation type (i.e., intrinsic, altruistic, extrinsic) is needed. Achievement goal theory presents one alternative motivational construct that may be used in such a way, as goal orientation (mastery versus performance) can be used to infer behavioural patterns for learning and attrition (Parker et al. 2012; Senko et al. 2011). However, research suggests that even orientations can be purposefully acquired over time (Dweck, 2000; Wentzel, 2015), implying that most non-academic capabilities may be acquired under favourable conditions. To ensure that positive teacher outcomes are as a result of ITE candidates’ initial motivations or orientation, and not just a reflection of how these were catered to within specific ITE programs, further longitudinal research examining these initial motivational factors would also be required.

Indeed most of the associations identified in this study did not differ significantly between cohort groups. However, it was found that the teacher disposition ICS was more strongly associated with ICV at 4th year. It may be that at 4th year, respondents with intrinsic motivations have applied themselves more to ITE coursework to achieve higher levels of competence, whether actual or perceived. This finding is supported by literature aligning intrinsic motivations with mastery goal orientations (Cook & Artino, 2016; Kim & Cho, 2014; Lee, McInerney, Liem, & Ortiga, 2010), linked with increased task competence and persistence (Moller et al. 2006; Ryan & Deci, 2009), both of which would require and develop ICS. This implies that the stronger association found
at 4th year likely represents actual, rather than perceived, ICS dispositions. Additionally, intrinsic motivations have been linked to increased novel problem-solving (Grant & Berry, 2011), levels of agreeableness (Graziano, Habashi, Sheese, & Tobin, 2007; Liang & Chang, 2014), and empathy and helpfulness (Finkelstien, 2009; Penner, Dovidio, Piliavin, & Schroeder, 2005). These links provide additional support to the finding that ICV would likely become more associated with ICS as ITE is undertaken. This finding suggests that pre-service teachers with strong intrinsic or altruistic motives to teach are more likely to align their behaviours with more positive teaching dispositions. Research suggests that these teachers would also be more likely to persist at their teaching career during their early career due to their more constructive and persistent form of motivational regulation (Moller et al. 2006; Ryan & Deci, 2009).

This association was conditioned, however, by positive associations found between task return (i.e., status and salary) and MTT in 1st year, but only in respondents with low ICV and/or SUV ratings. No associations were found in either 1st year or 4th year between task return (i.e., status and salary) and MTT when ICV and/or SUV ratings were high. While recent research has presented extrinsic and intrinsic motivations as far from diametrically opposed, and can occur simultaneously (Cerasoli, Nicklin, & Ford, 2014; Lee et al. 2010), extrinsic motivations have been found to erode the benefits of intrinsic motivation by leading to low task engagement, avoidance of assistance and procrastination (Cook & Artino, 2016; Lee et al. 2010). Beyond negative outcomes, extrinsic motivations have also been consistently found to be less powerful determinants of behaviour than intrinsic and pro-social altruistic motivators (Mintrop & Ordenes, 2017; Schunk, et al. 2014; Yeager & Dweck, 2012). This suggests that ITE entrants with broadly intrinsic or altruistic motivations are more likely to be aware of and may display positive dispositional behaviours in their course than their broadly extrinsically motivated peers. However, as discussed above, these motivations and associated orientations are not fixed and may be developed during ITE. As the current study indicates respondents were able to become more intrinsically and altruistically motivated during ITE, it may be assumed that this program exposed respondents to inherent joys of teaching (intrinsic motivators), as well as the social and individual benefits of teaching (altruistic motivators) in order to facilitate this increase. These factors would likely impact how they approach each learning task, with a mastery-orientated or intrinsic approach leading to far more engaged, persistent and satisfied
learners (Cook & Artino, 2016; Johnson & Safavian, 2016; Schunk et al. 2014). This suggests that it was important that respondents were able to view teaching as an ability which they could acquire through training (i.e., a mastery-orientation). As positive teaching dispositions and behaviours appear associated with a mastery-goal orientation, the short- and long-term benefits of this motivational orientation are more likely to be exhibited within ITE programs that advocate and support intrinsic or altruistic motivations to teach.

Given that the correlation found in the 4th year cohort was positive (yet non-significant) it is possible that the relativistic judgements used to rate ability in these data also did not allow its correlation with teacher efficacy to be evidenced. This suggests that while not evidenced in self-reported 4th year ratings, self-perceived ability and teacher efficacy would likely also be significantly and positively associated in the 4th year cohort. This finding is supported by literature in which behaviour is altered by changing efficacy beliefs (i.e., perceived behavioural control) by respondents’ evaluating skills and abilities (Fishbein, 2008) and theoretical linkages between these two terms (Bandura, 1977; Fishbein & Ajzen, 2010). For potential use in planned candidate screenings (AITSL, 2015), associations between actual ability and ratings of perceived ability and teacher efficacy would need to be explored further to establish the effects of relativistic judgements upon these constructs. This would allow observations to be compared with pre-service teachers’ own self-reported ratings, providing not only greater theoretical insight into these constructs but also an opportunity for thorough and insightful development of teaching dispositions in existing pre-service teachers. Also, with the aim of aiding attempts to screen ITE candidates, further research to examine the actual communication skills of pre-service teachers in the field would help to interpret the decline and stagnation of ICS ratings identified in this study. This would aid to identify any deficiencies in current ITE programs which may lead to lowered perceived ICS among pre-service teachers. Further research would also need to examine the longitudinal implications for motivation type, on both disposition and attrition. This would help to establish the degree to which motivations could be used to predict behaviour.
5.2.3 Entry to In-service: 4th Year to 1st Year

Inclusion of a second, 4th year cohort during their final month of ITE coursework, allowed examination of changes across another key transition period: between a final six-week PEx internship concluding their ITE and one year later, four months into the new school year. By this latter time point, respondents had completed approximately 104 weeks of ITE coursework and 15 weeks of PEx, in addition to casual or part-time teaching work since PEx (as pre-service teachers may apply to work in schools during their last session of ITE). Thus, at least some of the realities of the teaching profession would be expected to become clearer by this latter time point. During this time, task demand and ability remained stable, while teacher efficacy and ICS increased. However, all variables relating to task value (MTT, ICV, SUV and PUV) decreased again upon entry to service, just as they did upon entry to ITE. This appears to indicate that while respondents became more confident in their capacity to teach, and despite adequately accurate perceptions of teaching’s demands, respondents were less motivated to teach during their first six months in-service.

5.2.3.1 Task Demand, Teacher-Efficacy, Ability and ICS

No significant changes were identified in task demand ratings between 4th year pre-service and 1st year in-service. The absence of any significant change to these levels from 2nd year onwards suggests that the adjustment of participants’ task expectations, to levels that remained accurate in the first year of entry to the field, may have occurred mostly in the first year of ITE. This finding contradicts literature that positions entry to service as a time requiring the most adjustment to the realities of teachers’ significant workload (Billingsley, Carlson, & Klein, 2004; Pillen et al. 2013; Stevens et al. 2007), as this study’s findings indicate that this process was well underway within pre-service. Few studies consider demand from early ITE, with most examining this construct at late ITE for comparison to in-service perceptions, or merely measuring perceived differences upon reflection once in-service. This first year in-service, known colloquially as a ‘baptism by fire’ (Miller, 2012), has not been found to generally require an objectively higher level of effort than later teaching years (OECD, 2012). Rather, it is early career teachers’ expectancies upon themselves that result in the observed burnout and attrition from the profession (Constantine, 2017; Lanas & Kelchtermans, 2015). However, this was not reflected in the findings related to ability
or capacity in this study, and where no significant change in task demand level was identified between final year pre-service and entry to service. While the data was unable to identify later changes to task demand, it does suggest that by the end of their ITE training, respondents appeared to have significantly adjusted their expectations of task demand from 1st year ratings to hold a seemingly more realistic expectation of a professionally, physically and emotionally demanding teaching workload. This indicates that ITE, particularly its first year, had a strong impact upon respondents’ perceptions of the demands of a teaching career. As such, early career teachers’ inadequate perceptions of what teaching will require of them (Stevens et al. 2007; Pillen et al. 2013) is not evidenced in this study.

Teacher dispositions teacher efficacy and ICS both increased in-service, despite a decrease being expected due to the effects of ‘reality shock’ (Delamarter, 2015; Kim & Cho, 2014). A rise in ICS was particularly unexpected, as this study found no increase in ICS ratings at any time during ITE after an initial decrease from 1st to 2nd year. This suggests that far from shaking respondents’ confidence in their own communication skills, entry to service may have provided experiences that increased their intention to perform related behaviours in their teaching. This finding confirms that opportunities to develop this specific disposition may not have been as prevalent during ITE, and additionally, such opportunities may have been presented once in-service. This supports the notion that experiential learning methods (i.e., learning while doing) and reflective practice may be more effective for communication skills (Fantilli & McDougall, 2009; Harding, 2015; Kurtz et al. 2005). In addition to a closer examination of the aspects of in-service entry which prompted this increase, future research to longitudinally examine perceived ICS versus actual ICS may discount the effect of self-doubt on this finding. However, given the increases to teacher efficacy also identified during this time, it seems likely that respondents captured an actual increase in their communication skills. This suggests that some dispositions currently slated for as potential screening criteria for ITE entry and possible summative assessment may develop more meaningfully once in-service.

Again, although ability self-ratings remained constant, as in the 1st year cohort, it was not likely that ability levels remained static. Instead, ratings may have been in relation to their cohort-group (e.g., ability is about average for a 4th year teacher). Indeed, these respondents rated their teacher efficacy higher upon entry to field than in the final year.
of ITE. This finding contradicts literature positioning entry to service as a time of readjustment and self-doubt for early career teachers (Stevens et al. 2007; Pillen et al. 2013). Early career teachers may be leaving the teaching profession, but this finding of entry to service prompting higher ratings of ICS and teacher efficacy with no increase to task demand suggest that other value-related factors (e.g., lack of interest or other prospects) were perhaps in action. Further investigation into ability, teacher efficacy and actual ability should be a focus of future research, so to better understand how these two constructs interact by excluding the effect of relativistic judgements.

5.2.3.2 Motivations

Despite the relatively static, increasing or improving dispositions on entry to the field in the current study, all motivation-related variables invariably showed decline over the same period of time. This suggests that respondents’ ratings were not simply high overall and rather did reflect real differences in their perceptions. These differences indicate that task value-related factors may contribute more to early career teacher dissatisfaction and attrition than disposition-related factors. Specifically, it was found that ratings of MTT, ICV and SUV were all lower at 1st year in-service. This decrease was anticipated, and is supported by literature which identifies teachers’ early careers as a period of ‘reality shock’, where expectations and reality are negotiated to form new expectancies of success and value for the task (Cook & Artino, 2016; Eccles, 2005a). However, the current study suggests that this ‘reality shock’ experienced during the transition process affected task value, rather than respondents’ capacity beliefs or expectations of success. Attrition research has begun to identify the most damaging expectations as relating to early career teachers’ own conceptions and subsequent expectations of care and teaching impact (i.e., how much benefit they will provide students) (Barnes, 2017). These identified expectations echo altruistic motivators to teach, perhaps accounting for the decrease in SUV and perhaps even the related motivation ICV. These motivational conceptions relate to self-concept, another key factor of expectancy beliefs (Cook & Artino, 2016), in which individuals are motivated to undertake tasks that affirm their self-concept. Such self-concept would likely be a stronger factor in pre-service teachers’ motivation to teach later in their ITE training, due to years identifying as a pre-service teacher, experiencing PEx and acquiring higher levels of ability in the task. This implies that the unrealistic expectations associated with early career teacher attrition may not be exclusively based within the realities of early
career teachers’ increased workload, but rather their own expectations of their performance as a teacher (Constantine, 2017; Lanas & Kelchtermans, 2015). However, the ratings of PUV were also found to be lower in 1st year in-service, although this was not anticipated as extrinsic motivators (e.g., job security/transferability, time with family, etc.) were thought to be finally realised during this time period after ITE. However, like at previous transition points, it is likely that extrinsic motivators were lowered due to increased familiarity with the nature of teaching leading to more intrinsic/altruistic motivators (Hong, 2012) and the attrition of extrinsically motivated pre-service teachers prior to graduation (Watt & Richardson, 2008). In addition to increased ratings of task demand and teacher efficacy ratings in 1st year in-service, implying that (as in 1st to 2nd year transition, see section 5.2.1) it was more likely that respondents’ perceived value for teaching had declined since entering the profession rather than their perceptions of capacity or task demand. Given that all motivation decreased over this time period, further research to investigate potential associations between motivation type and attrition is needed, particularly at this crucial transition to service from ITE. Particularly for PUV, its observed overall decrease in this study is supported by self-determination literature which identifies extrinsic motivators as less integrated into individuals’ self-concepts, and therefore are responsive to changes in external factors that are associated with attrition, and are lesser determinants of task persistence than intrinsic motivators (Cook & Artino, 2016; Fernet et al. 2017; Mintrop & Ordenes, 2017). Extrinsic motivations are also common among performance orientations, in which low-effort goals are sought to maintain task confidence and perseverance as failures are deemed to confirm a lack of a fixed aptitude, causing goals to be relinquished quickly (Cook & Artino, 2016; McCoach & Flake, 2018). Such orientations would therefore place graduates at increased risk of attrition, unless these individuals could be re-orientated to view teaching as an acquirable ability, with intrinsic and altruistic value, through providing supports that optimise feelings of autonomy, competence and relatedness. As discussed, the associations identified between dispositions and motivational factors indicate that motivation may serve a role in present moves toward dispositional assessment among teachers. However, the current study also found that both these constructs were capable of change over time, thus raising the question of whether screening ITE candidates based on their dispositions or motivations would be a valid
measure of candidates’ future potential. Rather, ITE programs may be able to facilitate and develop these effective teacher dispositions through supporting intrinsic and altruistic motivations to teach. The finding that task value was high prior to graduation (4th year pre-service), but subsequently fell within a year may indicate that more support for early career teachers’ task value, rather than efficacy or perceptions of teaching demand, may be required. This could also be achieved by providing supports to facilitate feelings of autonomy, competence and relatedness in order to internalise the act of teaching into early career teachers’ sense of self. Such task value support could include programs that include personal agency, positive feedback, reflection, inclusion with school community and mentoring (Cook & Artino, 2016; Klaeijsen, Vermeulen, & Martens, 2017). Further longitudinal research is required in order to identify whether these decreases in task value continue, what factors may aid or compound motivation and further studies of the specific dispositions associated with motivation types. Future research should also examine the rates of attrition of early career teachers in relation to their motivation type, to further explore whether the screening ITE candidates’ dispositions leads to long-term competence and persistence in teaching.

5.3 Limitations of the Research

The conclusions discussed in this chapter must be considered within the limitations of the current study. These limitations concern the instrument used for collecting data, the procedure for collecting the data, and the current study’s sample size. First, the instrument used for collecting data on professional disposition has not yet been validated outside an initial validation study (see Appendix C) with undergraduate pre-service teachers (although advances were expected and found in comparison to other existing measures; West et al. 2018). Thus, comparisons among time points may have been hindered by differences in the measure’s properties across cohorts and repeated administrations. Further, given that development and validation of this tool was occurring in parallel with this research, some of the items were removed at follow-up but were later reinserted after further quantitative analysis. However, this did not affect the planned analysis of this study, and as the current study sought to advance dispositional research in Australia, the use of this survey instrument was beneficial to the study. Despite this potential limitation in the survey instrument, psychometric properties of the scale remained strong across all assessment time points, supporting
appropriateness of its use. Nevertheless, further research linking the scale to objective and enacted behaviour is an important area for future investigation.

Second, due to the data collection occurring in a lecture format at all pre-service time points, the current study was only able to recruit respondents who had chosen to attend lectures, introducing potential bias. These respondents may have had different characteristics than those pre-service teachers who did not attend lectures, especially concerning motivation type and commitment to ITE. Attempts were made to mitigate this effect by the selection of core subjects very early or (for the 4th year cohort) lectures covering post-graduation advice late in the session, when attendance was generally higher. However, lectures were the most efficacious context to secure a majority of the cohort’s responses. This was evidenced by the low response rate at the 4th year cohort follow-up, where alternative data collection approaches had to be used.

Another limitation to consider was the sample and sample size, which was limited to the required methodology and time frame of a doctoral thesis. Due to ease of access, the study was conducted at one university and used a longitudinal panel approach, as this was most appropriate when the aim of the study was to assess trends across time within the time constraints of a doctorate (Shaughnessy et al. 2015). However, this did make inferring longitudinal trends difficult, as data were only collected from the same participants twice. As a result, cohort differences must be considered as a potential factor in the results between the 1st and 4th year cohort. The sample size of the 4th year cohort and its follow-up were also small, due in part to the difficulties of accessing participants after their graduation from the ITE program. While more-longitudinal research and the supplementing of data collection with objective (e.g., observer-report) measures is indeed needed to replicate and extend these findings, this approach was nevertheless successful in yielding enough size, scope and duration of data to form preliminary conclusions about the changing (or non-changing) nature of dispositions and motivation across key transition points in ITE.

5.4 Conclusion

In summary, this study has established that both teacher dispositions and career choice motivations change over time. Based on the higher level of stability observed in self-ratings of dispositions across ITE, further work is needed to establish which dispositions (or non-disposition related factors) warrant consideration in selection for an ITE
program. This contrasts with the current widespread approach of assessing and selecting candidates based, in part, on their broader teaching dispositions. Instead, it may be that more effective targets for ITE programs and in-service supports and assessments should include the monitoring of teachers’ motivation to teach. Motivations connected to more positive teaching outcomes may be facilitated and developed in pre-service and early career teachers through certain features in ITE programs (i.e., reflective practice, small-group discussions, inclusive PEx experiences) and entry to service programs (i.e., positive feedback, personal agency, mentorship and inclusive staff environment). This does not imply that teacher dispositions are not important to the success and quality of teaching, as those with inappropriate dispositions would be unlikely to feel autonomous, competent or related to the teacher profession, or be able to regulate their participation through intrinsic or altruistic values in teaching. Rather, efforts to ensure positive change in teacher dispositions among pre-service and early career teachers should centre upon explicitly teaching these dispositions, rather than excluding those with inadequate levels upon entry, and supporting motivations to teach that are associated with these dispositions.

This study found that career choice motivations, particularly *intrinsic career value* and *social utility value*, positively associated with effective teaching dispositions *interpersonal communication skills, willingness to learn* and *conscientiousness*. This finding builds upon decades of research showing the effect of intrinsic and altruistic motivation upon behaviour through the shaping of individuals’ perception of tasks. The findings of the study illustrated the potential importance of motivation on the dispositions of pre-service and early in-service teachers, and that motivation is particularly sensitive at times of transition. This was highlighted with expectancy-value theory, achievement goal theory and self-determination theory, in conjunction with a social-cognitive perspective of dispositions as able, situationally-determined semi-conscious internal constructs about self and culture, a psychological process which forms ongoing patterns of behaviour via the RAA model. This association holds implications for how teachers’ ITE and professional development may develop effective teacher dispositions, and for the potential value of teachers’ career motivations in determining the quality and success of teachers. These findings imply that few personal factors in teachers are fixed, and that motivation may serve as a focal point through which teachers’ practice may be made more effective and their career more fulfilling.
Thus, the following key findings can be drawn from this study:

- Disposition and motivation constructs all change at some point during the course of ITE and into service. Namely, task demand adjusts early and remains stable, teacher efficacy and ability appear to rise throughout, and interpersonal communication skills decline pre-service and only increase again in-service. All motivation constructs decline at transition points, but intrinsic career value and social utility value recover 2nd to 4th year pre-service, while personal utility value does not.

- Correlations do exist between self-reported dispositions and career choice motivations, although this differs between cohorts. Both intrinsic and altruistic motivations appeared to correlate with interpersonal communication skills, willingness to learn and conscientiousness in both cohorts.

- Transition points appear to be associated with decreases in task value (i.e., motivation) rather than decreases in pre-service and early in-service teachers’ perceived ability or teacher efficacy, though more investigation is required.

- Task demand ratings did not increase when respondents entered service after graduation.

The generalisability of these findings was limited by this study’s sample and scope, thus future research is required to establish further connections to actual behaviour and to examine changes and associations in other ITE programs and cohorts over longer periods of time. Any future research would also be used to examine new potential correlations between career choice motivation and teacher dispositions to further expand upon those found in this study. In conclusion, this study has broadened and added to the research base on dispositions in Australia and worldwide. The inclusion of features to aid an intrinsic and altruistic motivation for teaching, reflecting a connection between self-reported teacher disposition and career choice motivation, has the potential to support pre-service teachers to develop the dispositions that will aid their teaching careers.
References


Bastian, K. (2013). Do teachers’ non-cognitive skills and traits predict effectiveness and evaluation ratings? Paper presented at the Association for Education Finance and


SEDA [Staff and Educational Development Association] (2017). The SEDA Values and PDF. London, UK: SEDA.


UOW IRGR [University of Wollongong Institutional Research & Government Reporting] (2016). Email correspondence.


Appendix A

Career Choice Motivation and Professional Disposition in Transitioning Teachers

Please read and complete the four survey sections carefully. Ask the researcher if the instructions are unclear to you.

SECTION ONE – ID Number

Below is an example of how to create an ID # for your survey. Using this example, insert your own answers to the questions in the space provided at the top left corner of this page.

<table>
<thead>
<tr>
<th>Question</th>
<th>Example</th>
<th>Example’s Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>First letter of your first name.</td>
<td>Anne</td>
<td>ID # A</td>
</tr>
<tr>
<td>First letter of your mother’s name.</td>
<td>Susanne</td>
<td>ID # AS</td>
</tr>
<tr>
<td>First letter of the month you were born.</td>
<td>4th Aug</td>
<td>ID # ASA</td>
</tr>
<tr>
<td>The date of the day you were born, to two places.</td>
<td>4th Aug</td>
<td>ID # ASA04</td>
</tr>
<tr>
<td>The last letter of your first name.</td>
<td>Anne</td>
<td>ID # ASA04E</td>
</tr>
</tbody>
</table>

SECTION TWO – Demographic Information

Respond to the following questions by either WRITING your response or TICKING the one box that best describes you, as directed below.

1. WRITE your age:
2. TICK your gender
   □ Female   □ Bi-gender
   □ Male     □ Trans*
3. TICK your current employment type
   □ Full-time □ Part-time
   □ Casual   □ Not working
4. TICK the year of your current degree
   □ First    □ Fourth
   □ Second   □ Fifth
   □ Third
5. TICK your current degree
   □ Bachelor of Primary Education
   □ Bachelor of Primary Education (Dean’s Scholar)
   □ Bachelor of Education – The Early Years
   □ Bachelor of Education – The Early Years (Dean’s Scholar)
   □ Bachelor of Physical and Health Education
   □ Bachelor of Physical and Health Education (Dean’s Scholar)
   □ Bachelor of Mathematics Education
   □ Bachelor of Mathematics Education (Dean’s Scholar)
   □ Bachelor of Science Education
   □ Bachelor of Science Education (Dean’s Scholar)
   □ Other:
**SECTION THREE – Career Choice Motivations**

**Part A: Influencing Factors**

For each statement below, please rate how important it was in YOUR decision to become a teacher from 1 (not at all important in your decision) to 7 (extremely important in your decision). Please **CIRCLE** the number that best describes the importance of each.

FIT-Choice Scale (Factors Influencing Teaching Choice Scale): Copyright © HMG Watt & PW Richardson

<table>
<thead>
<tr>
<th>“I chose to become a teacher because …”</th>
<th>Not at all important</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am interested in teaching</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Part-time teaching could allow more family time</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>My friends think I should become a teacher</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>As a teacher I will have lengthy holidays</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I have the qualities of a good teacher</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Teaching allows me to provide a service to society</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I’ve always wanted to be a teacher</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Teaching will be a useful job for me to have when travelling</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Teaching will allow me to shape child/adolescent values</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I want to help children/adolescents learn</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I was unsure of what career I wanted</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I like teaching</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I want a job that involves working with children/adolescents</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Teaching will offer a steady career path</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Teaching hours will fit with the responsibilities of having a family</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I have had inspirational teachers</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>As a teacher I will have a short working day</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>I have good teaching skills</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Teachers make a worthwhile social contribution</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

175
<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A teaching qualification is recognised everywhere</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will allow me to influence the next generation</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>My family think I should become a teacher</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I want to work in a child/adolescent-centred environment</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will provide a reliable income</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>School holidays will fit in with family commitments</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I have had good teachers as role-models</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching enables me to ‘give back’ to society</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I was not accepted into my first-choice career</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will allow me to raise the ambitions of underprivileged youth</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I like working with children/adolescents</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will be a secure job</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I have had positive learning experiences</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>People I’ve worked with think I should become a teacher</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching is a career suited to my abilities</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>A teaching job will allow me to choose where I wish to live</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>I chose teaching as a last resort</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will allow me to benefit the socially disadvantaged</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching is a fulfilling career</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will allow me to have an impact on children/adolescents</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>Teaching will allow me to work against social disadvantage</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
**SECTION THREE – Career Choice Motivations**

**Part B: Beliefs about Teaching**

For each question below, please rate the extent to which YOU agree it is true about teaching, from 1 (not at all) to 7 (extremely). Please **CIRCLE** the number that best describes your agreement for each.

FIT-Choice Scale (Factors Influencing Teaching Choice Scale): Copyright © HMG Watt & PW Richardson

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think teaching is well paid?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers have a heavy workload?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers earn a good salary?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you believe teachers are perceived as professionals?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers have high morale?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teaching is a highly skilled occupation?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teaching is emotionally demanding?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you believe teaching is perceived as a high-status occupation?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers feel valued by society?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teaching requires high levels of expert knowledge?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teaching is hard work?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you believe teaching is a well-respected career?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers feel their occupation has high social status?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers need high levels of technical knowledge?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
<tr>
<td>Do you think teachers need highly specialised knowledge?</td>
<td>1 2 3 4 5  6 7</td>
<td></td>
</tr>
</tbody>
</table>
SECTION THREE – Career Choice Motivations
Part C: Your Decision to Become a Teacher
For each question below, please rate the extent to which YOU agree it is true about teaching, from 1 (not at all) to 7 (extremely). Please CIRCLE the number that best describes your agreement for each.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>How carefully have you thought about becoming a teacher?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were you encouraged to pursue careers other than teaching?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How satisfied are you with your choice of becoming a teacher?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did others tell you teaching was not a good career choice?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How happy are you with your decision to become a teacher?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did others influence you to consider careers other than teaching?</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION FOUR – Professional Dispositions
For each statement, please CIRCLE the number corresponding to the frequency with which you would undertake that behaviour in your teaching, at THIS STAGE of your career.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considers and employs a variety of effective teaching strategies</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approaches the teaching profession with adequate preparation</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates strong overall teacher professionalism inside the school context at all times</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates on-going effective collaboration with whole school community</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engages in effective problem solving strategies</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engages all students to participate inclusively in communications and collaborations</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possesses strong verbal communication skills (speaking and listening)</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displays genuine empathy, warmth and compassion for students</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engages in effective classroom management strategies</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engages in reflective practices of pedagogy</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shows a willingness to facilitate extracurricular activities</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appreciates students’ individual differences</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possesses strong written communication skills</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possesses strong non-verbal communication skills</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treats everyone fairly and equitably</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does not hold high respect for students</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fosters students’ self-directed learning</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorporates professional learning and feedback into practice</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has high expectations of students</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates a commitment to students’ learning</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shows a passion for teaching</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates a passion and responsibility for students’ learning</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understands own role and responsibilities in the school context</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shows a commitment to teaching</td>
<td>0 1 2 3 4 5 6</td>
<td></td>
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<tr>
<td>Considers and employs a variety of effective teaching strategies</td>
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<tr>
<td>Approaches the teaching profession with adequate preparation</td>
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<tr>
<td>Demonstrates strong overall teacher professionalism inside the school context at all times</td>
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<td>Demonstrates on-going effective collaboration with whole school community</td>
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<td>Engages in effective problem solving strategies</td>
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<td>Engages all students to participate inclusively in communications and collaborations</td>
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<td>Seeks support and advice from others.</td>
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<tr>
<td>Demonstrates strong overall teacher professionalism at all times outside of the school context.</td>
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<tr>
<td>Foresees the need to differentiate for diverse students.</td>
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## Appendix B

### All higher-order motivations, subscales and items from FIT-Choice and Teacher Rating scales.

<table>
<thead>
<tr>
<th>Higher-Order Motivation</th>
<th>Subscale</th>
<th>Item Number</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrinsic Career Value</strong></td>
<td>Intrinsic Career Value</td>
<td>B1</td>
<td>I am interested in teaching.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B7</td>
<td>I've always wanted to be a teacher.</td>
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<tr>
<td></td>
<td></td>
<td>B12</td>
<td>I like teaching.</td>
</tr>
<tr>
<td><strong>Time for Family</strong></td>
<td></td>
<td>B2</td>
<td>Part-time teaching could allow more family time.</td>
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<tr>
<td></td>
<td></td>
<td>B4</td>
<td>As a teacher I will have lengthy holidays.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B16</td>
<td>Teaching hours will fit with the responsibilities of having a family.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B18</td>
<td>As a teacher I will have a short workday.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B29</td>
<td>School holidays will fit in with family commitments.</td>
</tr>
<tr>
<td><strong>Job Transferability</strong></td>
<td></td>
<td>B8</td>
<td>Teaching will be a useful job for me to have when traveling.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B22</td>
<td>A teaching qualification is recognised everywhere.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B45</td>
<td>A teaching job will allow me to choose where I wish to live.</td>
</tr>
<tr>
<td><strong>Job Security</strong></td>
<td></td>
<td>B14</td>
<td>Teaching will offer a steady career path.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B27</td>
<td>Teaching will provide a reliable income.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B38</td>
<td>Teaching will be a secure job.</td>
</tr>
<tr>
<td><strong>Make Social Contribution</strong></td>
<td></td>
<td>B6</td>
<td>Teaching allows me to provide a service to society.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B20</td>
<td>Teachers make a worthwhile social contribution.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B31</td>
<td>Teaching enables me to ‘give back’ to society.</td>
</tr>
<tr>
<td><strong>Shape Future of Children/Adolescents</strong></td>
<td></td>
<td>B9</td>
<td>Teaching will allow me to shape child/adolescent values.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B23</td>
<td>Teaching will allow me to influence the next generation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B53</td>
<td>Teaching will allow me to have an impact on children/adolescents</td>
</tr>
<tr>
<td><strong>Work With Children/Adolescents</strong></td>
<td></td>
<td>B13</td>
<td>I want a job that involves working with children/adolescents.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B26</td>
<td>I want to work in a child/adolescent-centred environment.</td>
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<tr>
<td></td>
<td></td>
<td>B37</td>
<td>I like working with children/adolescents.</td>
</tr>
<tr>
<td><strong>Enhance Social Equity</strong></td>
<td></td>
<td>B36</td>
<td>Teaching will allow me to raise the ambitions of under-privileged youth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B49</td>
<td>Teaching will allow me to benefit the socially disadvantaged.</td>
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<tr>
<td></td>
<td></td>
<td>B54</td>
<td>Teaching will allow me to work against social disadvantage.</td>
</tr>
<tr>
<td>Ability</td>
<td>Ability</td>
<td>B5</td>
<td>I have the qualities of a good teacher.</td>
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<tr>
<td></td>
<td></td>
<td>B19</td>
<td>I have good teaching skills.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B43</td>
<td>Teaching is a career suited to my abilities.</td>
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<tr>
<td></td>
<td></td>
<td>B11</td>
<td>I was unsure what career I wanted.</td>
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<tr>
<td></td>
<td></td>
<td>B35</td>
<td>I was not accepted into my first-choice career.</td>
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<tr>
<td></td>
<td></td>
<td>B48</td>
<td>I chose teaching as a last-resort career.</td>
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<td></td>
<td></td>
<td>B3</td>
<td>My friends think I should become a teacher.</td>
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<td></td>
<td></td>
<td>B24</td>
<td>My family think I should become a teacher.</td>
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<td></td>
<td></td>
<td>B40</td>
<td>People I’ve worked with think I should become a teacher.</td>
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<tr>
<td></td>
<td></td>
<td>B17</td>
<td>I have had inspirational teachers.</td>
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<tr>
<td>Socialisation Influences</td>
<td></td>
<td>B30</td>
<td>I have had good teachers as role-models.</td>
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<tr>
<td></td>
<td></td>
<td>B39</td>
<td>I have had positive learning experiences.</td>
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<td>B17</td>
<td>I have had inspirational teachers.</td>
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<td></td>
<td>B30</td>
<td>I have had good teachers as role-models.</td>
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<td></td>
<td></td>
<td>B39</td>
<td>I have had positive learning experiences.</td>
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<tr>
<td></td>
<td></td>
<td>D2</td>
<td>Were you encouraged to pursue careers other than teaching?</td>
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<td></td>
<td></td>
<td>D4</td>
<td>Did others tell you teaching was not a good career choice?</td>
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<tr>
<td></td>
<td></td>
<td>D6</td>
<td>Did others influence you to consider careers other than teaching?</td>
</tr>
<tr>
<td>Social Dissuasion</td>
<td></td>
<td>C1</td>
<td>Do you think teaching is well paid?</td>
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<tr>
<td></td>
<td></td>
<td>C3</td>
<td>Do you think teachers earn a good salary?</td>
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<td></td>
<td></td>
<td>C4</td>
<td>Do you believe teachers are perceived as professionals?</td>
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<td>C5</td>
<td>Do you think teachers have high morale?</td>
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<tr>
<td></td>
<td></td>
<td>C8</td>
<td>Do you believe teaching is perceived as a high-status occupation?</td>
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<tr>
<td>Social Status</td>
<td></td>
<td>C9</td>
<td>Do you think teachers feel valued by society?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C12</td>
<td>Do you believe teaching is a well-respected career?</td>
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<tr>
<td></td>
<td></td>
<td>C13</td>
<td>Do you think teachers feel their occupation has high social status?</td>
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<td></td>
<td></td>
<td>C2</td>
<td>Do you think teachers have a heavy workload?</td>
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<td></td>
<td>C7</td>
<td>Do you think teaching is emotionally demanding?</td>
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<td></td>
<td>C11</td>
<td>Do you think teaching is hard work?</td>
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<tr>
<td>Task Demand</td>
<td></td>
<td>C10</td>
<td>Do you think teaching requires high levels of expert knowledge?</td>
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<td></td>
<td></td>
<td>C14</td>
<td>Do you think teachers need high levels of technical knowledge?</td>
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<td></td>
<td></td>
<td>C15</td>
<td>Do you think teachers need highly specialised knowledge?</td>
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<tr>
<td></td>
<td></td>
<td>D1</td>
<td>How carefully have you thought about becoming a teacher?</td>
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<td></td>
<td></td>
<td>D3</td>
<td>How satisfied are you with your choice of becoming a teacher?</td>
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<tr>
<td></td>
<td></td>
<td>D5</td>
<td>How happy are you with your decision to become a teacher?</td>
</tr>
<tr>
<td>Subscale</td>
<td>Item Number</td>
<td>Item</td>
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<td>----------------------------------</td>
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<tr>
<td>Motivation to Teach</td>
<td>15</td>
<td>Treats everyone fairly and equitably.</td>
<td></td>
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<tr>
<td></td>
<td>20</td>
<td>Shows a passion for teaching.</td>
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<td></td>
<td>21</td>
<td>Demonstrates a passion and responsibility for students’ learning</td>
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<tr>
<td></td>
<td>23</td>
<td>Demonstrates a commitment and responsibility for students’ learning.</td>
<td></td>
</tr>
<tr>
<td>Teacher Efficacy</td>
<td>1</td>
<td>Considers and employs a variety of effective teaching strategies.</td>
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<td></td>
<td>2</td>
<td>Approaches the teaching profession with adequate preparation.</td>
<td></td>
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<td></td>
<td>3</td>
<td>Demonstrates strong overall teacher professionalism at all times inside the school context.</td>
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<td></td>
<td>6</td>
<td>Engages all students to participate inclusively in communications and collaborations.</td>
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<td></td>
<td>8</td>
<td>Displays genuine empathy, warmth and compassion for students.</td>
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<td></td>
<td>9</td>
<td>Engages in effective classroom management strategies.</td>
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<td></td>
<td>12</td>
<td>Appreciates students’ individual differences.</td>
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<td>4</td>
<td>Demonstrates on-going effective collaboration with whole school community.</td>
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<td>5</td>
<td>Engages in effective problem solving strategies.</td>
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<td></td>
<td>7</td>
<td>Possesses strong verbal communication skills (speaking and listening).</td>
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<tr>
<td>Interpersonal Communication Skills</td>
<td>10</td>
<td>Engages in reflective practices of pedagogy.</td>
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<td>11</td>
<td>Shows a willingness to facilitate extracurricular activities.</td>
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<td></td>
<td>13</td>
<td>Possesses strong written communication skills.</td>
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<td></td>
<td>14</td>
<td>Possesses strong non-verbal communication skills.</td>
<td></td>
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<tr>
<td>Willingness to Learn</td>
<td>16</td>
<td>Fosters students’ self-directed learning.</td>
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<td></td>
<td>17</td>
<td>Seeks support and advice from others.</td>
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<td></td>
<td>19</td>
<td>Has high expectations of students.</td>
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<tr>
<td>Conscientiousness</td>
<td>24</td>
<td>Shows a commitment to teaching.</td>
<td></td>
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<tr>
<td></td>
<td>25</td>
<td>Demonstrates strong overall teacher professionalism at all times outside of the school context.</td>
<td></td>
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<tr>
<td></td>
<td>26</td>
<td>Foresees the need to differentiate for diverse students.</td>
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Appendix C


Teacher Disposition Scale (TDS): Construction and psychometric validation

Introduction

Changing negative trends in the shape and function of the teaching workforce are now prompting global investigations. Data from the United Kingdom, United States, Canada and Australia suggest anywhere from 24% to 40% of graduating teachers leave the profession within three to five years (Kyriacou and Kunc, 2007; McConney, Price, and Woods-McConney, 2012; Paris, 2010; White, Gorard, and See, 2006). Such high attrition rates produce obvious financial costs, but can also have a negative impact on early career teachers’ confidence, as well as the reputation and credibility of universities and the profession. Most attrition in teaching is linked to job burnout, as a response to prolonged workplace stress (Fernet, Guay, Senécal, and Austin, 2012). This may, however, be redressed through more focused selection criteria and assessment in initial teacher education (ITE), with the purpose of identifying whether pre-service teachers possess dispositions deemed necessary for successful teachers. These dispositions may be understood in terms of promoting both resiliency and effective teaching (i.e., traits that are formally or informally recognised as beneficial to teach successfully) (Cornelius-White, 2007; Darling-Hammond, 2006). Given this background, the current study aimed to develop and evaluate a Teacher Disposition Scale (TDS) that can be used to explore key dispositions considered conducive to successful teaching and learning in Australia among primary school teachers and trainee school teachers.

Increasing Focus on Teacher Dispositions

Increased reference to ‘disposition’ in the educational research literature reflects current attempts to outline the vague behavioural tendencies that are often identified in effective teacher practice research (NCATE, 2013; NSW DEC, 2013). Defining what is meant by dispositions, however, is problematic (e.g., Borko, Liston, and Whitcomb, 2007;
Damon, 2007; Welch, Pitts, Tenini, Kuenlen, and Wood, 2010). The National Council for Accreditation of Teacher Education (NCATE) (2008), for example, defines dispositions as:

‘Professional attitudes, values, and beliefs demonstrated through both verbal and non-verbal behaviors as educators interact with students, families, colleagues, and communities. These positive behaviors support student learning and development’ (89-90) and include dispositions such as ‘fairness and the belief that all students can learn’ (90).

NCATE’s definition is strongly connected to ‘observable behaviours’ (90). However, Schussler (2006) argues that dispositions are a ‘point of convergence’ between behaviour and thought, where actions are also influenced by prior life experience, beliefs, and assumptions. She proposes that dispositions form the very heart of ‘teachers’ decisions to think and act’ (252). Taken altogether, it can be argued that dispositions are a set of latent psychological traits (i.e., impacts behaviour but unobservable) that predispose someone to behave in particular ways. They are contextual but relatively stable within those contexts. Theories and existing instruments divide at this point on how these latent traits are best understood and studied, whether as observable behaviours, belief statements or personality traits (O’Neill, Hansen, and Lewis, 2014). The current study adopts this position of dispositions as observable primarily through manifest behavioural tendencies, influenced by underpinning values, attitudes, beliefs and personality traits that create a disposition to act in specific ways (Chamorro-Premuzic, 2011). Furthermore, as intention to act is viewed as a major precedent to observable behaviour (Fishbein & Ajzen, 2010), self-reported data can provide invaluable insights into the dispositions of pre-service and in-service teachers. Once this foundational work has been established, future research may incorporate future research may incorporate objective observations of desirable teacher dispositions to temper any bias from self-reporting and establish a disposition-behaviour association.

There is growing recognition that teacher education programs focusing solely on content knowledge and teaching skills are insufficient if divorced from an examination of teachers’ dispositions, or inclinations, towards applying what they have learned to their current or future teaching practice (Borko, Liston, and Whitcomb, 2007). Conversely, teacher education programs that address and support the development of positive and professionally conducive dispositions – especially in assisting candidates
‘in fostering awareness’ by ‘uncover[ing] knowledge of themselves’ (Schussler, Bercaw, and Stooksberry, 2008, 351) – have the potential to positively shape pre-service teachers’ perceptions and expectations. In the United States, addressing dispositions in teacher training programs has been a requirement of the accreditation process at state and national levels since 2002 (NCATE, 2008). Similarly, Australian education recognizes that, in addition to professional knowledge and skills, teacher dispositions are an equally important contributor to effective teaching, particularly in relation to characteristics such as empathy, enthusiasm and fairness (CESE, 2013; Cornelius-White, 2007; Darling-Hammond, 2006; OECD, 2005). In England, positive non-academic qualities, such as high student expectations, efficacy and leadership abilities, have been identified among Teach First candidates (Rice, Volkoff and Dulfer, 2015; O’Neill, Hansen, and Lewis, 2014). However, empirical evidence of the importance of particular dispositions (or dispositions at all) in teaching is limited, due in large part to the complexity of teacher dispositions and lack of suitable or reliable measurement instruments. A highly robust and reliable disposition scale is needed as a first step in addressing this complex issue.

**The Current Study**

Despite the importance and growing prominence of teacher disposition research (NSW DEC, 2013; TEMAG, 2014), existing research rarely agrees on dispositions considered essential to effective teaching. For instance, little research establishes what composition(s) of dispositions are related to better student outcomes. Nominated factors range from motivation to verbal ability to fairness (Barber and Mourshed, 2007; CESE, 2013; Stronge, Ward, and Grant, 2011). However, the extent to which these dispositions overlap, the dispositions that are especially important, and the behaviours they individually or conjointly influence remain unclear. This is exacerbated by a lack of suitable disposition instruments, which limits empirical investigation of these questions (O’Neill, Hansen, and Lewis, 2014). The tools that do exist often lack psychometric evaluation or consultation with current and highly accomplished members of the teaching profession. However, this has not stopped the development and use of many institutional dispositional scales, many sharing common dispositional themes that are proposed as demonstrating effective teaching such as ethics, professional growth and service (Young and Wilkins, 2008).
The current study thus aimed to develop a Teacher Disposition Scale (TDS) to identify key dispositions for successful teaching and learning through a mixed methods design. In contrast to many existing tools, the current scale was derived in consultation with highly accomplished teachers, and the results of the pilot study of this initial scale used to: (1) derive a core set of teacher dispositions from those identified in the literature and by the highly accomplished teachers; (2) identify specific behavioural tendencies that are associated with each of these dispositions; and (3) evaluate the psychometric properties of the resulting scale. While it is unrealistic to expect one instrument to adequately predict quality amongst teachers, the current study can contribute to the essential discussion, evaluation, research, and professional support needed for fostering positive teacher dispositions amongst pre-service and early career teachers.

Materials and Methods

Prior to the commencement of the study, permission to conduct the research was first obtained through the university’s Human Ethics Review Committee. As such, all participants provided written informed consent prior to participating in the study. The participants, interview procedures and TDS development and piloting are discussed in detail below.

Participants

Qualitative interviews were conducted with 12 current, experienced primary school teachers who were recognised as ‘Highly Accomplished Teachers’ (HATs) by their federal and state governments. An Australian Federal and New South Wales (NSW) State Governments’ joint initiative established guidelines for recognising HATs within NSW Government Schools as ‘…an excellent teacher who models high quality teaching for his/her colleagues across the school and will lead other teachers in the development and refinement of their teaching practice to improve student learning outcomes’ (NSW DET, 2009, 3). Of the 146 recognised HATs during the period 2009-2013 (after which the program ceased), invitations to participate were extended to all 92 who taught in primary schools. This resulted in 12 HAT (11 female; 1 male) volunteers, ranging from 32-59 years of age and from 10-30 years of teaching experience. They taught in a cross-range of settings, including urban (6), semi-urban (4) and rural (2).

The purpose of the interviews was to identify behaviours and dispositions of highly effective teachers, which could be reconciled and supplemented by those noted in the literature, to develop and evaluate a TDS. For a full description of the HAT interview
procedures and protocol, see Online Supplements 1 and 2. The resulting scale was subsequently piloted with 179 fourth-year undergraduate Bachelor of Education (Primary) students enrolled at a large metropolitan Australian university. At this point, these students had completed at least 16 weeks of professional experience in schools across their four years of study. The sample was 82% female, which is consistent with the gender composition of primary school teachers in the state (NSW DEC, 2015). The mean age of participants was 23 years and 8 months, ranging from 21-44 years of age. The distribution of ages was positively skewed, as expected, such that there was a greater concentration of young students (89.9% were <30 years of age).

**Qualitative Data Collection and Analysis**

Prior to interviews with the HATs, and as stimulus for identification and discussion of the dispositions and behaviours of highly effective teachers, an initial list of dispositions was compiled based on an extensive review of teacher disposition and effective teacher literatures (theoretical and empirical). Discussion and agreement of a comprehensive set of dispositions involved a series of four meetings among the researchers to categorise, collapse, and further expand the identified dispositions. The end result was a list of dispositions that the literature highlighted as characteristic of good/effective teachers. The list was collapsed into four core dispositions, containing a range of relevant teacher behaviours: professional knowledge (27 behaviours); interpersonal skills, community and communication (9 behaviours); ethics and professionalism (5 behaviours); and attitude and personal attributes (12 behaviours). This interview protocol (See Online Supplement 1) was used with the HAT participants to identify, discuss, and prioritise the characteristics, behaviours, and beliefs of highly effective teachers.

Participants chose face to face \((n = 2)\), telephone \((n = 4)\), Skype \((n = 2)\) or video conferencing \((n = 3)\) interviews conducted from the university office of one of the researchers. The audio-recorded interviews lasted between 65 - 100 minutes. HATs were all emailed the interview protocol in advance of the meeting to allow time to review both the interview questions and the extensive list of dispositions that had been derived from the literature. Subsequently, as part of the interview, they were asked to circle the dispositions that they considered essential for an effective teacher, rank them in order of importance, and add any dispositions that they deemed important but were not included in the list.
Several open-ended questions were included in the interview to provide HATs with an opportunity to discuss in greater detail dispositions they considered important for effective teachers. Examples of these questions included: What do you feel are the most important dispositions in an effective teacher?; In your experience, what dispositions do you feel newly graduating teachers bring as strengths? This permitted clearer description of the dispositions and behaviours that should feature in the resultant TDS.

Following the interviews, all audio recordings were transcribed and the researchers formed preliminary categories from these data. The transcribed data was first entered into NVivo 10 and then coded based on the initial start list of codes provided to teachers in the original interview protocol. Two of the researchers separately coded the same four transcribed interviews. The coding of the initial four transcripts was compared, resulting in roughly 70% agreement. Discrepancies in coding were discussed and consensus reached, before the remaining seven transcribed interviews were coded. Development of the final version of these categories (i.e., dispositions), which formed a foundation of the TDS, is discussed later in the Results section.

**Quantitative Data Collection and Analysis**

On the basis of the qualitative analysis of the HAT interview data, a preliminary version of the TDS was created. This initial TDS consisted of 31 self-reported items indicating the extent to which the respondents engaged in the identified behaviours (each believed to be underpinned by a core set of teacher dispositions). This was indicated on a 7-point Likert scale, ranging from 0 = never to 6 = all the time. A 7-point scale was adopted given the desire for interpretable scale point meanings (e.g., 4 = half the time, 5 = a bit more than half the time, 6 = much more than half the time but not all the time, 7 = all the time) and the desire for sensitivity to change (i.e., a shift from 3 = sometimes to 4 = usually is, in real-world terms, a dramatic shift). This use of a 7-point scale is also supported by evidence of the comparable reliability of such scales (Krosnick and Presser, 2010). On the basis of the analysis of the HAT interview data, and consistent with those core non-cognitive abilities of successful teachers identified by the Australian Institute for Teaching and School Leadership (AITSL, 2015), items were expected to cluster into five factors: Teacher Efficacy; Interpersonal & Communication Skills; Motivation to Teach; Willingness to Learn; and Conscientiousness. Names of these five factors were derived directly from government policy to create an instrument aligned to the current policy and legislative environment (AITSL, 2015).
The TDS was then piloted with the 179 undergraduate students and their responses were analysed quantitatively. Pilot TDS data were initially subjected to exploratory factor analysis to evaluate our *a priori* set of dispositions against the empirically derived factor structure of the TDS’s initial 31 effective teaching behaviours or traits. Where the factor analysis was unclear (e.g., cross-loadings of items) a theoretically and empirically guided decision was taken from our *a priori* categorisations to decide the sub-scale for the item. Reliability analysis (Cronbach’s alpha) was then conducted on each of the TDS’s identified subscales to evaluate the reliability with which they evaluated their underlying construct (i.e., disposition). Finally, Rasch analysis was conducted to apply a modern test theory approach to evaluating validity and reliability of the TDS. The Rasch model is a probabilistic model that algebraically converts Likert scale (raw score) data into linear measures. The model is based on the probability of achieving a hierarchical and ideal response pattern (i.e., a Guttman scalar pattern; Tennant and Conaghan, 2007). If the data fitted to the Rasch model meet the strict measurement principles of the model then the scale can be assumed to function properly – that is, to consist of interval data (i.e., linear measures). A linear scale with equal intervals or units is a fundamental criterion for accurate measurement (see Wright, 1997). Misfit of the data to the model indicates that the scale is not linear.

**Results**

**Qualitative Results**

The qualitative analysis of the HAT interview transcripts and the annotations on the returned interview protocol sheets highlighted that several of the original codes (dispositions) derived from the literature needed to be transformed or merged to more accurately reflect the HATs’ views of important dispositions (Creswell and Creswell, 2018). For instance, ‘Reflective’ was subsumed under the disposition labelled ‘Engages in evaluative practice of pedagogy’, based on the teachers’ description of their reflective practices being connected to how they teach. For example, HAT 1 explained that:

I keep thinking maybe the most important thing is being reflective; maybe that’s reflecting on what you do and reflecting on… not just on what you taught well or what you didn’t teach well but, you know, the way that you communicated with someone or the way that you engaged with the kids out in the play[ground].

In addition, a new disposition of ‘Possesses professional knowledge’ was added to the original list due to eight of the 12 teachers highlighting this as a key disposition. For
instance, HAT 5 noted that ‘the most important disposition is a good knowledge of pedagogy’ and HAT 8 argued that ‘our professional knowledge is required for all of those other categories [dispositions] to really fall in place’. The following is a list of the dispositions considered essential by at least two-thirds of the HATs:

- Shows a passion for teaching (12 participants)
- Engages in evaluative practice of pedagogy (11 participants)
- Displays a genuine concern for students’ well-being (10 participants)
- Shows a passion for students’ learning (9 participants)
- Copes well with change and ambiguity (9 participants)
- Foresees the need to differentiate for diverse students (9 participants)
- Possesses professional knowledge (8 participants)
- Demonstrates a level of overall teacher professionalism (8 participants)

Following this analysis, the research team met twice to discuss these results and to further refine the disposition list to: better reflect the findings from the HAT data, ensure similar dispositions were grouped together and ensure that the wording would still be clear in meaning for less-experienced teachers. This final list, presented in the form of questionnaire items, was then returned to the HATs for further feedback. After only minor revisions based on the HATs’ feedback, the following five core dispositions and associated behaviours were finalised for the pilot questionnaire: Attitudes and Attributes (10 traits), Interpersonal (6 traits), Professionalism (5 traits), Commitment to Learning (4 traits) and Purpose and Vision for Students’ Learning (6 traits). These were then adjusted to consider current dispositional policy (AITSL, 2015) and tested through quantitative analysis, forming the final five dispositions and associated behaviours included in the final TDS scale: Motivation to Teach (5 traits), Teacher Efficacy (7 traits), Willingness to Learn (4 traits), Conscientiousness (3 traits) and Interpersonal and Communication Skills (7 traits).

**Quantitative Results**

Given sample size constraints that precluded robust confirmatory factor analysis, an exploratory factor analysis (EFA), reliability analysis (i.e., Cronbach’s alpha), and Rasch analysis were performed to evaluate the scale.
**Exploratory Factor Analysis (EFA)**

To evaluate the factor structure of the scale, EFA using maximum likelihood estimation and an oblique (direct oblimin) factor rotation was conducted. This data-driven analysis sought to separate sets of items (subscales) based on the extent to which they appeared to be underpinned (associated) by a common underlying characteristic (e.g., disposition). Kaiser-Meyer-Olkin statistics (KMO = .899) and Bartlett’s test of sphericity, $\chi^2(325) = 2502.74$, $p < .001$, indicated sufficient sample size and inter-item correlations for this analysis. Results identified five factors/subscales (accounting for 61.37% of the variance); this was also supported by a scree plot. The factors/subscales (see Table 1) were interpreted as: (1) a 5-item *Motivation to Teach* subscale; (2) a 7-item *Teacher Efficacy* subscale; (3) a 4-item *Willingness to Learn* subscale; (4) a 3-item *Conscientiousness* subscale; and (5) a 7-item *Interpersonal & Communication Skills* subscale. All items loaded well (standardized factor loadings > .30) on these five factors. Table 1. Factor loadings by Teacher Disposition Scale (TDS) item.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item Description</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Considers and employs a variety of effective teaching strategies</td>
<td>.70</td>
</tr>
<tr>
<td>2.</td>
<td>Approaches the teaching profession with adequate preparation</td>
<td>.70</td>
</tr>
<tr>
<td>3.</td>
<td>Demonstrates strong overall teacher professionalism at all times inside the school context</td>
<td>.54</td>
</tr>
<tr>
<td>4.</td>
<td>Demonstrates on-going effective collaboration with whole school community</td>
<td>.70</td>
</tr>
<tr>
<td>5.</td>
<td>Engages in effective problem solving strategies</td>
<td>.60</td>
</tr>
<tr>
<td>6.</td>
<td>Engages all students to participate inclusively in communications and collaborations</td>
<td>.46 \</td>
</tr>
<tr>
<td>7.</td>
<td>Possesses strong verbal communication skills (speaking and listening)</td>
<td>.58</td>
</tr>
<tr>
<td>8.</td>
<td>Displays genuine empathy, warmth and compassion for students</td>
<td>.35 \</td>
</tr>
<tr>
<td>9.</td>
<td>Engages in effective classroom management strategies</td>
<td>.60 \</td>
</tr>
<tr>
<td>10.</td>
<td>Engages in reflective practices of pedagogy</td>
<td>.26 \</td>
</tr>
<tr>
<td>11.</td>
<td>Shows a willingness to facilitate extra-curricular activities</td>
<td>.45</td>
</tr>
<tr>
<td>Item</td>
<td>Factor Loading</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>12. Appreciates students’ individual differences</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>13. Possesses strong written communication skills</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>14. Possesses strong non-verbal communication skills</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>15. Treats everyone fairly and equitably</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>16. Fosters students’ self-directed learning</td>
<td>.31</td>
<td></td>
</tr>
<tr>
<td>17. Seeks support and advice from others</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>18. Incorporates professional learning and feedback into practice</td>
<td>.45</td>
<td></td>
</tr>
<tr>
<td>19. Has high expectations of students</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>20. Shows a passion for teaching</td>
<td>.45</td>
<td></td>
</tr>
<tr>
<td>21. Demonstrates a passion and responsibility for students’ learning</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td>22. Understands their role and responsibilities in the school context</td>
<td>.69</td>
<td></td>
</tr>
<tr>
<td>23. Demonstrates a commitment to students’ learning</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td>24. Shows a commitment to teaching</td>
<td>.26</td>
<td></td>
</tr>
<tr>
<td>25. Demonstrates strong overall teacher professionalism at all times outside the school context</td>
<td>.20</td>
<td></td>
</tr>
<tr>
<td>26. Foresees the need to differentiate for diverse students</td>
<td>.20</td>
<td></td>
</tr>
</tbody>
</table>

Note. Factor loadings < .20 have been suppressed. Bolding of factor loadings indicates factor that each item was aligned to. In all cases, this was the factor on which it showed the highest loading (all > .30).

Reliability analyses were then conducted to evaluate the consistency with which the subscale items were underpinned by a common underlying characteristic. Cronbach’s alpha suggested acceptable to very good reliability for all subscales (ranging from .70-.87; Table 2). Subscale correlations ranged between $r = .45$ (conscientiousness with interpersonal and communication skills) and .70 (teacher efficacy with interpersonal and communication skills), indicating that subscales were unique in what they captured while still sharing a common core.
Table 2. Descriptive statistics by subscale.

<table>
<thead>
<tr>
<th>Subscale 1: Motivation to Teach (Cronbach’s $\alpha = .87$)</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Treats everyone fairly and equitably</td>
<td>5.44</td>
<td>0.67</td>
</tr>
<tr>
<td>20 Shows a passion for teaching</td>
<td>5.31</td>
<td>0.74</td>
</tr>
<tr>
<td>21 Demonstrates a passion and responsibility for students’ learning</td>
<td>5.48</td>
<td>0.64</td>
</tr>
<tr>
<td>22 Understands their role and responsibilities in the school context</td>
<td>5.39</td>
<td>0.66</td>
</tr>
<tr>
<td>23 Demonstrates a commitment to students’ learning</td>
<td>5.10</td>
<td>0.80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subscale 2: Teacher Efficacy (Cronbach’s $\alpha = .86$)</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Considers and employs a variety of effective teaching strategies</td>
<td>4.83</td>
<td>0.79</td>
</tr>
<tr>
<td>2 Approaches the teaching profession with adequate preparation</td>
<td>4.98</td>
<td>0.97</td>
</tr>
<tr>
<td>3 Demonstrates strong overall teacher professionalism at all times inside the school context</td>
<td>5.36</td>
<td>0.80</td>
</tr>
<tr>
<td>6 Engages all students to participate inclusively in communications and collaborations</td>
<td>4.97</td>
<td>0.91</td>
</tr>
<tr>
<td>8 Displays genuine empathy, warmth and compassion for students</td>
<td>5.57</td>
<td>0.64</td>
</tr>
<tr>
<td>9 Engages in effective classroom management strategies</td>
<td>4.80</td>
<td>0.96</td>
</tr>
<tr>
<td>12 Appreciates students’ individual differences</td>
<td>5.37</td>
<td>0.72</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subscale 3: Willingness to Learn (Cronbach’s $\alpha = .79$)</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Fosters students’ self-directed learning</td>
<td>4.71</td>
<td>0.85</td>
</tr>
<tr>
<td>17 Seeks support and advice from others</td>
<td>5.11</td>
<td>0.87</td>
</tr>
<tr>
<td>18 Incorporates professional learning and feedback into practice</td>
<td>5.07</td>
<td>0.79</td>
</tr>
<tr>
<td>19 Has high expectations of students</td>
<td>5.30</td>
<td>0.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subscale 4: Conscientiousness (Cronbach’s $\alpha = .70$)</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Shows a commitment to teaching</td>
<td>5.37</td>
<td>0.78</td>
</tr>
<tr>
<td>25 Demonstrates strong overall teacher professionalism at all times outside the school context</td>
<td>4.95</td>
<td>0.98</td>
</tr>
<tr>
<td>26 Foresees the need to differentiate for diverse students</td>
<td>4.87</td>
<td>1.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subscale 5: Interpersonal &amp; Communication Skills (Cronbach’s $\alpha = .82$)</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Demonstrates on-going effective collaboration with whole school community</td>
<td>4.52</td>
<td>1.08</td>
</tr>
<tr>
<td>5 Engages in effective problem solving strategies</td>
<td>4.72</td>
<td>0.78</td>
</tr>
<tr>
<td>7 Possesses strong verbal communication skills (speaking and listening)</td>
<td>5.08</td>
<td>0.89</td>
</tr>
<tr>
<td>10 Engages in reflective practices of pedagogy</td>
<td>4.73</td>
<td>0.92</td>
</tr>
<tr>
<td>11 Shows a willingness to facilitate extra-curricular activities</td>
<td>4.83</td>
<td>1.06</td>
</tr>
<tr>
<td>13 Possesses strong written communication skills</td>
<td>4.93</td>
<td>0.77</td>
</tr>
<tr>
<td>14 Possesses strong non-verbal communication skills</td>
<td>4.76</td>
<td>0.80</td>
</tr>
</tbody>
</table>
Rasch Analysis

Rasch analyses were then conducted to evaluate the scale on the basis of consistency of the actual data with participants’ latent dispositions and their expected responses to scale items. These analyses used the polytomous Rasch model with partial credit parameterization (Masters, 1982) using Rasch Unidimensional Measurement Modeling (RUMM) 2030 software (Andrich, Sheridan, and Luo, 2010). Rasch analyses were run on each of the 5 subscales as identified by the EFA (Table 3). All scales were tested for (1) the fit of the data to the Rasch model, indicating that the observed (raw data) fit the theoretical expectations of the model; (2) the functioning of individual items within each scale, which indicates how well individual items function relative to other items (misfit can indicate the measurement of other unintended constructs); and 3) the unidimensionality of each scale, to ensure that only one latent disposition is measured per scale.

Table 3. Fit of the 5 scales to the Rasch model.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Item Trait Interaction</th>
<th>PSI</th>
<th>Unidimensionality*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value (df)</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>Motivation to Teach</td>
<td>15.1 (8)</td>
<td>.06</td>
<td>.67</td>
</tr>
<tr>
<td>Teacher Efficacy</td>
<td>10.1 (14)</td>
<td>.76</td>
<td>.83</td>
</tr>
<tr>
<td>Willingness to Learn</td>
<td>10.0 (6)</td>
<td>.13</td>
<td>.64</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>08.0 (6)</td>
<td>.23</td>
<td>.74</td>
</tr>
<tr>
<td>Interpersonal &amp; Communication Skills</td>
<td>10.9 (14)</td>
<td>.70</td>
<td>.82</td>
</tr>
</tbody>
</table>

*Note. ps < 0.05 are significant * Eigenvalues of the first dominant factor loading of the PCA on the standardised residuals (eigenvalues < 2.0 are considered to indicate random noise, i.e., unidimensionality, Linacre, 2011).

Model Fit

In order to determine if the five scales function as linear measures a chi-square ($\chi^2$) test (item-trait interaction) was conducted. Specifically, the $\chi^2$ statistic provides a measure of overall fit of the data to the Rasch model, the null hypothesis being that the data fits the Rasch model. Therefore, a statistically significant result (i.e., $p < .05$) indicates that the data does not fit the model and that there is a problem with the functioning of the
scale. Also important is Person Separation Index (PSI), a reliability index comparable to a Cronbach’s alpha, where a coefficient of .70 and above is considered reliable.

Overall, good model fit was found for the scales Teacher Efficacy, $\chi^2(14) = 10.1$, ns, Conscientiousness, $\chi^2(6) = 8.0$, ns, and Interpersonal and Communication Skills, $\chi^2(14) = 10.9$, ns. Poor fit to the Rasch model was found in two scales – Motivation to Teach and Willingness to Learn, each with significant item–trait interactions ($ps < .03$). However, good fit of the data to the Rasch model was achieved with the removal of item 22 in Motivation to Teach and item 18 in Willingness to Learn (all $ps$ ns). These results indicated that the data from all five subscales were not significantly different from Rasch-derived expectations. The PSI indicated marginal to good reliability for all scales (.64 - .83). These results suggest that the five subscales were valid and reliable.

**Item Fit**

In addition to testing the collective functioning of the items through model fit and reliability analyses, it is also important to test the functioning of individual items. There are a number of ways in a Rasch analysis to test if the items function as intended (i.e., as a linear measure). A misfitting (poor functioning) item can be detected when fit residuals exceed the acceptable range (less than -2.50 or greater than 2.50). Fit residuals are the difference between the data and Rasch estimates. Hence, a fit residual should be small. The significance of the distance between data and Rasch estimates is evaluated with chi-square tests and analyses of variances, where the null hypothesis is that the item fits the model well. Hence, a statistically significant $p$ value ($p < .05$) indicates a misfitting item. Item misfit was found in the scale Motivation to Teach (item 22) and in Willingness to Learn (item 18) (see Table 4). Appendix A provides the final version of the survey with these two items removed.
Table 4. Individual item fit for the five scales.

<table>
<thead>
<tr>
<th>Motivation to Teach</th>
<th>Item Number</th>
<th>Fit Residual</th>
<th>ChiSq</th>
<th>P</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>0.736</td>
<td>2.243</td>
<td>0.326</td>
<td>0.601</td>
<td>0.549</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>-0.813</td>
<td>3.380</td>
<td>0.184</td>
<td>1.792</td>
<td>0.169</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>-1.395</td>
<td>2.028</td>
<td>0.363</td>
<td>1.522</td>
<td>0.221</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>-0.341</td>
<td>1.280</td>
<td>0.527</td>
<td>0.084</td>
<td>0.919</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher Efficacy</th>
<th>Item Number</th>
<th>Fit Residual</th>
<th>ChiSq</th>
<th>P</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-1.098</td>
<td>1.951</td>
<td>0.377</td>
<td>1.314</td>
<td>0.272</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.093</td>
<td>0.800</td>
<td>0.670</td>
<td>0.304</td>
<td>0.738</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-0.280</td>
<td>1.118</td>
<td>0.572</td>
<td>0.320</td>
<td>0.726</td>
<td></td>
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<tr>
<td>6</td>
<td>-0.694</td>
<td>0.236</td>
<td>0.889</td>
<td>0.138</td>
<td>0.871</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>-0.099</td>
<td>2.567</td>
<td>0.277</td>
<td>0.962</td>
<td>0.384</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>-0.798</td>
<td>0.795</td>
<td>0.672</td>
<td>0.235</td>
<td>0.791</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0.290</td>
<td>2.596</td>
<td>0.273</td>
<td>0.831</td>
<td>0.437</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Willingness to Learn</th>
<th>Item Number</th>
<th>Fit Residual</th>
<th>ChiSq</th>
<th>P</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>-0.607</td>
<td>2.585</td>
<td>0.274</td>
<td>2.031</td>
<td>0.134</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>-0.444</td>
<td>4.588</td>
<td>0.101</td>
<td>2.502</td>
<td>0.085</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>0.253</td>
<td>2.769</td>
<td>0.251</td>
<td>1.214</td>
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*Note.* Items with fit residuals < -2.5 and > 2.5 are considered misfitting. Bonferroni adjusted *p* values are significant at *p* < .0025; .05/4 (Motivation to Teach); *p* < .007; .05/7 (Teacher Efficacy); *p* < .016; .05/3 (Willingness to Learn); *p* < .016; .05/3 (Conscientiousness); *p* < .007 .05/7 (Interpersonal and Communication Skill).
Unidimensionality

Scales, or subscales, should measure a single latent trait only (i.e., be unidimensional) if accurate measurement is to be achieved (Wright, 1997). In a Rasch analysis, a scale’s unidimensionality is affirmed by a non-significant item-trait interaction and further post hoc tests such as a principal components analysis (PCA) on the standardised residuals (cf., Hagell, 2014). In a PCA analysis the idea is that, if a scale is unidimensional, then no discernible patterns should be detected in the standardised residuals. The detection of a pattern in the standardised residuals indicates the capture of additional dimensions (or constructs) by the (sub)scale beyond the core construct it is capturing. Patterns in the standardised residuals are identified by first PC loadings with large eigenvalues (> 2.0; Linacre, 2011). In our analysis, PCA of the standardised residuals provided evidence of unidimensionality on all five subscales (all eigenvalues on the first PC loading were < 2.0; Table 2).

Discussion

This study outlined the process of development and validation of a scale to measure key dispositional factors that are conducive to successful teaching and learning among NSW primary school teachers. Research has yet to establish a core set of teacher dispositions, behaviours associated with these dispositions, and a suitable tool (i.e., valid, reliable, sensitive to change) with which to assess the current state of pre- and in-service teachers’ dispositions. Without these insights, it becomes difficult to identify and foster effective teacher dispositions more broadly, or at an individual level, to promote professional behaviours that are associated with improved personal, student, school, and systemic outcomes. Creation and validation of the TDS has indicated five core teacher dispositions, subsuming many previously proposed dispositions, each with unique associated behaviours. Validation of the scale using modern test theory (Rasch analysis) approaches provided preliminary evidence that the TDS functions well, according to the principles of linear measurement, and was valid and reliable.

While various characteristics and dispositions of effective teachers have been suggested in the literature, the extent to which these characteristics and dispositions overlap and which are particularly crucial is unclear. In compiling this literature, and consulting with HATs, we derived a list of disposition-related behaviours that they deemed essential to effective teaching. Notably, this list did not include all factors identified in the literature (these were deemed less essential by the HATs) and included some that were not.
Subsequent consideration of government policy and empirical evaluation of these behaviours derived a core set of five dispositions essential for effective teaching: Motivation to Teach, Teacher Efficacy, Willingness to Learn, Conscientiousness, and Interpersonal and Communication Skills.

It is uncommon for a disposition instrument to be developed from such a complex set of procedures, involving an extensive literature review, community consultation, and empirical validation (O’Neill, Hansen, and Lewis, 2014). Most instruments rely upon literature, filtered through consultation limited primarily to researchers. This process can often produce repetitious or superfluous items, which may distort dispositional assessment (Lang and Wilkerson, 2008). The TDS contained such items within the common themes of existing instruments, including enthusiasm, professional growth, reflexivity and relationships (Young and Wilkins, 2008). However, the original TDS was streamlined through empirical validation to produce a set of core items and subscales, where some subscales were subsumed into core dispositions. Few existing instruments move beyond face validity (Lang and Wilkerson, 2008), and these often face criticism for focusing on either a character-based or competence-based interpretation of dispositions, with the former ill-suited to quantification (Schussler, 2006). By combining developmental elements of both character- and competence-based instruments, the TDS seeks to provide a potentially meaningful instrument that takes stakeholder consultation beyond face validity.

In empirically deriving a core set of dispositions, our analysis additionally suggested behaviours associated with each of these dispositions. These dispositions share similarities with those identified by Young and Wilkins (2008) as common dispositions associated with effective teaching, in their review of 32 existing Initial Teacher Education (ITE) disposition instruments. Young and Wilkins’ 13 dispositions are also associated with defined observable behaviours, providing a point of comparison for the TDS. These included accepting criticism, ethics, professional growth, relationships, service to school and work habits. Other common dispositions are grouped as thinking habits (critical thinking, reflectivity, respect for learning) or personality characteristics (enthusiasm, leadership, personality, self-confidence) that may also be exhibited as behaviour (Young and Wilkins, 2008). When compared to the behaviours within the TDS, almost all corresponded with those of the common dispositions; however, they are distributed differently across the five TDS dispositions. Motivation to Teach is used in
place for the common disposition, Enthusiasm. The two concepts are theoretically related (Eccles and Wigfield, 2002) and expand upon the widely assessed disposition of Fairness (NCATE, 2008) through the TDS factor Teacher Efficacy.

Where the TDS deviates from common dispositions found in existing instruments is the consideration of professionalism outside of the school context. This behaviour is part of the Conscientiousness disposition and is distinct from the Teacher Efficacy behaviour relating to professionalism inside the school context. While professionalism inside the school context can be considered a ‘work habit’ behaviour, professionalism exhibited outside employment contexts implies the pervasiveness of a disposition toward professionalism.

**Implications for Research and Practice**

The TDS represents a starting point from which future research can better understand dispositions, their associated constructs and the contexts in which they exist. This instrument holds implications for selection criteria in ITE, pre- and in-service assessment, and investigations making links between teacher dispositions and student outcomes. While existing measures of teacher dispositions exist, often these have been derived without either consultation with those most experienced in the field (Garner, Freeman, and Lee, 2016; Wasicsko, Wirtz, and Resor, 2009), or being subjected to rigorous evaluation (Almerico, Johnston, Henriott, and Shapiro, 2011; O’Neill, Hansen, and Lewis, 2014).

The creation of the TDS thus supports important future research seeking to understand the development and importance of dispositions over the course of teachers’ careers. In particular, investigating the relationship between specific teacher dispositions and student outcomes is an area requiring researchers’ focus. This research would hold implications not only for education, but also for the broader psychological study of dispositions and related constructs, such as motivation, values and attitudes.

The TDS also has potential applications to teacher development. As with existing scales, it may be used to assess potential teaching candidates as part of entry criteria into ITE programs, thus possibly curtailing attrition among novice teachers by assessing early suitability. Such usage has become commonplace (O’Neill, Hansen, and Lewis, 2014), but presents both practical and ethical issues. Relying on the assessment of candidates’ dispositions alone is an inadequate indicator of their aptitude for teaching, so disposition scales form part of a suite of assessments that may include interviews,
academic transcripts and character references. Further research examining TDS’ sensitivity to change over the course of pre-service training and prediction of real-world outcomes (e.g., job attainment, performance reviews, accolades, student evaluations and performance), are needed to establish the appropriateness of such use. The TDS also addresses international objections about the ethical use of disposition scales as a screening tool with some fearing that the unclear distinction between ‘beliefs’, ‘values’ and ‘dispositions’ could lead to the unfair exclusion of social or cultural groups from ITE (Sinclair, 2008). Some have also questioned the inherent logic of denying a candidate entry into ITE programs based on the absence of dispositions not yet given the opportunity to develop (Rockoff, Jacob, Kane, and Staiger, 2011). These objections stem from whether dispositions are viewed as fixed traits or learned behaviours. The TDS is built upon desirable, observable and malleable behaviours, providing the scope for change to occur and be detected. Such change would be of interest to ITE program coordinators, applicants to education programs (as a self-assessment of ‘fit’ with the teaching profession), pre-service teachers (to self-assess change over time), and professional placement supervisors (to provide external feedback for continued development, related not only to contextual behaviours, but also more pervasive patterns of behaviour).

**Limitations of the Study**

The TDS was piloted on pre-service primary teachers in a single core-subject lecture. While our psychometric evaluation of the scale involved Rasch analysis, which is considered to be sample independent (see Wright, 1997), it is important that the instrument continues to be evaluated in relation to its discriminatory ability across a variety of samples, contexts and uses. For example, further research is required to comment on the scale’s transferability to other contexts such as for secondary teachers whose work, and therefore desired dispositions, may be distinct from those of primary teacher sample. Similarly, the scale also needs to be considered for inter-state and international teachers. Although there is some early research suggesting dispositions may be largely universal (Shao and Tamashiro, 2013), the items of the TDS may also cluster differently than in the current sample. The self-reported instrument provided low-cost, easily-distributed data collection, though acknowledging a potential for bias or manipulation. As such, this limitation would be minimised with future work.
identifying possible correlations between intended behaviour (disposition) and actual behaviour.

In the TDS disposition, Willingness to Learn, behaviours related to promoting students’ self-directed learning and holding high expectations of students sit alongside those about teachers’ own professional learning. While the grouping of these behaviours may appear broad, teachers’ own ways of thinking about learning has been shown to impact their students’ learning. For instance, teachers’ attitudes toward and aptitudes for STEM subjects have been linked to students’ own perceptions and performance (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, and Sendurer, 2012; Rice, Lopez, and Richardson, 2013). The TDS reflects this reality in Willingness to Learn, which captures this responsibility of influence as an aspect of teachers’ professionalism. Further empirical evaluation of dispositions can be seen as a strength, as seen in cases where our results suggest that dispositions previously proposed as discrete actually seem to be subserved by a common, underlying disposition.

**Conclusion**

The creation of a well-functioning TDS establishes a fruitful line for future investigations. Extending beyond validity and reliability evidence often available in measures of professional dispositions, all sub-scales also demonstrated good psychometric properties according to the specifications of the Rasch model, that is, they fit the model well, had marginal to good reliability coefficients, and indicated evidence that they were measuring a single latent trait (i.e. a unidimensional construct). This sound empirical validation gives the TDS a strong advantage over existing disposition scales. The strength of the scale was further increased through the inclusion of community and literature consultation. The scale is timely in light of Australia’s recent educational reforms, but also contributes to an international need for community-consultative, validated tools that support better opportunities, outcomes and experiences for educators and the children and families they support. While the TDS is in its early stages of development, it shows promise for making global contributions to the field of teacher education.
References


5 March 2015

Ms Conor West

Dear Ms West,

Thank you for your response dated 3 March 2015 to the HREC review of the application detailed below. I am pleased to advise that the application has been approved.

Ethics Number: HE15/073
Project Title: Career Choice Motivation and Professional Disposition in Transitioning Teachers
Researchers: Ms Conor West, Professor Wilma Vialle, Dr Steven Howard
Approval Date: 5 March 2015
Expiry Date: 4 March 2016

The University of Wollongong/Illawarra Shoalhaven Local Health District Social Sciences HREC is constituted and functions in accordance with the NHMRC National Statement on Ethical Conduct in Human Research. The HREC has reviewed the research proposal for compliance with the National Statement and approval of this project is conditional upon your continuing compliance with this document.

Approval by the HREC is for a twelve month period. Further extension will be considered on receipt of a progress report prior to expiry date. Continuing approval requires:

- The submission of a progress report annually and on completion of your project. The progress report template is available at http://www.uow.edu.au/research/ethics/human/index.html. This report must be completed, signed by the researchers and the appropriate Head of Unit, and returned to the Research Services Office prior to the expiry date.
- Approval by the HREC of any proposed changes to the protocol including changes to investigators involved
- Immediate report of serious or unexpected adverse effects on participants
- Immediate report of unforeseen events that might affect continued ethical acceptability of the project.

If you have any queries regarding the HREC review process, please contact the Ethics Unit on phone 4221 3386 or email rso-ethics@uow.edu.au.

Yours sincerely

Associate Professor Melanie Randle
Chair, UOW Social Sciences
Human Research Ethics Committee
27 January 2016

Ms Conor West

Dear Ms West,

I am pleased to advise that renewal of the following Human Research Ethics application has been approved. This certificate relates to the research protocol submitted in your original application and all approved amendments to date.

Ethics Number: HE15/073
Project Title: Career Choice Motivation and Professional Disposition in Transitioning Teachers
Name of Researchers: Ms Conor West, Professor Wilhelmina Vialle, Dr Steven Howard
Renewed From: 5 March 2016
Expiry Date: 4 March 2017

Please note that approvals are granted for a twelve month period. Further extension will be considered on receipt of a progress report prior to expiry date.

This certificate relates to the research protocol submitted in your original application and all approved amendments to date. Please remember that in addition to completing an annual report the Human Research Ethics Committee also requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforeseen events that might affect continued ethical acceptability of the project.

A condition of approval by the HREC is the submission of a progress report annually and a final report on completion of your project. The progress report template is available at http://www.uow.edu.au/research/rso/ethics/UOW009385.html. This report must be completed, signed by the appropriate Head of School and returned to the Research Services Office prior to the expiry date.

The University of Wollongong/ Illawarra and Shoalhaven Local Health Network District (ISLHD) Social Science HREC is constituted and functions in accordance with the NHMRC National Statement on Ethical Conduct in Human Research.

If you have any queries regarding the HREC review process, please contact the Ethics Unit on phone 4221 3386 or email rso-ethics@uow.edu.au.

Yours sincerely

Associate Professor Melanie Randle
Chair, UOW Social Sciences
Human Research Ethics Committee