The Psychology of Career Calling

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Summary

This thesis examined the psychological predictors of career calling in university students. Given that there is no standard conceptualisation of calling, the first part of the research examined the predictors of different conceptualisations of calling. The results suggested that most predictors of calling were common across different conceptualisations of the construct (e.g., life meaning, positive core self-evaluations). However, religious individuals were more likely to endorse "prosocial" callings (i.e., oriented toward meeting other people's needs and contributing to society). Conversely, non-religious individuals, as well as those who had a left-wing political ideology, were more likely to endorse "personal" callings (i.e., oriented toward meeting one's needs and achieving self-fulfilment).

The second part of the research examined the psychological predictors of the presence of, versus search for, calling. The results suggested that these two pursuits of calling were associated with different overall mindsets. The presence of calling was associated with personality traits that indicate closed-mindedness and lower inquisitiveness (e.g., presence of life meaning, dogmatism). Conversely, the search for calling was associated with personality traits that indicate open-mindedness and higher inquisitiveness (e.g., search for life meaning, openness to experience). In the academic context, however, the presence of calling was associated with achievement goals that indicate higher resilience to challenges (e.g., mastery goals). In contrast, the search for calling was associated achievement goals that indicate lower resilience to challenges (e.g., performance goals).

Overall, this thesis highlights the plurality of the construct of calling and suggests that people's psychological traits shape the way they understand and pursue callings.

Chapter 1

The psychology of career calling: An introduction

The notion of having a calling in the context of work is an important concept in research and popular culture (Duffy & Dik, 2013; Rosso et al., 2010; Wrzesniewski, 2002). Researchers aim to understand the concept of calling, as well as its antecedents and effects, and a significant number of people simply ponder what their calling might be and how to find it (Duffy & Dik, 2013; Duffy & Sedlacek, 2010; Wrzesniewski, 2011; Wrzesniewski et al., 1997). Despite centuries of wisdom on the topic from philosophers and theologians (Aristotle, 384-322 BCE; Luther, 1517), there were very few empirical studies in the literature before 2005 (Thompson & Bunderson, 2019). Since then, the research on the concept has grown, resulting in a body of findings that show how calling relates to wellbeing and career outcomes (Duffy & Dik, 2013). This research growth coincides with a generational trend toward pursuing one's passions and calling at work (Ng et al., 2010). However, "callings are somewhat of a Rorschach test in social and organisational psychology—viewed from various angles, callings reveal different understandings, assumptions, and predictions regarding their nature and form" (Wrzesniewski, 2011, p. 45).

The goal of this chapter is to explain the construct of career calling, defining its components and dimensions, its antecedents and effects, and the ongoing debates over its very nature. I highlight the questions that remain unanswered and how I will attempt to elucidate them, striving to shed light on some of the debates in this area while also deepening our understanding of calling. The current thesis focuses on two central areas of inquiry regarding calling that have been debated or understudied: (1) the conceptualisation and measurement of calling, and (2) the psychological predictors of calling.

What is a career calling?

To date, there is no scientific consensus over the definition of "career calling", as the concept has received a wide variety of definitions in the literature (Dik & Shimizu, 2018; Duffy et al., 2018). Many of these definitions differ because some of them derive from classical religious literature, whereas others derive from the social sciences (Wrzesniewski, 2011). Beginning with classical literature, the term "calling" has religious roots (Davidson & Caddell, 1994). Traditionally, calling was based on the idea that people were "called" by God to do morally responsible work (Calvin, 1574; Hardy, 1990; Luther, 1883). Drawing on this traditional meaning, some authors have later defined calling more globally as a "meaningful beckoning toward activities that are morally, socially, and personally significant" (Wrzesniewski, Dekas & Rosso, 2009, p. 181). However, other scholars argue that calling has lost its transcendent connotation of prosocial duty, and define this concept in a more personal sense, as consisting of pleasurable and self-fulfilling work (Dobrow & Tosti-Kharas, 2011; Hall & Chandler, 2005). The ongoing definitional debate has informed a general distinction between "neoclassical" callings, which emphasise prosocial duty and destiny, and "modern" callings, which emphasise passion and self-fulfilment (Bunderson & Thompson, 2009; Dik & Shimizu, 2018; Shimizu et al., 2018; Thompson & Bunderson, 2019).

Neoclassical callings

The "neoclassical" view of calling is based on the traditional understanding of this construct, which traces back to the Protestant Reformation in Christian Europe. During this period, reformers Martin Luther and John Calvin challenged the established notion that work as a calling applied exclusively to the ministry and introduced the revolutionary idea that secular work could also constitute a life calling (Calvin, 1574; Luther, 1883). These theologians gave new dignity and meaning to secular work, arguing that every individual had a divine calling to serve the greater good in their daily work. They believed that every worker

had a duty to discover their God-given gifts and to use them for a purpose beyond self-interest (Hardy, 1990). This view of calling would define the way we understand the concept in modern society (Weber, 1930). Even without direct reference to God, neoclassical calling scholars define the concept in the modern era as the reflection of one's duty or destiny on Earth through work (Bunderson & Thompson, 2009; Wrzesniweski, 2011).

Specifically, neoclassical callings are understood as morally responsible work that the individual feels beckoned or destined to do (Dik & Shimizu, 2018; Thompson & Bunderson, 2019). For example, Dik and Duffy (2009, p. 427) define calling as "a transcendent summons, experienced as originating beyond the self, to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness, and that holds other-oriented values and goals as primary sources of motivation." Similarly, Coulson and colleagues (2012, p. 84) define calling as a belief that one "is destined to fulfil a particular life role, regardless of the sacrifice, that will make a meaningful contribution to the greater good." From this perspective, callings originate from a source beyond the self (e.g., God, destiny, salient social needs, a family legacy; Dik & Shimizu, 2018), and are found or discovered by the individual (Bunderson & Thompson, 2009; Wrzestiewski, 2011). Therefore, neoclassical definitions of calling retain the classical elements of prosocial duty and destiny, and emphasise individuals' responsibility to discover and use their gifts in service to others (Thompson & Bunderson, 2019).

Modern callings

In contrast to the neoclassical view of calling, the modern view assumes that the concept of calling has lost its classical connotation and is now more aligned with the growing culture of individualism (Dik & Shimizu, 2018; Thompson & Bunderson, 2019). Modern callings are understood as oriented within the self and serving as pathways for self-expression and self-fulfilment (Wrzesniewski, 2011). As opposed to the classical view of calling as

prosocial work that the individual feels compelled to do, modern callings are defined as enjoyable and fulfilling work that the individual feels passionate about (Dik & Shimizu, 2018). Thus, modern callings are meaningful because they are relevant to the individual, not necessarily because they serve the greater good (Thompson & Bunderson, 2019). For example, Dobrow and Tosti-Kharas (2011, p. 1005) define calling as "a consuming, meaningful passion people experience toward a domain." Similarly, Bellah and colleagues (1985, p. 66) define calling as "work that is not driven by financial gain or career advancement, but for the intrinsic enjoyment and fulfilment that comes from doing it." From this perspective, callings originate within the self (e.g., passions, interests), and are chosen or carved out by the individual (Berg et al., 2013; Rosso et al., 2010; Thompson & Bunderson, 2019; Wrzesniewski & Dutton, 2001). Therefore, modern definitions of calling foreground passion and self-fulfilment, and emphasise individuals' self-expression through their passions (Thompson & Bunderson, 2019).

"Middle-ground" callings

Although the contrast between neoclassical and modern callings suggests a clear division of opinions regarding the concept of calling, many definitions take a middle-ground approach and combine classical and modern elements (Thompson & Bunderson, 2019). These definitions often integrate the classical element of calling as work that contributes to society (as suggested by the neoclassical approach), but emphasise that calling can originate within the individual and does not require an external beckoning (as suggested by the modern approach; Dik & Shimizu, 2018; Thompson & Bunderson, 2019). For example, Praskova and colleagues (2015a, p. 20) define calling as a "mostly self-set, higher-order career goal that is personally meaningful and other-oriented." Similarly, Wrzesniewski and colleagues (1997, p. 24) define calling as "pleasurable work that the individual thinks makes the world a better place." Therefore, these accounts of calling marry the modern view of calling as self-driven

work with the classical view of calling as socially meaningful work (Thompson & Bunderson, 2019).

In summary, the various definitions of calling reflect different assumptions about the motivations of calling (Dik & Shimizu, 2018). One the one hand, neoclassical and "middle-ground" definitions of calling emphasise prosocial or self-transcendent goals. On the other hand, modern definitions emphasise personal or self-enhancing goals (Bunderson & Thompson, 2009). The differences in definitions reflect the plurality of calling, which seems to have different meanings for different people. Indeed, research participants are also divided in their understanding of the concept of calling and express different points of emphasis in this experience (Hirschi, 2011a; Shimizu et al., 2018). For example, some participants conceptualise calling as prosocial work (Hirschi, 2011a), and describe it as a transcendent summons or a call of destiny (Bunderson & Thompson, 2009; Duffy et al., 2014; Hunter et al., 2010). Conversely, other participants conceptualise calling in a more personal sense (Hirschi, 2011a) and describe it as a "perfect fit" between one's career and one's interests and passions (Duffy, Allan, et al., 2014; Hunter et al., 2010).

This paints a complicated picture of calling in the literature, especially as each definition of calling is associated with a different measure of the construct (Dik & Shimizu, 2018; Thompson & Bunderson, 2019). In the next section, I describe the different ways in which calling has been empirically measured, and the approach that I will take to try to forge a clearer path forward in this research area.

The measurement of calling

Numerous measurement instruments have been developed to assess calling, each of them based on a specific definition of the construct (Dik et al., 2012; Dik & Shimizu, 2018; Dobrow & Tosti-Kharas, 2011; Hall & Chandler, 2005; Thompson & Bunderson, 2019; Wrzesniewski et al., 1997). Although most calling measures assess multiple components of

calling, many measures are unidimensional (i.e., they summarise different components of calling in a global calling score; Dik & Shimizu, 2018; Thompson & Bunderson, 2019). For example, Dobrow and Tosti-Kharas' (2011) Calling Scale conceptualises calling according to the modern view and summarises different components of calling (e.g., passion, identity, urgency) in a global calling score. Another unidimensional example is Praskova and colleagues' (2015a) Career Calling Scale for Emerging Adults, which assesses a "middle-ground" calling. This measure aggregates three different components of calling (i.e., personal meaning, other-oriented meaning and active engagement) in a unidimensional calling score.

Conversely, other measures assess calling as a multidimensional construct and analyse each factor of calling separately (Hagmaier & Abele, 2012). For example, Dik, and colleagues' (2012) Calling and Vocation Questionnaire illustrates a neoclassical approach to calling and comprises two subscales that assess the presence of, and search for, calling. This multidimensional approach acknowledges that individuals may vary in their pursuit of calling, with some actively seeking, and others already perceiving a calling. Thus, this questionnaire yields two different scores, which reflect the extent to which individuals are searching for a calling (search), and the extent to which they currently have a calling (presence). In sum, although many measures focus on the presence of calling and assess calling as a unidimensional construct, other measures of calling are multidimensional and assess the presence of, and search for, calling.

The differences in conceptualisations and measures of calling have "muddied the waters" in this research area because they complicate the comparison and cumulation of research findings (Duffy et al., 2015, p. 352). For example, it is difficult to interpret the differences that emerge across studies that use different calling measures; they could be due to conceptual or psychometric differences in the assessment of calling, particular characteristics of the samples, or a combination of these factors (Dik & Shimizu, 2018). This

is a critical issue in this research area, which I will attempt to elucidate in Chapter 2. Specifically, I will treat the diversity of viewpoints on calling as a research opportunity rather than a liability, comparing the psychological correlates of different meanings and measures of calling in a single research programme. Although the multiple perspectives of calling may seem confusing, I attempt to reconcile the different approaches to the topic, examining their similarities and differences, and striving to bring new insight into the psychological nature of calling.

In the next section, I review the psychological research on calling, describing the correlates of calling, its outcomes and antecedents, and the differences between the presence of, and search for, calling. I highlight the promising areas for inquiry that remain open and how I intend to elucidate them.

The psychology of calling

The concept of calling is prevalent in the population. Approximately one-third of working adults (Wrzesniewski et al., 1997) and half of university students report that they have a career calling (e.g., endorsing statements such as: "I have a calling to my current line of study/work"; Duffy, Dik, & Steger, 2011). Additionally, people do not need to currently have a calling to find this construct relevant to their careers. Approximately one-third of university students report that they are actively searching for a calling (e.g., endorsing statements such as: "I'm searching for a calling in my career"; Duffy & Sedlacek, 2010). Given that this construct is prevalent for a significant segment of the population within and out of the workforce, researchers are increasingly interested in understanding how calling affects individuals, and why some people are more likely to feel a calling than others (Creed et al., 2016; Dalla Rosa et al., 2019; Duffy, Douglass, et al., 2014; Sturges et al., 2019). Despite the lack of a unified definition of calling in the literature, a large number of studies have examined how calling relates to wellbeing and career outcomes among working adults

and university students (Allan & Duffy, 2014; Dobrow & Heller, 2014; Duffy, Dik, et al., 2011; Wrzesniewski et al., 1997).

Outcomes of calling

Most of the research on calling is cross-sectional and has focused on the positive outcomes of having a calling. The benefits of calling seem to be remarkably consistent across different demographics and cultures, even if researchers have conceptualised and measured calling in different ways (Clinton et al., 2017; Dobrow & Heller, 2014; Duffy & Sedlacek, 2010; Hagmaier & Abele, 2012; Xie et al., 2016). The presence of calling is associated with higher levels of work and life satisfaction (Conway et al., 2015; Dobrow, 2004; Duffy et al., 2012, 2013; Duffy & Sedlacek, 2010; Wrzesniewski et al., 1997), and higher levels of meaning, purpose, and zest for life and work (Dik et al., 2012; Duffy, Manuel, et al., 2011; Duffy, Allan, et al., 2012, 2012; Duffy & Dik, 2013; Peterson et al., 2009; Steger et al., 2010). Individuals with callings generally report stronger commitment and identification with their careers (Bunderson & Thompson, 2009; Duffy, Dik, et al., 2011), have higher resilience to challenges in their career path (Dobrow & Heller, 2015; Praskova et al., 2014), and perform at higher levels than do their peers (Hall & Chandler, 2005; Kim et al., 2018; Rawat & Nadavulakere, 2015).

Specifically among working adults, the presence of calling is associated with higher levels of intrinsic motivation and satisfaction at work (Duffy, Dik, et al., 2011; Duffy, Bott, et al., 2012; Hirschi, 2011b; Peterson et al., 2009), and lower levels of absenteeism and turnover intentions (Wrzesniewski et al., 1997; Wrzesniewski, 2011). Workers who have a calling also tend to report a strong sense of occupational identity, occupational self-efficacy and person-job fit (Duffy, Bott, et al., 2012; Duffy et al., 2013; Hirschi, 2012). That is, they tend to be more committed to their jobs and organisations, and feel that their work aligns with their interests and values. People who approach their work as a calling show a higher preference

for challenging work than those who approach their work as a *job* (i.e., a means to an income) or a *career* (i.e., a means to advance their status; Shea-Van Fossen & Vredenburgh, 2014). They also suffer less emotional exhaustion (Rawat & Nadavulakere, 2015), and have better health (Wrzesniewski et al., 1997), improved sleep quality and morning vigour (Clinton et al., 2017), and higher overall wellbeing (Conway et al., 2015; Steger et al., 2010).

Among university students, who are out of the workforce, the presence of calling is understood as a motivating force for one's future work (Duffy & Sedlacek, 2007). Students who feel a calling to their future careers report more positive career attitudes (Steger et al., 2010) and more career engagement and planning (Hirschi, 2011a; Hirschi & Herrmann, 2013). They also have higher career expectations and work hope (Dik et al., 2008; Domene, 2012; Praskova et al., 2015b), and show more motivation and effort to pursue their chosen career (Dobrow & Heller, 2015; Praskova et al., 2014). Students who have a calling also tend to report higher career choice comfort, career decidedness, self-clarity, and choice-work salience (Duffy & Sedlacek, 2007). That is, they are generally more comfortable and confident in making career choices, and have more clarity regarding their interests, abilities and future professional identity (Hirschi & Herrmann, 2012). The presence of calling among university students is also related to increased overall wellbeing, including higher life meaning and satisfaction, and higher academic satisfaction (Duffy, Allan, et al., 2012; Duffy & Sedlacek, 2010; Steger et al., 2010).

Antecedents of calling

Despite the advances made in understanding the outcomes of calling, we know little about the origins and developmental trajectories of calling (Duffy & Dik, 2013; Elangovan et al., 2010; Thompson & Bunderson, 2019; Zhang et al., 2017). Callings may begin long before one enters the workforce (Wrzesniewski, 2011), specifically during young adulthood (18-25 years old; Arnett, 2000), when people begin to formulate their career goals and make

career decisions to achieve meaningful work as an adult (Praskova et al., 2015ab). For that reason, university students are a particularly valuable population to explore the antecedents of calling. To date, a handful of longitudinal studies have revealed several social, personal and career-related antecedents of calling in young adults.

In terms of social antecedents, individuals are more likely to develop a calling when they are behaviourally involved in the calling domain (i.e., doing activities associated with the calling domain) and feel social comfort with other individuals in the same domain (Dobrow, 2013). In terms of personal antecedents, people are more prone to develop a calling when they have positive self-evaluations, including higher self-esteem, self-worth and self-efficacy (Dobrow & Heller, 2015; Hirschi, 2011a, 2011b). Other personality predictors of calling are personal growth initiative—a strong desire to grow and improve as a person (Bott & Duffy, 2015), intrinsic religiousness (Blustein, 2008; Dik et al., 2008) and the presence of, and search for, life meaning (Bott & Duffy, 2015; Praskova et al., 2014). Finally, research on the career-related antecedents of calling suggests that individuals are more likely to perceive a calling when they have clear vocational interests, and when they are decisive and planful regarding their careers (Dalla Rosa et al., 2019; Duffy, Douglass, et al., 2014; Hirschi & Herrmann, 2013).

Overall, many of the variables that have been proposed as antecedents of calling have also been proposed as outcomes of calling (e.g., vocational self-clarity, career preparation, personal growth, positive self-evaluations; Bott & Duffy, 2015; Hirschi & Herrmann, 2013). This suggests that the relationships between calling and these variables may be reciprocal and reinforcing (Duffy, Douglass, et al., 2014; Hirschi & Herrmann, 2013; Thompson & Bunderson, 2019).

The presence of, and search for, calling

Although most of the research on calling has focused on the presence of calling, some studies have elucidated critical differences between individuals who have a calling and those who are searching for a calling (Buis et al., 2019; Dik et al., 2012; Duffy & Sedlacek, 2007, 2010; Woitowicz & Domene, 2013). Specifically, the presence of, and search for, calling seem to be associated with different wellbeing and career-related outcomes. For example, students who are searching for a calling tend to report lower satisfaction and meaning in life (Duffy & Sedlacek, 2010), lower motivation and career decisiveness, and higher confusion about their interests and abilities (Duffy & Sedlacek, 2007; Woitowicz & Domene, 2013). Conversely, students who have the presence of a calling show the opposite tendencies (i.e., higher wellbeing, motivation, decisiveness and self-clarity; Duffy & Sedlacek, 2007, 2010; Woitowicz & Domene, 2013). These findings suggest that students' wellbeing and career development vary greatly depending on whether they perceive or seek a calling. However, at present, we know little about why some people are more likely to feel a calling and others are more likely to search for one.

In Chapters 3 and 4, I will attempt to fill this gap in the literature by examining the psychological predictors of the presence of, versus search for, calling. I will investigate the psychological differences between these two pursuits of calling, and the extent to which they encompass different overall mindsets. My goal is to create a psychological profile of the presence of, and search for, calling, and elucidate why and when people develop different pursuits of calling.

To summarise, although promising progress has been made in understanding the outcomes of calling (Duffy & Dik, 2013), many questions remain regarding its antecedents (Duffy et al., 2018; Thompson & Bunderson, 2019; Wrzesniewski, 2011). The influence of calling on people's lives and careers has been established. What remains is the need to

explain why some individuals develop a career calling while others do not. This is a fundamental question in this research area, which I will attempt to answer throughout this thesis. The focus of this thesis is therefore on the psychological predictors of calling and the personal characteristics that explain why some individuals feel a calling more than others. In Chapter 2, I begin by exploring the psychological factors associated with different meanings and measures of calling to gain insight into the multifaceted nature of calling. In Chapters 3 and 4, I focus on the psychological predictors of the presence of, versus search for, calling to understand the differences between individuals who have a calling and those who are struggling to find one. The following section provides an outline of the research methodology and analytical approach.

Research methodology and analytical approach

The present research takes a quantitative-based, cross-sectional approach to examine the predictors of career calling, using three established calling measures that are often cited in the literature (Dik & Duffy, 2009; Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). Given the diversified nature of the conceptualisation of calling in its current state, this approach can provide much-needed clarity on how the predominant types of calling may differ in their psychological correlates. Conversely, many studies have used qualitative methods to tap the individual and diversified meanings of calling (e.g., Hunter et al., 2010). However, these approaches are limited in that they cannot provide exact numerical and statistical analyses of common and diverging correlates of calling, and are often more limited in their generalisability due to the typically much smaller number of participants compared to quantitative studies.

To analyse the data, all the studies in this research employ multiple regression analyses, which enable the testing of predictive models and the identification of the strongest predictors of calling while keeping other factors constant. Additionally, to analyse the

predictors of the presence of, versus search for, calling, this research accounts for any overlap between the two calling dimensions. The presence of, and search for, calling of calling tend to overlap and are typically positively correlated, but they have different relationships with other variables (Duffy & Sedlacek, 2007; 2010). In order to observe the unique correlates of the presence of, and search for, calling, it is therefore important to control for the overlap between the calling dimensions (Duffy & Sedlaceck, 2007). The present research does so by partialling out the calling dimensions from one another (removing shared variance) before analysing their relationships with the predictors. This technique entails using residual scores (partialled variables), as opposed to raw scores, to reflect the presence of calling (free of any search), and the search for calling (free of any presence). This is a commonly used technique in psychology to analyse the differences between two closely related constructs, or two aspects of a multidimensional construct (see Cichocka, Dhont and Makwana (2017) for an example of partialling in the context of narcissism, and Stoeber, Sherry and Nealis (2015) in the context of perfectionism). The following section provides a summary of the chapters of the thesis.

Summary of chapters

Chapter 2: Why do people feel a career calling? An examination of the correlates of different meanings and measures of calling

As noted above, although "calling" is an ancient term, the research on calling is still in its early stages (Thompson & Bunderson, 2019). The multiple understandings of calling and debates around its measurement are a testament to this (Wrzesniewski, 2011). Although there is no standard conceptualisation of career calling, definitions can be categorised as *prosocial* and other-oriented, or *personal* and self-oriented (Dik & Shimizu, 2018; Thompson & Bunderson, 2019). This definitional division creates obstacles for the generalisation and cumulation of research findings, especially because each definition of calling is based on a

different measure of the construct (Duffy et al., 2018). The extant calling measures differ psychometrically because some of them assess calling as a unidimensional construct (i.e., calling as one global concept), whereas others assess calling as a multidimensional construct (including the *presence* of, and *search* for, calling; Duffy & Dik, 2013). Overall, the diversity of conceptualisations and measures of calling creates challenges for ongoing research (Dik & Shimizu, 2018). For example, which calling measure should new researchers interested in this topic use? On a more fundamental level, if researchers define and measure calling in different ways, what can we conclude about the core nature of calling and its correlations with other variables?

This chapter aims to provide greater conceptual clarity on the construct of calling and contribute to a better understanding of its psychological correlates. Given that people differ in their understanding of calling (prosocial versus personal), and also in their pursuit of calling (presence versus search for calling), the question might not be which conceptualisation of calling is the "right" one, but rather what are the differences between people who endorse different calling constructs? (Duffy et al., 2018). To answer this question, Chapter 2 examines the psychological correlates of multiple meanings and measures of calling. Specifically, the research aims to clarify the differences between the predominant meanings of calling (prosocial vs personal) and pursuits of calling (presence vs search). The studies focus on the predictors of calling, rather than its outcomes, to provide much-needed insight into how people's psychological traits may affect their experiences of calling (Duffy et al., 2018). Thus, in contrast to the dominant research approach to calling, which is to choose a particular measure of calling for the study and examine its outcomes (Duffy & Dik, 2013; Thompson & Bunderson, 2019), this research uses various calling measures in a single research programme and examines how they differ in terms of predictors.

All the studies investigate calling in university students, who tend to vary substantially in their pursuit of calling, with some actively searching, others with a presence of calling, and others who might view calling as an irrelevant concept (Buis et al., 2019; Dik et al., 2012; Dik & Duffy, 2009; Duffy & Sedlacek, 2010). In Studies 1-3, I examine the psychological correlates of prosocial versus personal conceptualisations of calling (using two unidimensional measures of calling; Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). I expect that these two types of calling will share common predictors as they both reflect the presence of a calling. However, they will also have unique predictors because prosocial and personal callings are based on different goals (self-transcendence versus self-enhancement). In Study 4, I examine the correlates of the presence of, versus search for calling (using a multidimensional measure of calling; Dik et al., 2012). Based on prior research, I expect that these two dimensions of calling will have different, and in some cases, opposite psychological predictors. The overall goal of this chapter is to identify the correlational differences among frequently cited conceptualisations and measures of calling to paint a clearer picture of this construct in the literature.

Chapter 3: Examining the psychological factors associated with the presence of, versus search for, a career calling

As mentioned earlier, the research on calling has expanded in the past decade, but this research has mostly focused on the presence of calling (or has measured calling as a unidimensional construct), thus ignoring the differences between the presence of, and search for, calling (Dik & Shimizu, 2018; Duffy & Dik, 2013). However, a small number of studies suggest that the distinction between the presence of, and search for, calling is important because these two pursuits of calling have different, and sometimes opposite, outcomes. For example, the presence of calling among students is related to higher satisfaction and meaning in life, as well as vocational identity clarity, career decisiveness and higher academic

motivation. Conversely, the search for calling is related to lower satisfaction and meaning in life, as well as vocational identity confusion, career indecisiveness and lower academic motivation (Duffy & Sedlacek, 2007, 2010; Woitowicz & Domene, 2013). These findings suggest that students' wellbeing and career progression vary substantially depending on whether they have a calling or are searching for one. Because of these differences, it is therefore important to consider both the "presence" and "search" dimensions when examining career calling in young adults. In this chapter, I do so by focusing more closely on the psychological predictors of these two dimensions of calling and examining the extent to which the presence of, and search for, calling may encompass different overall mindsets.

Across two studies (Studies 5 and 6), I examine the relationship between the calling dimensions and psychological predictors that indicate different levels of inquisitiveness. Based on prior research and theory, I predict that the presence of calling will be associated with variables that indicate close-mindedness and lower inquisitiveness (e.g., presence of life meaning and dogmatism). Conversely, the search for calling will be associated with variables that indicate open-mindedness and higher inquisitiveness (e.g., search for life meaning and openness to experience). My goal is to identify the psychological underpinnings of different pursuits of calling and elucidate the personality differences between the presence of, and search for, calling.

Chapter 4: The mindsets and goal orientations associated with the presence of, versus search for, a career calling

In the previous chapter, I examined the personality traits associated with the presence of, and search for, calling. In this chapter, I further explore the mindsets associated with these two pursuits of calling and how they play out in the context of academic achievement. Previous research suggests that people who have a calling are more resilient facing career challenges than people who do not have a calling (Dobrow & Heller, 2015; Praskova et al.,

2014). For example, people who feel a calling are more likely to take on challenging careers and persevere in these careers even if they are advised not to do so (Dobrow & Tosti-Kharas, 2012). This suggests that people who have a calling may be more resilient facing career challenges than those who are searching for a calling (but do not have a calling yet). However, the research on calling thus far has not examined this hypothesis directly. In this chapter, I seek to fill this gap in the literature by examining how the presence of, and search for, calling relate to achievement goals in the academic context. I aim to create a comprehensive psychological profile of the presence of, and search for, calling, which includes personality traits and career-related factors (i.e., motivational orientations).

Across two studies (Studies 7 and 8), I examine the relationship between the presence of, and search for, calling and psychological predictors that reflect different achievement orientations. Based on previous research, I predict that the presence of calling will be associated with factors that indicate a focus on learning and developing one's competence at school (incremental theories of ability and mastery goals). Students with this motivational orientation tend to have higher resilience facing academic challenges because they view failures as opportunities to learn how to improve (Grant & Dweck, 2003). Conversely, I predict that the search for calling will be associated with factors that indicate a focus on performing well in assessments and demonstrating one's competence at school (entity theories of ability and performance goals). Students with this motivational orientation tend to have lower resilience facing academic challenges because they view failure as a threat to their self-esteem (Grant & Dweck, 2003). Overall, this chapter seeks to extend the research on the personality and career-related correlates of calling, and elucidate how the presence of, and search for, calling differ in achievement situations.

Chapter 5: Discussion and conclusions

In this chapter, I discuss the findings of the thesis in the broader context of previous literature. I begin by highlighting the contribution and value of the current work and describing its theoretical and practical implications. Next, I discuss the limitations of the studies and the promising avenues for future research that remain open in the topic of calling.

Chapter 2

Why do people feel a career calling? An examination of the psychological correlates associated with different meanings and measures of calling

* This chapter has been written in the form of an academic paper for publication. Therefore, there will be some repetition in the introductory section between this chapter and the previous one.

Half of American university students report that they have a career calling (Duffy & Dik, 2013; Duffy & Sedlacek, 2010), "the feeling of a deep, meaningful passion for a particular line of work" (Zhang et al., 2017, p. 2). Calling has positive outcomes for people's careers and wellbeing, such as heightened levels of life satisfaction and increased feelings of meaning in life and work (Duffy & Dik, 2013). However, less is known about the psychological factors that predict calling (Creed et al., 2016; Galles & Lenz, 2013). One of the barriers to investigating these factors is that there is currently little scientific consensus over the definition and measurement of calling (Dik & Shimizu, 2018; Duffy et al., 2018; Thompson & Bunderson, 2019). The current research aimed to create a clearer picture of calling in the literature by comparing the psychological predictors of different calling conceptualisations. Specifically, I used three established measures of calling and tested their relationships with both previously examined, and potentially new, psychological correlates. My goal was to identify the psychological differences between the predominant meanings of calling (prosocial and personal), and pursuits of calling (presence of, and search for, calling).

Conceptualisation of calling

The definition of calling is the subject of ongoing debate in the scientific literature as the concept has received a variety of definitions (Shimizu et al., 2018). These definitions differ because some of them derive from classical religious works ("neoclassical"), and others

derive from the modern social sciences ("modern"; Bunderson & Thompson, 2009; Dik & Shimizu, 2018; Duffy & Dik, 2013; Thompson & Bunderson, 2019; Wrzesniewski, 2011).

On the one hand, "neoclassical" definitions of calling are based on the historical notion of calling as an external beckoning to pursue socially significant work (Thompson & Bunderson, 2019). For example, Dik and Duffy (2009, p. 427) define calling as "a transcendent summons, experienced as originating beyond the self, to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness, and that holds other-oriented values and goals as primary sources of motivation." On the other hand, "modern" definitions of calling share the element of meaningfulness but they define calling in a more personal sense, as an intrinsic drive for passion and self-fulfilment, without the need for prosocial goals (Thompson & Bunderson, 2019). For example, Dobrow and Tosti-Kharas (2011, p. 1005) define calling as "a consuming, meaningful passion people experience toward a domain." Lastly, other definitions take a middle-ground approach and emphasise meaningfulness and prosocial goals (as suggested by the neoclassical approach), but stressing that a calling can originate within the individual and does not require a transcendent summons (as suggested by the modern approach; Wrzesniewski et al., 1997). For example, Praskova and colleagues (2015a, p. 20) define calling as a "mostly self-set, higher-order career goal that is personally meaningful and other-oriented."

The diversity of definitions creates obstacles for ongoing research, especially as different conceptualisations of calling are based on different measures of the construct (Duffy et al., 2018).

Calling measures

At present, there are multiple calling measures in use, each corresponding to a particular definition of the construct (Dik & Shimizu, 2018; Duffy et al., 2018; Thompson &

Bunderson, 2019). Although most calling measures assess multiple components of calling, some measures assess calling as a unidimensional construct (i.e., they summarise different components of calling in a global calling score; Thompson & Bunderson, 2019). For example, Dobrow and Tosti-Kharas' (2011) Calling Scale summarises multiple aspects of a "modern"/personal calling (e.g., passion, identity, urgency) in a unidimensional calling score. Similarly, Praskova and colleagues' (2015a) Career Calling Scale summarises different components of a "middle-ground"/prosocial calling (e.g., personal meaning, prosocial meaning and active engagement) in a global calling score. Nonetheless, other measures assess calling as a multidimensional construct (i.e., they analyse different dimensions of calling independently; Dik & Duffy, 2009). For example, Dik and colleagues' (2012) Calling and Vocation Questionnaire is a multidimensional measure that assesses the presence of, and search for, a "neoclassical"/prosocial calling. This measure produces two separate scores that indicate the extent to which individuals have the presence of a calling, and the extent to which they are searching for a calling. Therefore, although most measures of calling are unidimensional and assess the presence of calling, other measures are multidimensional and assess the presence of, and search for, calling.

The myriad of definitions and measures of calling paint a complicated picture of this construct in the literature and create challenges for the global coherence and cumulation of research findings on the topic of calling (Dik & Shimizu, 2018). For example, how should we interpret the differences that may emerge across studies that use different calling measures? They may be due to psychometric differences in the calling scales, conceptual differences in the definition of calling, particular characteristics of the samples, or a combination of all of these elements. On a more fundamental level, if there is disagreement about the meaning of the construct, what exactly can be concluded about the core nature of calling and its correlates? As a first step to answer these questions, we need a higher degree of clarity of the

differences among the various calling constructs that have been proposed in the literature (Dik & Shimizu, 2018; Duffy et al., 2018). Specifically, it seems important to elucidate the differences between the predominant meanings of calling (prosocial versus personal), and pursuits of calling (presence of, versus search for, calling).

On the one hand, prosocial and personal callings are typically assessed with unidimensional measures, which represent the presence of a career calling (e.g., Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). Thus, they generally overlap and share common correlates. Specifically, the positive outcomes of having a calling seem to be remarkably consistent regardless of whether calling is conceptualised as personally or socially meaningful (Dobrow & Heller, 2015; Duffy, Douglass, et al., 2014; Duffy & Dik, 2013; Duffy & Sedlacek, 2010). Therefore, the differences between prosocial and personal understandings of calling may be more likely to manifest in how callings develop (i.e., predictors of calling) rather than how callings predict outcomes (Duffy et al., 2018). On the other hand, the presence of, and search for, calling are assessed with multidimensional measures of calling, which allow examination of these two constructs independently (Dik et al., 2012; Dik & Duffy, 2009). Although the two pursuits of calling are typically positively correlated, they are associated with different, and sometimes opposite, correlates and outcomes (Dik et al., 2012; Duffy & Sedlacek, 2007, 2010). For example, the search for calling is associated with more negative wellbeing and career-related outcomes than the presence of calling (Duffy & Sedlacek, 2007, 2010). However, at present, we know little about why some individuals are more likely to perceive a calling and others are more likely to search for one.

In sum, although previous studies have identified the outcomes of different conceptualisations of calling (Duffy & Dik, 2013), research has paid much less attention to the predictors of calling. Therefore, it is difficult at present to identify why people develop different understandings and pursuits of calling. However, from the existing literature, it is

possible to hypothesise the psychological traits that may lead to these differences. In the following section, I highlight what the research has discovered so far and propose some key additional factors that are likely to predict different calling constructs. I derive specific hypotheses of what each predictor implies for the different understandings of calling (prosocial and personal) and pursuits of calling (presence of, and search for, calling).

Table 1

Components and dimensions of the conceptualisations of calling.

	Modern →		Neoclassical
	e.g., Dobrow & Tosti-Kharas (2011)	e.g., Praskova, Creed & Hood (2015a)	e.g., Dik & Duffy (2009)
Components/**Dimensions**	**Unidimensional**	**Unidimensional**	**Presence and Search**
Meaningful	X	X	X
Prosocial Motivation		X	X
Transcendent Summons			X

Note. Adapted from "Multiple Meanings of Calling" by Dik and Shimizu (2018, p.3).
X indicates that this component is included in the authors' original conceptualisation.

Psychological predictors of calling

Previously identified correlates

Life meaning. One of the strongest correlates of calling identified in the literature is life meaning. People who have a calling tend to perceive their lives as more meaningful and purposeful than people who are searching for a calling, or have no calling at all (Duffy & Sedlacek, 2010; Steger et al., 2010). The presence of life meaning is both a predictor and an outcome of the presence of calling (Duffy, Manuel, et al., 2011; Duffy, Allan, et al., 2012). This suggests that these two variables may be reciprocal and reinforcing. A calling may

emerge from a deep understanding of one's purpose in life (what one is "meant to do"; Sturges et al., 2019) and in turn reinforce one's sense of meaning in life (Duffy, Allan, et al., 2012). The link between the presence of calling and the presence of life meaning has been mostly examined using Dik and Duffy's (2009) prosocial conceptualisation of calling (Duffy, Allan, et al., 2011; Duffy, Manuel, et al., 2011). However, the notion of meaningfulness/purposefulness is a defining component of calling across both prosocial and personal conceptualisations of calling (Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). In fact, it is the main reason why different measures of calling overlap in content substantially (Dik & Shimizu, 2018). Therefore, life meaning might be a core predictor of the presence of calling across different conceptualisations of the construct.

Hypothesis 1: People who have a career calling possess a higher sense of meaning in life regardless of whether their calling is personal or prosocial.

Core self-evaluations. Another established correlate of the presence of calling is positive core self-evaluations, which indicate a positive assessment of one's worthiness and capability as a person (Hirschi, 2011a; Hirschi & Herrmann, 2012). Specifically, people who have a calling tend to report higher self-esteem, self-efficacy, and more emotional stability than those with no calling (Hirschi & Hermann, 2012). These traits have been associated with the presence of calling using Dik and Duffy's (2009) prosocial conceptualisation, but other calling conceptualisations have been associated with similar traits, such as higher domain-specific self-esteem (personal calling; Dobrow & Heller, 2015), and higher emotional regulation (prosocial calling; Praskova et al., 2015a). The overlap between these psychological variables suggests that individuals who have a calling tend to have a positive self-regard regardless of how they conceptualise calling. Therefore, positive self-evaluations might be a common predictor of the presence of calling across all conceptualisations of the construct.

Presence vs search for calling. While most people who have a calling seem to have positive self-evaluations, people who are searching for a calling may have more negative self-evaluations. That is, the presence of, and search for, calling may be associated with opposite self-views. Prior research suggests that the presence of calling is related to a clear idea of one's talents and abilities (self-clarity), whereas the search for calling is related to the opposite perception (identity confusion; Duffy & Sedlacek, 2007). Furthermore, the presence of calling is associated with variables that indicate high self-esteem and self-acceptance (e.g., presence of life meaning), whereas the search for calling is associated with variables that indicate lower self-esteem and self-acceptance (e.g., search for life meaning; Duffy & Sedlacek, 2010; Steger et al., 2008). This suggests that people who have a calling may have higher self-confidence and a more positive self-appraisal, whereas people who are searching for a calling may have higher self-doubt and a more negative self-appraisal.

Hypothesis 2a*:* People who have a career calling have more positive core self-evaluations regardless of whether their calling is personal or prosocial.

Hypothesis 2b*:* People who have a career calling have positive core self-evaluations, whereas people who are searching for a calling have negative core self-evaluations.

Religiousness. Calling has been theoretically and empirically associated with religiousness for decades (e.g., Duffy & Sedlacek, 2010; Hardy, 1990; Hirschi, 2011; Steger et al., 2010). Individuals who have a strong sense of calling tend to be more religious than individuals with a lesser calling (Duffy & Sedlacek, 2010; Steger et al., 2010). However, this link has been mainly examined with prosocial measures of calling (e.g., Dik et al., 2012), which align more with the values and goals promoted by religions than personal callings (Dik & Shimizu, 2018; Thompson & Bunderson, 2019). Previous studies show that religious individuals are more likely to endorse callings that are other-oriented and self-transcendent rather than callings that are self-oriented and self-enhancing (Hirschi, 2011a). Indeed,

religious beliefs combine the notion of the supernatural with notions of the moral and prosocial (Norenzayan et al., 2016), and religious individuals tend to be more prosocial than non-religious individuals (Stagnaro et al., 2019). This suggests that religious individuals may be more likely to endorse prosocial callings than personal ones. That is, religiousness may be a predictor of prosocial, but not personal, conceptualisations of calling.

Presence vs search for calling. Studies examining the differences between the presence of, and search for, calling suggest that these two pursuits of calling have different relationships with religiousness. The presence of a calling is related to religiousness, but the search for a calling is not (Duffy & Sedlacek, 2010). Unlike the religious differences between prosocial and personal callings, which may be based on the moral and prosocial connotations of religions, the religious differences between the presence of, and search for, calling may have a different nature. This is because both the presence and search for calling are based on self-transcendent values and prosocial goals (Dik et al., 2012). The religious differences between the presence of, and search for, calling may instead reflect different cognitive styles. The presence of calling may be associated with a lower tendency to question one's ideas and beliefs because it is related to higher reluctance to reconsider one's career interests and choices (Dobrow & Tosti-Kharas, 2012). This reluctance to critically analyse one's beliefs is associated with religious faiths and other supernatural beliefs (Gervais & Norenzayan, 2012; Stagnaro et al., 2019). Conversely, the search for a calling might be associated with a higher tendency to question one's opinions and beliefs because it is related to identity confusion and career indecisiveness (Duffy & Sedlacek, 2007). This tendency to critically analyse one's ideas is associated with higher religious scepticism (Gervais & Norenzayan, 2012). Therefore, religiousness may predict the presence of a calling, but not the search.

Hypothesis 3a*:* People who have prosocial callings are more religious than people who have personal callings.

Hypothesis 3b*:* People who have a career calling are more religious than people who are searching for a calling.

Potential new correlates

Paranormal beliefs. Beyond the previously identified variables, the literature on calling suggests that other factors might predict the presence of calling across prosocial and personal conceptualisations. One of these core predictors of calling may be paranormal beliefs—supernatural beliefs that are incompatible with scientific explanation (e.g., supernatural beliefs, superstition, magical thinking; Eckblad & Chapman, 1993). These beliefs are generally associated with religiousness because they both fall under the umbrella of supernatural beliefs (Wilson et al., 2014). However, religious beliefs represent the traditional form of supernatural beliefs, whereas paranormal beliefs represent the contemporary form (astrology, ESP, telepathy; Rice, 2003). People who have a sense of calling often attribute their calling to a supernatural force, which can be God (prosocial callings; Dik et al., 2012) but also destiny, or another invisible power (personal callings; Dobrow & Tosti-Kharas, 2011). This suggests that calling may be associated with a general tendency to believe in supernatural phenomena, which extends beyond religion. That is, people who have a calling might have a higher predisposition to believe that events are controlled by magical forces (e.g., random events happen for a reason). Paranormal beliefs are the considered a secular form of supernatural beliefs; hence, they are not related to the religious element of moral or prosocial duty (Norenzayan et al., 2016; Stagnaro et al., 2019). Therefore, paranormal beliefs may be a core predictor of the presence of calling across prosocial and personal conceptualisations of the construct.

Presence vs search for calling. However, the presence of, and search for, calling may have different relationships with paranormal beliefs. Previous studies suggest that people who have a calling are more likely to hold supernatural beliefs than people who are searching for a

calling (in the form of religious beliefs; Duffy & Sedlacek, 2010). As previously argued, this may be because individuals who have the presence of a calling have a lower tendency to question their opinions and critically analyse their beliefs. This way of thinking is related to stronger supernatural beliefs, including paranormal beliefs, spirituality and religiousness; (Aarnio & Lindeman, 2005; Gervais & Norenzayan, 2012). In contrast, individuals who are searching for a calling may have a higher tendency to question their opinions and critically analyse their beliefs. People who display this tendency tend to be more sceptical of paranormal and supernatural beliefs (Aarnio & Lindeman, 2005). Therefore, paranormal beliefs may predict the presence of a calling, but not the search.

Hypothesis 4a: People who have a career calling have stronger paranormal beliefs regardless of whether their calling is personal or prosocial.

Hypothesis 4b: People who have a career calling have stronger paranormal beliefs than people who are searching for a calling.

Political ideology. Another potential predictor of calling that may be common across different understandings of calling might be political conservatism. People's political ideology affects their career-decision making because different political orientations are associated with different cognitive styles (Jost et al., 2009). Conservatism is associated with higher dogmatism—a tendency to hold strong opinions and beliefs, and be reluctant to change them. Conversely, liberalism is related to higher openness to experience—a tendency to be flexible regarding one's opinions and beliefs, and be willing to consider other perspectives (Jost et al., 2009). One of the most salient features of people who have a calling is that they are unequivocally certain about their vocational choice, even from an early age (prosocial calling; Dalla Rosa et al., 2019; Duffy, Douglass, et al., 2014; Duffy & Sedlacek, 2007). Furthermore, individuals who feel called are more reluctant to make changes in their career path, even if they are advised to do so (personal calling; Dobrow & Tosti-Kharas, 2012). This

suggests that the presence of calling may be more likely among conservative individuals, who are more certain and rigid regarding their ideas and beliefs, than among liberals, who are more flexible and open to change their views. The feelings of certainty and resistance to change are common among people with prosocial and personal types of calling (Dalla Rosa et al., 2019; Dobrow & Tosti-Kharas, 2012). Therefore, people who have the presence of a calling may tend to lean toward a conservative political ideology regardless of whether they conceptualise calling as personal or prosocial.

Presence vs search for calling. While the presence of calling may be associated with a conservative way of thinking, the search for calling may be related to a liberal way of thinking. That is, the presence of, and search for, calling may be associated with opposite political orientations. One of the most salient features of people who are searching for a calling is that they are highly uncertain and indecisive about their vocational interests (Duffy & Sedlacek, 2007). People who are searching for a calling are trying to find out what they are "meant to do" in life and they are searching for something that will give their lives a sense of purpose and meaning (Dik et al., 2012). Therefore, they may be particularly open to change and oriented toward challenging the status quo (left-wing political ideology). In contrast, people who have a calling are sure about they are "meant to do" in life and what gives their lives a sense of meaning and purpose. Thus, they may be particularly resistant to change and oriented toward preserving the status quo (right-wing political ideology). In sum, I predicted that the presence of calling would be associated with a right-wing political leaning, whereas the search for calling would be associated with a left-wing political leaning.

Hypothesis 5a: People who have a career calling have a conservative political ideology regardless of whether their calling is personal or prosocial.

Hypothesis 5b: People who have a career calling have a conservative political ideology, whereas people who are searching for a calling have a liberal political ideology.

Intolerance of uncertainty. A final predictor of calling that may be common across prosocial and personal conceptualisations of calling is intolerance of uncertainty (i.e., anxiety about unknown future events). People who are intolerant of uncertainty tend to show more decisiveness and planning in the career decision-making process because they have a higher need to know what their outcomes will be, and they find dealing with uncertainty particularly distressing (Xu & Tracey, 2014). The presence of calling is associated with higher career decisiveness and a clear plan of what one will achieve and become in the context of work, even from a young age (Duffy & Sedlacek, 2007; Hirschi & Herrmann, 2013; Zhang et al., 2017). This suggests that people who have a calling might have a higher need for certainty and predictability over their future than people who do not have a calling. Furthermore, calling has been associated with higher career decisiveness and planning across prosocial and personal conceptualisations of calling (Dalla Rosa et al., 2019; Dobrow & Heller, 2015). This suggests that individuals with a presence of calling may be particularly intolerant of uncertainty regardless of how they conceptualise calling.

Presence vs search for calling. Nonetheless, the presence of, and search for, calling may have different relationships with intolerance of uncertainty. Previous studies suggest that students who are searching for a calling are significantly less decisive and planful in the career decision-making process than students who have a calling (Duffy & Sedlacek, 2007). This suggests that people who are searching may feel less anxious when they lack certainty and predictability over their outcomes. That is, individuals searching for a calling may be more comfortable dealing with uncertainty and may feel a lower urgency to know what their outcomes will be compared to individuals who feel the presence of a calling. Therefore, intolerance of uncertainty may predict the presence of calling, but not the search for calling.

Hypothesis 6a: People who have a career calling are more intolerant of uncertainty regardless of whether their calling is personal or prosocial.

Hypothesis 6b: People who have a career calling are more intolerant of uncertainty than people who are searching for a calling.

Overview of the studies

The present research seeks to provide conceptual clarity on the construct of calling by examining the psychological correlates of different meanings and measures of calling. The goal of this chapter is to elucidate the differences between the predominant meanings of calling (prosocial versus personal), and pursuits of calling (presence versus search). Regarding the meanings of calling, I predict that prosocial and personal conceptualisations of calling will share common predictors: life meaning, positive core self-evaluations, paranormal beliefs, political conservatism and intolerance of uncertainty. However, prosocial callings will be uniquely associated with religiousness. Regarding the pursuits of calling, I predict that the presence of calling will be associated with the correlates of prosocial callings: positive self-evaluations, religiousness, paranormal beliefs, political conservatism and uncertainty intolerance. Conversely, the search for calling will be will uniquely associated with negative self-evaluations and liberal political ideology.

To test these hypotheses, I conducted four studies with university students. Studies 1-3 focused on the differences between personal and prosocial conceptualisations of calling. In Study 1, participants completed two unidimensional measures of calling illustrating a personal and a prosocial calling (Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). They also completed measures of life meaning, core self-evaluations, religiousness, paranormal beliefs, political ideology, and uncertainty intolerance. In Studies 2 and 3 participants completed the same measures, but each study assessed calling with a different scale (Study 2: Dobrow & Tosti-Kharas, 2011; Study 3: Praskova et al., 2015a). Study 4 focused on the differences between the presence of, and search for, calling. Participants completed a multidimensional measure of calling incorporating both the presence of, and

search for, calling (Dik et al., 2012) alongside measures of core self-evaluations, religiousness, paranormal beliefs, political ideology, and uncertainty intolerance.

Study 1

The first study used two unidimensional measures of calling, which reflected a prosocial calling (Praskova et al., 2015a) and a personal calling (Dobrow & Tosti-Kharas, 2011), and it compared their psychological predictors. The overall hypothesis was that the two calling measures would have common predictors (life meaning, positive core self-evaluations, paranormal beliefs, political conservatism and uncertainty intolerance) but prosocial callings would be uniquely associated with religiousness. Additionally, participants' age, gender, year of study, and average grade were measured as covariates.

Method

Participants

The present study and those that follow focused on university students because the development of calling reaches its peak during the university period (Praskova et al., 2015a). This first study recruited university students from the same study field (psychology) because one of the calling scales that was employed is domain-specific, and hence applicable to one single study subject (Dobrow & Tosti-Kharas, 2011). Half of the participants were recruited at the University of Kent and were given study credits in exchange for their participation. The other half were recruited through the online crowdsourcing platform Prolific and were given monetary compensation (2 GBP). An a priori power analysis (*G*Power*: Erdfelder et al., 1996) determined the minimum sample size required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 143$). The final sample included 220 participants, which incorporated 50% more responses to account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention

checks (e.g., on a scale from 1 to 5, an item that reads, “please select four for this item”), which enabled identification of 5 careless respondents who were excluded from the sample. Of the 215 university students who were included in the final sample, 79% were female, 19% were male and 2% were transgender (*Mage* = 22.85, *SDage* = 8.07). Seventy per cent were undergraduate students, and 30% were postgraduate students. Approximately half were British (47%), and the remaining half were distributed between Western (35% European, American and Australian) and non-Western nationalities (12% African and Asian).

Design and procedure

The study had a cross-sectional design and was conducted as an online survey. Once participants gave informed consent, they completed measures of all the relevant constructs in random order, and at the end of the study, they were asked for their age, gender, year of study, and average grade. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201615091199384640). On completion, participants were debriefed, thanked, and compensated. The procedure took an average of 12 minutes for participants to complete.

Materials

Calling. Calling was assessed with two different unidimensional scales that represented a personal and a prosocial calling. A personal of calling was assessed with the Calling Scale (Dobrow & Tosti-Kharas, 2011), which asked participants to indicate the extent to which they agreed with 12 items that were tailored to psychology students (e.g., “I enjoy psychology more than anything else” and “The first thing I often think about when I describe myself to others is that I’m a psychology student”; *1 = Strongly disagree* to *5 = Strongly agree;* $\alpha = .93$). Consistent with the original scale properties, a confirmatory factor analysis revealed that the scale measured one overall factor (Eigenvalues >1), which explained 58%

of the variance of the calling scores. A prosocial calling was assessed with the Career Calling Scale for Emerging Adults (Praskova et al., 2015a), which asked participants to rate their agreement with 15 statements, such as "I believe that I can make an important contribution to the community in my future chosen career" and "I think of benefitting others through my career all the time" (*1 = Strongly disagree* to *5 = Strongly agree*; α = .88). A confirmatory factor analysis revealed that the scale measured one overall factor (Eigenvalues >1), which explained 50% of the variance in the calling scores.

Life meaning. A sub-scale of the Meaning in Life Questionnaire (MLQ; Steger et al., 2006) was used to assess the presence of meaning in life. Participants completed five items such as "I understand my life's meaning" and "My life has a clear purpose" (*1 = Strongly disagree* to *5 = Strongly agree;* α = .89).

Core self-evaluations. The Core Self-Evaluations Scale (CSES; Judge et al., 2003) was used to assess participants' appraisal of their worth and competence. Participants rated their agreement with 12 statements that measured self-esteem (e.g., "Overall, I am satisfied with myself"), self-efficacy (e.g., "When I try, I generally succeed"), emotional stability (e.g., "Sometimes I feel depressed"; reverse-coded) and locus of control (e.g., "I determine what will happen in my life" *1 = Strongly disagree* to *5 = Strongly agree*). Responses across all items were averaged into a global and reliable score of positive self-evaluations (α = .83).

Religiousness and political ideology. One item asked participants to rate their level of religiousness on a scale from *1 = Not religious at all* to *7 = Very religious*, and another item asked participants to describe themselves politically on a scale from *1 =Completely left-wing* to *7 = Completely right-wing*.

Paranormal beliefs. A brief version of the 30-item Magical Ideation Scale (Eckblad & Chapman, 1993) was used to assess individuals' belief in the paranormal. Participants rated their level of agreement with ten randomly selected items from the original scale, such as "At

times I perform certain little rituals to ward off negative influences" and "I have felt that I might cause something to happen just by thinking too much about it" (*1 = Strongly disagree* to *5 = Strongly agree*; α = .82).

Uncertainty intolerance. A sub-scale of the Intolerance of Uncertainty Scale (IUS; Carleton et al., 2007) was used to assess individuals' anxiety about unknown future events. This sub-scale included seven items such as "Unforeseen events upset me greatly" and "I can't stand being taken by surprise" (*1 = Strongly disagree* to *5 = Strongly agree*; α = .81).

Results

Factor analyses

I first conducted an exploratory principal components analysis on the two unidimensional calling scales together to examine whether they measured the same underlying construct. Initial eigenvalues using Oblimin and Varimax rotations indicated that the calling scales combined assessed two different factors (Eigenvalues > 1). A Varimax rotation provided the most clearly defined factor structure, with all primary loadings above .6 and cross-loadings below .3.

The two factors were consistent with the previously identified components of calling (Table 1; Dik & Shimizu, 2018). The first one represented *meaningfulness*, which explained 60% of the variance in the calling scores and loaded on 19 items from both scales combined (e.g., personal calling: "My existence would be much less meaningful without my involvement in psychology"; prosocial calling: "I have chosen a career path that will give a real purpose to my life"). The second factor represented *prosocial motives*, which explained 10% of the variance in the calling scores and loaded on five items from the prosocial calling scale (e.g., "It is more important that my career benefits others, rather than just benefits me"). These results, for the most part, confirm that the two scales measure some common but also different aspects of calling, which reflect personal and prosocial conceptualisations.

Correlation and regression analyses

I next conducted correlations among all variables (Table 2). The two measures of calling were significantly correlated with one another. Additionally, as predicted, the calling variables were positively associated with life meaning, positive self-evaluations, paranormal beliefs and uncertainty intolerance. However, the prosocial measure of calling was positively related to religiousness and political conservatism, whereas the personal measure of calling was unrelated to these variables. Participants' age, gender, year of study, and average grade were not significantly related to either measure of calling.

To further examine the differences between the calling scales, I conducted two separate multiple regressions with all the correlates as predictors for each calling measure. I screened for multicollinearity by examining if any predictor's variance inflation factor (VIF) exceeded the critical value of 10 (Cohen et al., 2013). No predictor showed a VIF > 1.50 indicating that multicollinearity was not an issue. Table 3 shows the standardised regression coefficients. As predicted, the prosocial measure of calling was associated with life meaning ($\beta = .375$, $p < .001$), positive core self-evaluations ($\beta = .244$, $p < .001$), religiousness ($\beta = .129$, $p < .05$), paranormal beliefs ($\beta = .134$, $p < .05$) and uncertainty intolerance ($\beta = .261$, $p < .001$). The overall model ($R^2 = .370$, $F(6,207) = 20.24$, $p < .001$) indicated that life meaning was the greatest predictor of prosocial callings, followed by intolerance of uncertainty. On the other hand, the personal measure of calling was associated with life meaning ($\beta = .256$, $p < .001$), positive core self-evaluations ($\beta = .228$, $p < .001$), paranormal beliefs ($\beta = .249$, $p < .001$), and uncertainty intolerance ($\beta = .220$, $t = 3.23$, $p < .001$), but it was unrelated to religiousness. The overall model ($R^2 = .231$, $F(6,207) = 10.35$, $p < .001$) indicated that life meaning was the greatest predictor of personal callings, followed by paranormal beliefs. The results remained the same when participants' age, gender, year of study, and average grade were included in the model.

Discussion

The present findings suggest that that prosocial and personal conceptualisations of calling have common and unique predictors. As predicted, both conceptualisations were positively associated with life meaning, positive self-evaluations, paranormal beliefs, and intolerance of uncertainty. However, prosocial callings were positively related to religiousness, whereas personal callings were not. Prosocial callings were also uniquely related to political conservatism, albeit this correlation was not significant once I controlled for the other variables. Altogether, the results suggest that prosocial and personal conceptualisations of calling have similar relationships with psychological variables, but they differ crucially in their relationships with religiousness. The subsequent studies sought to replicate these findings to establish a consistent psychological profile associated with each conceptualisation of calling.

Table 2

Descriptive statistics and intercorrelations among all scales used in Study 1

		Descriptives			Intercorrelations						
		α	*M*	*SD*	1	2	3	4	5	6	7
1.	Personal Calling (Dobrow et al.)	.93	3.42	0.86							
2.	Prosocial Calling (Praskova et al.)	.88	3.54	0.61	.64***						
3.	Life Meaning	.89	3.23	0.90	.34***	.53***					
4.	Positive Self-Evaluations	.83	3.11	0.61	.21**	.28***	.38***				
5.	Religiousness	-	2.06	1.27	-.00	.24***	.30***	.04			
6.	Paranormal Beliefs	.82	2.13	0.74	.22***	.22***	.20**	-.03	.33***		
7.	Political Conservatism	-	3.14	1.18	-.02	.13*	.21**	.17*	.30***	.19**	
8.	Uncertainty Intolerance	.81	3.43	0.69	.16*	.20**	.08	-.37***	.03	.02	-.02

Note. $N = 215$. Personal calling: Dobrow & Tosti-Kharas, 2011; Prosocial calling: Praskova et al., 2015a.

All scales from *1* to *5,* and 7. Political conservatism from *1* to 7.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3

Summary of multiple regression analyses for variables predicting two unidimensional measures of calling

	Personal Calling (Dobrow et al.)		**Prosocial Calling (Praskova et al.)**	
Variable	*β*	*t*	*β*	*t*
Life Meaning	.256	3.50***	.375	5.68***
Positive Self-Evaluations	.228	3.04***	.244	3.60***
Religiousness	-.072	-1.02	.129	2.01*
Paranormal Beliefs	.249	3.77***	.134	2.24*
Political Conservatism	-.121	-1.84	.033	0.54
Uncertainty Intolerance	.220	3.23***	.261	4.22***
F		10.35***		20.24***
R^2		.231		.370

Note. $N = 215$. * $p < .05$, ** $p < .01$, *** $p < .001$

Study 2

The results from Study 1 showed that personal and prosocial conceptualisations of calling had consistent relations with psychological factors (e.g., life meaning, positive self-evaluations, and paranormal beliefs), but religiousness was a unique predictor of prosocial callings. The first aim of this study was to replicate the previous findings. A second aim was to rule out alternative explanations for the results. Specifically, in Study 1, participants completed two calling scales, and responses to one scale may have influenced participants' responses to the other scale. Put differently, the correlates of calling may have overlapped because in completing two calling measures, participants may have had expectations about how they ought to respond. Although demand characteristics are unlikely to explain the findings, the current study addressed this potential concern using a single calling measure, specifically the personal calling measure. Study 3 that follows used the prosocial calling

measure.

In light of the results from Study 1, I predicted that the personal measure of calling would be positively related to life meaning, positive core self-evaluations, paranormal beliefs, and uncertainty intolerance, but that it would be unrelated to religiousness and political conservatism. Participants' age, gender year of study, and average grade were again measured as covariates.

Method

Participants

As in Study 1, this study recruited undergraduate students majoring in the same subject (psychology) because the calling measure that was employed is domain-specific (Dobrow & Tosti-Kharas, 2011). Participants were recruited at the University of Kent, and they received study credits in exchange for their participation. An a priori power analysis (*G*Power:* Erdfelder et al., 1996) determined the minimum sample size required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 143$). The final sample included 377 participants, which incorporated 160% more responses to optimise statistical power and account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, "please select four for this item"), which enabled identification of 10 careless respondents who were excluded from the sample. A total of 367 students were included in the final sample, 81% of whom were female, 18% male, and 1% transgender (*Mage* = 19.6, *SDage* = 6.07). Sixty-eight per cent of participants were British, and the rest were distributed between Western (19% European, American and Australian) and non-Western (13% African and Asian) nationalities.

Design and procedure

The study had a cross-sectional design and was carried out as an online survey. After giving informed consent, participants completed all the relevant scales in random order and were asked questions recording their age, gender, year of study, and average grade at the end of the study. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201614980418134493). The study took participants an average of ten minutes to complete. On completion, participants were debriefed, thanked, and given their study credits.

Materials

Calling was assessed with the Calling Scale (Dobrow & Tosti-Kharas, 2011). Consistent with the original scale properties, the measure showed high reliability ($\alpha = .93$) and a confirmatory factor analysis indicated that the scale assessed one single factor (Eigenvalues > 1), which accounted for 59% of the variance of calling. The rest of the measures were the same as in Study 1. These were scales of the presence of life meaning (MLQ; Steger et al., 2006; $\alpha = .86$), core self-evaluations (CSES; Judge et al., 2003; $\alpha = .80$), paranormal beliefs (Magical Ideation Scale; Eckblad & Chapman, 1993; $\alpha = .73$), intolerance of uncertainty (IUS; Carleton et al., 2007; $\alpha = .82$), and two independent items assessing religiousness and political ideology.

Results

I first conducted correlations among all variables (Table 4). As predicted, the personal measure of calling was positively related to life meaning, paranormal beliefs, and uncertainty intolerance, and it was unrelated to religiousness. However, unlike Study 1, calling was not significantly related to positive core self-evaluations, and it showed a positive relationship with left-wing political ideology. I then conducted a multiple regression analysis with all the

correlates as predictors of calling. Multicollinearity screenings showed that no predictor had a VIF > 1.51, indicating that multicollinearity was not an issue (VIF < 10; Cohen et al., 2013). Table 5 shows the standardised regression coefficients. Calling was positively associated with life meaning (β = .393, $p < .001$), paranormal beliefs (β = .100, $p < .001$), uncertainty intolerance (β= .193, $p < .001$) and left-wing political ideology (β = .128, $p < .01$), but it was unrelated to religiousness and positive core self-evaluations. As in Study 1, the overall model ($R^2 = .204$, $F(6,360) = 15.36$, $p < .001$) indicated that life meaning was the strongest predictor of personal callings. The results remained the same when participants' age, gender, year of study, and average grade were included in the regression model.

Discussion

The results from this study replicate those of Study 1, although only partially. As in Study 1, personal callings were positively associated with life meaning, paranormal beliefs and uncertainty intolerance, and they were unrelated to religiousness. These results provide further evidence that personal and prosocial callings share common predictors (life meaning, paranormal beliefs and uncertainty intolerance), but religious individuals are more likely to endorse prosocial callings. However, the results from this study were also different from those of Study 1. First, in this study, personal callings were not associated with positive core self-evaluations, whereas in Study 1 they were. Second, in this study personal callings were associated with left-wing political ideology, whereas in Study 1 they were not. These findings suggest that even if calling is assessed with the same conceptualisation, some correlates of calling vary across samples (positive self-evaluations and political ideology).

These findings align with prior research and theory. For example, in his typological study on callings, Hirschi (2011a) found that some people who have a calling have positive self-evaluations, whereas others do not. The degree to which individuals had positive self-views did not depend on whether they understood calling as prosocial or personal. Thus,

Hirschi (2011a) concluded that positive self-evaluations is a peripheral component of calling (as opposed to a core component), which applies to some people who have a calling but not to others. On the other hand, the new link found between personal callings and left-wing political ideology is consistent with previous theory asserting that personal conceptualisations of calling highlight the progressive and modern aspects of calling (Dik & Shimizu, 2018). On the contrary, prosocial conceptualisations of calling highlight more classical or traditional aspects of calling (Bunderson & Thompson, 2009, 2009; Dik & Duffy, 2009), hence their unique association with religiousness (Studies 1 and 2). Nonetheless, the religious differences between conceptualisations of calling seem to be more consistent (Studies 1 and 2) than the political differences (Study 2).

In sum, the findings from Studies 1 and 2 suggest that personal and prosocial callings have common predictors (life meaning, positive self-evaluations, paranormal beliefs and uncertainty intolerance). However, religious individuals are more likely to endorse prosocial callings, whereas non-religious individuals, as well as those with a liberal political ideology, are more likely to endorse personal callings. Additionally, these results suggest calling may have *core* predictors, which are necessary for the emergence of a calling and are constant across samples (e.g., life meaning, paranormal beliefs), but also *peripheral* predictors, which can vary across samples and may not be essential to the development of calling (i.e., positive self-evaluations and liberal political ideology). The next study sought to replicate the findings using a prosocial conceptualisation of calling (Praskova et al., 2015a).

Table 4

Descriptive statistics and intercorrelations among all scales used in Study 2

		Descriptives			Intercorrelations					
		α	*M*	*SD*	1	2	3	4	5	6
1.	Calling (Dobrow et al.)	.93	3.45	0.85						
2.	Life Meaning	.86	3.14	0.90	.36***					
3.	Positive Self-Evaluations	.80	3.03	0.55	.09	.49***				
4.	Religiousness	-	2.34	1.33	.05	.23***	.05			
5.	Paranormal beliefs	.73	2.45	0.67	.13**	.04	-.09	.19***		
6.	Political Conservatism	-	3.27	1.25	-.12*	.01	.11*	.10*	.05	
7.	Uncertainty Intolerance	.82	3.43	0.71	.19***	-.05	-.30***	.05	.17**	-.01

Note. $N = 367$. All scales from *1* to *5,* and 6. Political conservatism from *1* to *7* (negative scores indicate political liberalism).

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 5

Summary of multiple regression analyses for variables predicting a "personal" type of calling

	Personal calling (Dobrow et al.)	
Variable	***β***	***t***
Life Meaning	.393	6.96***
Positive Self-Evaluations	-.022	-0.37
Religiousness	-.052	-2.19
Paranormal Beliefs	.100	2.04*
Political Conservatism	-.128	-2.68**
Uncertainty Intolerance	.193	3.84***
F		15.36***
R^2		.204

Note. $N = 367$. * $p < .05$, ** $p < .01$, *** $p < .001$

Study 3

Studies 1 and 2 compared the predictors of prosocial and personal callings and found that most predictors were common across both calling conceptualisations (life meaning, paranormal beliefs and uncertainty intolerance), but religiousness was uniquely associated with prosocial callings. Additionally, the results suggested that some predictors of calling vary across samples (rather than across conceptualisations) and may thus be unessential or peripheral to the development of a calling (i.e., positive self-evaluations and political ideology). The principal aim of this study was to replicate the previous results using the prosocial measure of calling. A second aim was to rule out alternative explanations for the findings. Specifically, the previous studies focused on university students specialising in psychology, and it is possible that the results are specific to this small student population. Therefore, the current study recruited students from different study fields to rule out this possibility.

In this study, I was interested in establishing the core correlates of calling that are constant across different conceptualisations and samples (e.g., life meaning, paranormal beliefs), as well as the unique correlates of calling that are consistently associated with prosocial conceptualisations (e.g., religiousness). Therefore, I did not measure participants' self-evaluations or political ideology because these variables vary across samples and seem to have inconsistent relationships with calling (Study 2; Hirschi, 2011a). In light of the findings from Study 1, I expected that prosocial callings would be associated with core correlates of calling (life meaning and paranormal beliefs[1]), and unique correlates (religiousness). Participants' field of study, year of study, average grade, age, and gender were measured as covariates.

Method

Participants

Participants were university students recruited online through the crowdsourcing platform Prolific, and their participation was rewarded with a small payment (1 GBP). An a priori power analysis (*G*Power*: Erdfelder et al., 1996) determined the minimum sample size

[1]I did not include a measure of *Uncertainty Intolerance* because this study was originally designed to examine the potential causal link between uncertainty and calling. I reasoned that since uncertainty intolerance predicts calling, that priming *feelings of uncertainty* may increase a sense of calling. Indeed, previous findings have shown that when people lack certainty, they reaffirm their beliefs in different domains of life to regain a sense of certainty ("compensatory conviction"; McGregor & Marigold, 2003). I primed uncertainty by asking participants to write for three minutes about a past occasion where they were uncertain and how it made them feel (McGregor & Marigold, 2003). Participants in the control condition were asked to write for three minutes about a past occasion where they watched TV and how it made them feel. Participants completed the calling measure after the manipulation, which had no formal manipulation check. The manipulation did not have an effect on calling, or any of the predictors. I therefore decided to treat the study as correlational and replicate the previous results. This unsuccessful attempt to increate feelings of calling in an experimental setting suggests that calling may be resistant to experimental influence.

required to detect moderate effects (f^2 = .10) with 80% power using multiple linear regression (N > 114). The final sample included 228 participants, which incorporated 100% more responses to optimise statistical power and account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, "please select four for this item"), which enabled identification of 4 careless respondents who were excluded from the sample. Of the 224 students who were included in the final sample, 60% were male, 28% were female and 9% were transgender (M_{age} = 22.85, $SDage$ = 7.07). The sample was distributed between undergraduate (66%) and postgraduate students (33%) from different study fields, including Mathematics, Computer Science, Engineering and Technology (29%), Economics, Law, Business and Administrative Studies (23%), Education, Psychology, Politics, Sociology and Anthropology (15%), Medicine, Veterinary and medical-related subjects (10%), Biology, Zoology, Genetics, Biochemistry and Biophysics (7%), Creative Arts and Design (6%), Language, Literature and Information sciences (4%), History, Geography and Philosophy (3%), and Chemistry, Physics and Astronomy (3%).

Design and procedure

The study had a cross-sectional design and was carried out as an online survey. After giving informed consent, participants completed measures of the relevant constructs and were asked questions recording their field of study, year of study, average grade, age, and gender at the end of the study. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201614912166424415). On completion, participants were debriefed, thanked, and compensated for their time. The entire procedure took participants an average of six minutes to complete.

Materials

The measurement instruments were the same as in Study 1. Calling was assessed with the Career Calling Scale for Emerging Adults (Praskova et al., 2015a). As in the previous study, the measure showed high overall reliability (α = .86), and a confirmatory factor analysis indicated that it measured one overall factor (Eigenvalues > 1), which explained 49% of the variance of the calling scores. Besides the calling measure, the Meaning in Life Questionnaire (Steger et al., 2006) assessed the presence of life meaning (α = .86), the Magical Ideation Scale (Eckblad & Chapman, 1993) assessed individuals' paranormal beliefs (α = .82), and one question assessed participants' level of religiousness.

Results

I first conducted correlational analyses among all variables (Table 6). Calling was positively associated with life meaning, paranormal beliefs, and religiousness, and it was unrelated to participants' field of study, year of study, average grade, age, and gender. I then conducted a multiple regression analysis with all the correlates as predictors of calling. Multicollinearity screenings showed that no predictor had a VIF > 1.14, indicating that multicollinearity was not an issue (VIF < 10; Cohen et al., 2013). Table 7 shows the standardised regression coefficients. As predicted, calling was positively associated with life meaning (β = .432, $p < .001$), religiousness (β = .114, $p < .001$) and paranormal beliefs (β = .263, $p < .001$). As in Study 1, the overall model ($R^2 = .344$, $F(3,228) = 39.82$, $p < .001$) indicated that life meaning was the strongest predictor of prosocial callings. The results remained the same when participants' age, gender, year of study, and average grade were included in the regression model. Field of study was not included due to the small number of participants in some study subjects.

Discussion

The results from this study replicate the previous findings showing that prosocial callings are consistently associated with religiousness. Also supporting the previous results, prosocial callings were positively associated with life meaning and paranormal beliefs. Taken together, the findings from Studies 1-3 suggest that individuals who have the presence of a calling share common traits regardless of whether their calling is prosocial or personal: a high sense meaning (life meaning), a positive self-view (positive self-evaluations), a tendency to believe in the supernatural (paranormal beliefs), and anxiety about unknown future events (intolerance of uncertainty). However, religious individuals are more likely to endorse prosocial callings, whereas non-religious individuals, as well as those with a left-wing political ideology, are more likely to endorse personal callings. These results highlight the importance of religious and political beliefs in shaping the way people conceptualise calling. They also add empirical evidence to prior theory on the conceptualisation of calling, which suggests that prosocial conceptualisations emphasise the classical and religious aspects of calling, whereas personal conceptualisations emphasise the modern, secular and progressive aspects of calling (Dik & Shimizu, 2018).

The next step in this research was to analyse calling as a multidimensional construct and examine the differences between the presence of, and search for, calling across the same set of predictors.

Table 6

Descriptive statistics and intercorrelations among all scales used in Study 3

		Descriptives			Intercorrelations		
		α	*M*	*SD*	1	2	3
1.	Calling (Praskova et al.)	.83	3.35	0.59			
2.	Life Meaning	.87	3.05	0.95	.49***		
3.	Paranormal beliefs	.82	2.17	0.75	.36***	.15*	
4.	Religiousness	-	2.01	1.21	.29***	.23***	.29***

Note. $N = 232$. All scales from *1* to *5.* * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 7

Summary of multiple regression analyses for variables predicting a "prosocial" type of calling

	Prosocial calling (Praskova et al.)	
Variable	***β***	***t***
Life Meaning	.432	7.80***
Paranormal Beliefs	.263	4.66***
Religiousness	.114	1.99*
F		39.82***
R^2		.344

Note. $N = 232$. * $p < .05$, ** $p < .01$, *** $p < .001$

Study 4

This last study analysed calling with a multidimensional measure, which incorporates both the presence of, and search for, calling (Dik & Duffy, 2009). The study examined how these two dimensions of calling relate to the previous predictors [2]. I expected that the presence of calling would be predicted by factors that indicate a positive self-view (positive core self-evaluations), a lower tendency to critically analyse one's beliefs (religiousness, paranormal beliefs and right-wing political ideology), and lower tolerance to ambiguity (intolerance of uncertainty). Conversely, the search for calling would be predicted by factors that indicate a negative self-view (negative self-evaluations), a higher tendency to critically evaluate one's beliefs (scepticism and left-wing political ideology), and higher tolerance of ambiguity (uncertainty tolerance). Furthermore, given that the presence of, and search for, calling

[2] This study was originally designed to examine the potential causal link between life meaning and calling (presence vs search). I reasoned that since life meaning predicts calling, that priming *meaninglessness* may reduce the presence of calling and increase the search for it. Indeed, previous findings (Pyszczynski et al., 2010) have shown that when people lack meaning, they actively search for it in different domains of life, including the vocational domain. I primed meaninglessness by asking participants to write for three minutes about how the statement "Human life is purposeful and meaningful" was false (King et al., 2009). Participants in the control condition were asked to write for three minutes about how the same statement was true. Participants completed the calling measure after the manipulation. While the manipulation check was successful–participants in the meaningless condition reported that they viewed life as less meaningful ($M = 4.47$; $SD = 0.16$) than participants in the control condition ($M = 5.53$; $SD = 0.15$; $R^2 = .099$, $F(1, 208) = 22.66$, $p < .001$)—there was no effect of the manipulation on calling (presence or search), or any of the predictors. Therefore, I decided to treat the study as a correlational study and test the different patterns of predictors of the presence and search for calling. This was a second unsuccessful attempt to influence calling experimentally, which suggests that calling may be a remarkably fixed attribute that is resistant to experimental manipulations. Calling may be deeply ingrained in people's character, potentially as a personality trait. A challenge for future research will be to look for ways to elucidate the very nature of calling.

typically overlap (Dik et al., 2012; Duffy & Sedlacek, 2007, 2010), they can mask or suppress each other's effects. Therefore, it is crucial to control for the overlap between the calling dimensions to observe their unique associations with other variables (e.g., Duffy & Sedlacek, 2007). The current study did so by partialling the calling variables from one another before examining their relationships with the predictors (i.e., removing shared variance between the presence and search for calling). Like Study 3, this study sampled students from different disciplines and measured their field of study, year of study, gender, and age as covariates.

Method

Participants

Participants were university students recruited online through the crowdsourcing platform Prolific, and they received a payment in exchange for their participation (2 GBP). An a priori power analysis (*G*Power*: Erdfelder et al., 1996) determined the minimum sample size required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 143$). The final sample included 220 participants, which incorporated 50% more responses to account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, "please select four for this item"), which enabled identification of 10 careless respondents who were excluded from the sample. Of the 210 participants who were included in the final sample, 47% were female, 51% were male and 2% were transgender ($Mage = 23.13$, $SDage = 7.07$). All participants were university students, 58% undergraduate and 42% postgraduate, and they ranged in their study subject: Mathematics, Computer Science, Engineering and Technology (24%), Economics, Law, Business and Administrative Studies (14%), Education, Psychology, Politics, Sociology and Anthropology (23%), Medicine, Veterinary and Medical-related subjects (5%), Biology, Zoology, Genetics,

Biochemistry and Biophysics (10%), Creative Arts and Design (6%), Language, Literature and Information Sciences (8%), History, Geography and Philosophy (3%), and Chemistry, Physics and Astronomy (7%).

Design and procedure

The study had a cross-sectional design and was conducted as an online survey. Once participants gave informed consent, they completed measures of the relevant constructs as well as questions recording their field of study, year of study, average grade, age, and gender. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201614821442804251). On completion, participants were debriefed, thanked, and compensated for their time. The entire procedure took an average of 11 minutes to complete.

Materials

Calling was assessed with the Calling and Vocation Questionnaire (Dik et al., 2012). Given that the questionnaire was originally designed for working adults, the items were adapted to university students. Individuals rated their level of agreement with 12 items assessing the presence of calling (e.g., "I am pursuing my current line of study because I believe I have been called to do so" and "I see my career as a path to purpose in life") and 12 items assessing the search for a calling (e.g., "I'm searching for my calling in my career" and "I yearn for a sense of calling in my career"; *1 = Strongly disagree* to *5 = Strongly agree;* both αs = .88). Consistent with the original scale properties, a confirmatory factor analysis indicated that the overall questionnaire measured two main factors (Eigenvalues > 1), which corresponded to the "presence" and "search" sub-scales (explaining 48% and 33% of the variance of the calling scores, respectively). Therefore, I computed two independent scores for the presence of, and search for, calling. The rest of the measures used were the same as in the previous studies and included scales of core self-evaluations (CSES; Judge et al., 2003; α

= .87), paranormal beliefs (Magical Ideation Scale; Eckblad & Chapman, 1993; α = .86), uncertainty intolerance (IUS; Carleton et al., 2007; α = .80) and two independent items assessing religiousness and political ideology.

Results

Unadjusted analyses

I first conducted correlational analyses among all variables using the raw scores for the presence and search for calling (Table 8). The presence and search for calling were significantly related to one another and showed convergent relationships with religiousness and paranormal beliefs. However, the presence of calling was related to positive core self-evaluations, whereas the search for calling was related to intolerance of uncertainty.

Analyses adjusting for the other dimension of calling

To examine the unique correlates of each dimension of calling, I first controlled for the variance shared between the presence and search for calling. Specifically, I conducted two simple regressions with the presence of calling as a predictor of the search for calling, and vice versa, and obtained two residualised scores for the presence of calling (free of search for calling), and the search for calling (free of presence of calling). Then I conducted two separate multiple regression analyses with all the correlates as predictors of the residualised calling variables. I screened for multicollinearity by examining if any predictor's variance inflation factor (VIF) exceeded the critical value of 10 (Cohen et al., 2013). No predictor showed a VIF > 1.26, indicating that multicollinearity was not an issue.

Table 9 shows the standardised regression coefficients. As predicted, the presence of calling was positively associated with religiousness (β = .160, $p < .001$) positive core self-evaluations (β = .407, $p < .001$) and paranormal beliefs (β = .181, $p < .01$). The overall model ($R^2 = .255$, $F(5,204) = 13.99$, $p < .001$) indicated that positive self-evaluations was the strongest predictor of the presence of calling. Conversely, the search for calling was

associated with negative core self-evaluations (β = -.260, $p < .001$) and left-wing political ideology (β = -.176, $p < .01$), and contrary to predictions, it was also associated with uncertainty intolerance (β = .188, $p < .01$). The overall model ($R^2 = .166$, $F(5,204) = 8.10$, $p < .001$) indicated that negative self-evaluations was the strongest predictor of the search for calling. The pattern of results remained the same when participants' age, gender, year of study, and average grade were included in the regression model. Field of study was not included due to the unbalanced number of participants in the study subjects.

Discussion

The results from this study suggest that the presence of, and search for, calling have different psychological predictors. As expected, the presence of calling was associated with positive self-evaluations, religiousness and paranormal beliefs. These variables indicate higher self-confidence and lower self-questioning (Aarnio & Lindeman, 2005; Gervais & Norenzayan, 2012; Judge et al., 2003). Conversely, the search for calling was associated with negative self-evaluations, liberal political ideology, and contrary to predictions, intolerance of uncertainty. These variables indicate higher self-doubt, anxiety and self-questioning (Carleton et al., 2007; Jost et al., 2009; Judge et al., 2003). Overall, the current results support and extend previous research, which suggests that the presence of, and search for, calling are associated with different correlates and outcomes (Dik et al., 2012; Duffy & Sedlacek, 2007, 2010; Woitowicz & Domene, 2013). In the present research, these two pursuits of calling were predicted by different personality traits and worldviews, which suggests that perceiving and seeking a calling may be associated with two different overall mindsets. These findings, coupled with prior research which shows that the presence of, and search for, calling have different outcomes for people's wellbeing and careers (Duffy & Sedlacek, 2007, 2010), suggest that the distinction between these dimensions of calling is important and deserves further research attention.

Table 8

Descriptive statistics and intercorrelations among all scales used in Study 4

		Descriptives			Intercorrelations					
		α	*M*	*SD*	1	2	3	4	5	6
1.	Presence of calling	.88	3.20	0.77						
2.	Search for calling	.88	3.59	0.75	.69***					
3.	Religiousness	-	1.89	1.23	.34***	.22**				
4.	Positive self-evaluations	.87	3.22	0.69	.25***	-.05	.04			
5.	Political Conservatism	-	3.07	1.48	.04	-.07	.34***	.01		
6.	Paranormal Beliefs	.86	2.01	0.81	.35***	.27***	.37***	-.03	.29***	
7.	Uncertainty Intolerance	.80	3.56	0.68	.09	.26***	.06	-.33***	.00	.05

Note. $N = 210$. Calling measure: Dik & Duffy (2009). All scales from *1* to *5,* and 5. Political conservatism from *1* to *7.*

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 9

Summary of multiple regression analyses for variables predicting the presence of calling (free of search) and the search for a calling (free of presence)

	Presence of calling[f]		Search for calling[f]	
Variable	*β*	*t*	*β*	*t*
Religiousness	.160	2.35**	.027	0.37
Positive Self-Evaluations	.407	6.32***	-.260	-3.81***
Political Conservatism	.026	0.40	-.176	-2.52**
Paranormal Beliefs	.181	2.71**	.054	0.76
Uncertainty Intolerance	-.009	-1.36	.188	2.75**
F		13.99***		8.10***
R^2		.255		.166

Note. $N = 210$. Calling measure: Dik & Duffy (2009). Political conservatism: negative scores indicate liberal political ideology

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

General discussion

Although the notion of calling is relevant for a large percentage of the population (Duffy & Sedlacek, 2010; Wrzesniewski et al., 1997), there is little research on the psychological factors that predict calling (Dalla Rosa et al., 2019). This may be because scholars disagree over what calling is and how it should be measured (Dik & Shimizu, 2018). This research aimed to create a clearer picture of calling by comparing the psychological predictors of different calling conceptualisations. Specifically, the current research sought to identify the differences between the predominant meanings of calling (prosocial and personal) and pursuits of calling (the presence of, and search for, calling). Studies 1 and 2 compared the predictors of prosocial and personal callings using two unidimensional measures of calling (Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). The results

revealed that most predictors were common across both conceptualisations of calling (life meaning, positive self-evaluations, paranormal beliefs and intolerance of uncertainty). However, religious individuals were more likely to endorse prosocial callings, whereas less religious individuals, as well as those who had a left-wing political ideology, were more likely to endorse personal callings. Study 4 compared the same set of predictors across the presence of, and search for, calling, using a multidimensional measure of calling which conceptualises callings as a prosocial work orientation (Dik et al., 2012). The results revealed that the presence of calling was related to positive self-evaluations, paranormal beliefs, and religiousness. Conversely, the search for calling was related to negative self-evaluations, uncertainty intolerance, and left-wing political ideology. These findings suggest that the presence of, and search for, calling are associated with different psychological profiles. Overall, these findings highlight the importance of psychological characteristics in shaping the way people understand and pursue callings.

Prosocial versus personal callings

First, this research clarifies the similarities and differences between the predominant meanings of calling that have been proposed in the literature: prosocial and other-oriented, versus personal and self-oriented (Dik & Duffy, 2009; Dik & Shimizu, 2018; Thompson & Bunderson, 2019). Starting with the similarities, both types of callings were predicted by life meaning, supporting the long-established link between a sense of calling and a sense of meaningfulness/purposefulness (Duffy & Dik, 2013; Duffy & Sedlacek, 2010). Additionally, both types of callings were predicted by positive self-evaluations, which indicate a high appraisal of one's worth and competence as a person. These findings support previous research showing that individuals with a presence of calling tend to have positive self-evaluations and higher confidence in their abilities (Dobrow & Heller, 2015; Hirschi & Herrmann, 2012). Further, the current results suggest that having positive self-views may

facilitate the emergence of a calling, but it is not a necessary condition to develop a calling. In the present research, positive self-evaluations predicted calling in Study 1 but not in Study 2. This suggests that among individuals who have a calling, some have positive self-views, but others do not. This finding is consistent with Hirschi's (2011a) typological study on callings, which suggests that positive self-evaluations may be a peripheral component of calling, as opposed to an essential or core element.

Another core predictor of calling that was common across different meanings of callings was intolerance of uncertainty, which is a tendency to feel anxious about uncertain or unplanned events that may happen in the future. This finding extends previous research which suggests that people who have a calling tend to show more certainty and planning in the career decision-making process (Duffy & Sedlacek, 2007; Hirschi & Herrmann, 2012, 2013; Steger et al., 2010). It further suggests that people who have the presence of a calling may have a higher need for certainty and predictability over their future than those who do not develop callings (and may feel particularly anxious when they lack such certainty). Finally, the last predictor of calling that was common across prosocial and personal callings was paranormal beliefs, which are supernatural and magical beliefs. This finding is consistent with previous studies, which show that people who have a calling tend to attribute their calling to destiny or another supernatural *caller* (Duffy, Allan, et al., 2014). It further suggests that people who have a calling gravitate toward supernatural explanations of events, and therefore, tend to view the world in terms of agency, purpose and design.

Although supernatural beliefs were common among people with different types of callings, religious beliefs, which "intertwine the supernatural with the moral and prosocial" (Norenzayan et al., 2016, p. 3), were uniquely associated with prosocial callings. That is, the critical difference between conceptualisations of calling was that religious individuals were more likely to endorse prosocial callings, whereas less religious individuals were more likely

to endorse personal callings. These results support previous research which shows that religious individuals are more likely to have prosocial or self-transcendent callings than personal or self-enhancing ones (Hirschi, 2011a). More generally, these findings align with several studies which suggest that religious individuals tend to be more prosocial than non-religious individuals (Norenzayan, 2013; Norenzayan et al., 2016; Stagnaro et al., 2019). Although religious beliefs are not a necessary condition for prosocial or moral behaviour at any scale, they promote interpersonal and inter-group cooperation and have been culturally selected for doing so in increasingly competitive societies (Norenzayan et al., 2016).

Conversely, personal callings were uniquely predicted by progressive beliefs, specifically a left-wing political ideology. That is, people who had a progressive ideology were more likely to endorse personal callings than prosocial ones. This finding is consistent with previous theory, which asserts that personal conceptualisations of calling highlight the modern, progressive and secular aspects of calling, whereas prosocial conceptualisations of calling highlight the religious and traditional aspects of calling (Dik & Shimizu, 2018). However, the political differences between conceptualisations of callings were less clear and consistent across samples than the religious differences. Specifically, left-wing political ideology predicted personal callings in Study 2 but not in Study 1. This suggests that people's spirituality or religiousness may be more important than their political beliefs in shaping the way they understand of calling. However, further research with a wider range of samples is needed to test this assertion.

In sum, the present research suggests that people's understanding of calling as a prosocial or personal approach to work is determined, in part, by their religious and political beliefs. These findings highlight the importance of ideological variables in understanding the meanings that people attribute to their callings, and suggest that further research on the

conceptualisation of calling would benefit from paying considerable attention to these ideological variables.

The presence of, versus search for, calling

Second, this research adds to a growing body of literature which shows that the presence of, and search for, calling are associated with different correlates, and the presence of calling is more strongly associated with positive outcomes than the search for calling (Dik et al., 2012; Duffy & Sedlacek, 2007, 2010). In the present research, the presence of calling was associated with personality traits that indicate positive self-views (positive core self-evaluations). Conversely, the search for calling was associated with variables that indicate negative self-views (negative core self-evaluations) and lower tolerance of uncertainty (anxiety about uncertain future events). These findings align with prior research, which suggests that the presence of calling is associated with positive self-evaluations, self-clarity and higher psychological wellbeing. In contrast, the search for calling is associated with identity confusion and lower psychological wellbeing (Duffy & Sedlacek, 2007). Besides, the current findings underscore the negative side of the search for calling, suggesting that it is associated with negative self-evaluations, which indicate neuroticism (Judge et al., 2003), as well as intolerance of uncertainty, which indicates anxiety and worry (Carleton et al., 2007; de Jong-Meyer et al., 2009).

The current findings also support and extend previous research which shows that the presence of calling is related to religiousness, whereas the search for calling is not (Duffy & Sedlacek, 2010). In the current research, the presence of calling was associated with religious and paranormal beliefs. Conversely, the search for calling was associated with scepticism and left-wing political ideology. These findings suggest that the presence of, and search for, calling might be related to different ways of thinking. Specifically, the presence of calling might be related to a reluctance to question and critically analyse one's beliefs. This way of

thinking is associated with religious faiths and supernatural beliefs (Aarnio & Lindeman, 2005; Gervais & Norenzayan, 2012). On the contrary, the search for a calling might be related to a higher tendency to question and critically analyse one's beliefs. This way of thinking is associated with higher scepticism and also liberal political attitudes, which embrace cognitive complexity and flexibility (Gruenfeld, 1995).

In sum, the present research suggests that people's personality and worldviews influence whether they perceive or seek a calling. Individuals who have positive self-views and hold supernatural beliefs are more likely to feel the presence of a calling. Conversely, individuals who have a negative self-views, anxiety about the future, and a left-wing political ideology are more likely to search for a calling. These findings highlight the importance of personality traits in understanding why people pursue callings differently. Furthermore, they suggest that the presence of, and search for, calling may be associated with different overall mindsets and knowledge of their psychological differences is just beginning to be discovered.

Limitations and future research

The current findings also open questions for future research, specifically regarding the measurement of calling. For instance, in the present research, intolerance of uncertainty was a predictor of the presence of calling when calling was assessed with unidimensional measures (Studies 1 and 2). However, when calling was assessed with a multidimensional measure, results revealed that intolerance of uncertainty predicted the search for calling, not the presence of calling (Study 4). This suggests that unidimensional measures of calling may have some limitations. Specifically, it seems that the presence of, and search for, calling are highly associated with one another, but they have different relationships with other variables (Dik et al., 2012; Duffy & Sedlacek, 2007, 2010). Therefore, unidimensional measures of calling that do not allow examination of these two dimensions independently can blur critical individual differences in calling. In contrast, analysing calling as a multidimensional

construct allows observation of the unique correlates of the presence of, and search for, calling (e.g., Duffy & Sedlacek, 2007). However, this multidimensional approach also comes with limitations. Specifically, it creates challenges for the real-world application of the results because the two dimensions of calling are not considered in combination. The present results apply to only two of the four potential typologies of calling, i.e., the presence of calling (without any search), and the search for calling (without any presence). However, other typologies of calling (i.e., both presence and search, or neither presence nor search), may have different correlates. For example, individuals who have a high presence of calling and a high search for calling may be more intolerant of uncertainty than individuals who have a high presence of calling and low search feelings. Therefore, future research on the measurement of calling could provide valuable insight by further investigating the advantages and disadvantages of using unidimensional and multidimensional methods.

Another limitation of the current research is the nature of the samples surveyed, which consisted of university students from different nationalities and study fields, and at different stages of their education (undergraduate and postgraduate). Although the number of participants may be considered sizable and diverse, it is difficult to generalise the findings to working adults because they may be less likely to search for a calling. The search for calling may be more pronounced among young adults, who are considering different vocational identities and have not yet decided upon a career path (Duffy & Sedlacek, 2007). Therefore, further cross-sectional and longitudinal research would provide valuable insight by examining the presence of, and search for, calling in diverse age groups, as well as how these two constructs change throughout a person's lifetime.

A final limitation to note is that the data were cross-sectional in all studies, thus limiting conclusions of causal directionality. The models tested were based on the assumption that psychological traits would predict different experiences of calling (Bott & Duffy, 2015).

However, these relationships are likely reciprocal because people's perceptions of calling can also influence their psychological traits (Dalla Rosa et al., 2019). Future longitudinal and experimental research would shed considerable light on the causal order of these relationships. Specifically, it would be worthwhile investigating the utility of experimental manipulations to understand the search for calling. The research on calling is almost exclusively cross-sectional and longitudinal, and it would benefit from experimental data examining the effects of searching for a calling (Duffy & Dik, 2013). For example, prior research suggests that people respond negatively to information that threatens their self-esteem (e.g., negative feedback) and the current results suggest that people who are searching for a calling may suffer more from such threats.

Conclusion

Previous research suggests that calling has positive outcomes on people's lives, but little is known about the psychological factors that predict calling (Dalla Rosa et al., 2019). This may be because there is currently no consensus on the definition and measurement of calling (Dik & Shimizu, 2018). The current research examined the psychological predictors of calling across different conceptualisations and measures of the construct. The goal of this chapter was to identify the differences between the predominant meanings of calling (prosocial versus personal) and pursuits of calling (presence versus search for calling). Regarding the meanings of calling, the results showed that prosocial and personal callings had common predictors. However, religious individuals were more likely to endorse prosocial callings, whereas non-religious individuals (as well as those with left-wing political ideology), were more likely to endorse personal callings. Regarding the pursuits of calling, the results showed that the presence of, and search for, calling were associated with different psychological profiles. The presence of calling was related to variables that indicate a positive self-view and lower self-questioning (i.e., positive core self-evaluations,

religiousness, and paranormal beliefs). Conversely, the search for calling was related to variables that indicate a negative self-view, anxiety and higher self-questioning (i.e., negative core self-evaluations, uncertainty intolerance, and left-wing political ideology). These findings highlight the importance of psychological traits in understanding how people conceptualise and pursue callings.

Next steps

The current findings suggest that the presence of, and search for, calling are associated with different psychological predictors and knowledge of how they are influenced by a person's character is just beginning to be discovered. These findings, coupled with previous research which shows that perceiving and seeking a calling have different outcomes on people's wellbeing and careers (Duffy & Sedlacek, 2007, 2010), suggest the need for further research on the differences between these two dimensions of calling. Therefore, the following chapters will focus more closely on the psychological factors associated with the presence of, versus search for, calling.

Chapter 3

Examining the psychological factors associated with the presence of, versus search for, a career calling

* This chapter has been written in the form of an academic paper for publication. Therefore, there will be slight repetition in some sections between this chapter and the previous ones.

In Chapter 2, I examined the predictors of calling across different meanings and measures of calling. In doing so, I clarified the differences between prosocial and personal conceptualisations of calling, which focus on the presence of a calling. Additionally, I found that it is important to consider both the presence of, and search for, calling when examining the correlates of calling in students because there are crucial differences between these two calling dimensions (Dik et al., 2012; Dik & Duffy, 2009). The presence of, and search for, calling were associated with different, and sometimes opposite, psychological characteristics. Specifically, the presence of calling was associated with a positive self-view (positive self-evaluations), and a tendency to believe in supernatural phenomena (paranormal and religious beliefs). Conversely, the search for calling was associated with a negative self-view (negative self-evaluations), anxiety (intolerance of uncertainty) and a tendency to lean toward a liberal political ideology (left-wing political ideology). These findings suggest that the presence of, and search for, calling may be associated with different overall mindsets. Therefore, this chapter seeks to further elucidate the psychological differences between the presence of, and search for, calling, and examine the extent to which these two dimensions of calling may encompass different mindsets.

The presence of, and search for, calling are conceptualised as the perception and search for (1) a *transcendent summons*, experienced as originating beyond the self, (2) to approach a particular line of work that is *meaningful* (3) and has *prosocial* values and goals as primary sources of motivation (Dik & Duffy, 2009, p. 427). Therefore, unlike the

unidimensional calling conceptualisations used in Chapter 2 (i.e., personal and prosocial), this multidimensional conceptualisation of calling involves the element of transcendence.

Although the search for calling is as prevalent among young adults as the presence of calling (Duffy & Sedlacek, 2010), or perhaps more prevalent considering the growing trend toward finding one's passions and pursuing meaningful work (O'Keefe et al., 2018), it has received much less research attention (Duffy & Dik, 2013). However, a handful of studies suggest that the presence of, and search for, calling have different, and even opposite, outcomes (Duffy & Sedlacek, 2007, 2010). The presence of calling is associated with higher satisfaction and meaning in life, more decisiveness and comfort in making career choices, and clarity about one's interests and abilities. In contrast, the search for calling is associated with lower satisfaction and meaning in life, indecisiveness and discomfort in making career choices, and confusion about one's interests and abilities (Duffy & Sedlacek, 2007, 2010). This suggests that while having a calling has positive effects on people's wellbeing and careers, the search for calling may have more negative effects. The findings from Study 4 provided more evidence of this contrast. The presence of calling was predicted by positive self-evaluations, which indicate higher self-acceptance and psychological wellbeing (Chang et al., 2012). Conversely, the search for calling was predicted by negative self-evaluations and intolerance of uncertainty, which indicate lower self-acceptance and lower psychological wellbeing, along with higher anxiety (Chang et al., 2012). Because of these differences, it is therefore crucial to further investigate why some individuals perceive a calling while others struggle to find one. In the current research, I do so by further investigating the psychological predictors of the presence of, and search for, calling.

Early research suggests that *life meaning* is an important starting point in examining the psychological differences between the presence of, and search for, calling. Like the construct of calling, the construct of life meaning encompasses the dimensions of "presence"

and “search” (Steger et al., 2006). In fact, earlier multidimensional measures of life meaning inspired the current multidimensional measures of calling (Dik et al., 2012; Dik & Duffy, 2009). Calling and life meaning overlap because they both reflect the presence of, and search for, a sense of purposefulness. However, calling reflects a purpose in the career domain, whereas life meaning reflects a purpose more globally. Besides, calling has two unique components that distinguish it from the construct of life meaning: It is oriented toward advancing prosocial goals, and it involves a sense of destiny or transcendent summons (Dik et al., 2012). In brief, calling and life meaning are overlapping but distinct constructs, and they both comprise the dimensions of “presence” and “search.” Therefore, the two dimensions of calling may have similar correlates as the two dimensions of life meaning.

Life meaning

The presence of calling is related to a tendency to perceive that one’s life has a clear meaning and purpose (Dik et al., 2012; Duffy & Sedlacek, 2010), which is symptomatic of positive wellbeing, adaptive coping and self-acceptance (Park, 2010). Moreover, people who have a calling are more satisfied in life than people with no calling, and this is partly because they perceive their lives as more meaningful (Duffy, Allan, et al., 2012). Alternatively, the search for calling is associated with the search for meaning in life (Duffy & Sedlacek, 2010), which indicates a stronger desire and effort to understand the significance and purpose of one’s life (Steger et al., 2008). The search for life meaning is associated with feelings of unfulfillment, lower self-acceptance and lower psychological wellbeing (Duffy & Sedlacek, 2010; Steger et al., 2008).

Given the overlap between the presence and search for, calling, and the presence and search for life meaning, it is possible that they share psychological correlates, which broadly differentiate a “perceiving” mindset from a “seeking” one. Evidence suggests that the presence of life meaning is associated with a closed-minded way of thinking—a tendency to

be less inquisitive, curious and receptive to new ideas, and a reluctance to question one's beliefs and consider other perspectives (e.g., dogmatism; Steger et al., 2008). The sense of purpose in life reduces the world to a more manageable size (Baumeister, 1991). It also enables individuals to focus all their attention and efforts on a concrete mission and set goals for the future (e.g., future-perspective; Steger, 2008). Conversely, the search for meaning in life is associated with an open-minded way of thinking—a tendency to be more inquisitive, curious and receptive to new ideas, and a willingness to question one's beliefs and investigate different experiences (e.g., openness to experience; Steger, 2008). Searching for a purpose entails a broader, more complex picture of the world, with multiple possibilities and alternatives, and this has positive and negative sides (Baumeister, 1991). On the one hand, the search for a purpose allows individuals to engage more actively in exploration, investigation, and self-examination, and consider novel and complex ideas. On the other hand, the search for purpose often indicates a lack of meaning in life, which is associated with feelings of unfulfillment, anxiety and dissatisfaction (e.g., past-negative perspective, rumination; Steger et al., 2008).

Although the previous theory has highlighted the similar duality of calling and life meaning (Dik et al., 2012; Duffy & Sedlacek, 2007; Steger & Dik, 2009), no research has directly examined whether these variables share psychological predictors. I reason that because of the similar dual nature of the presence versus search for calling and the presence versus search for life meaning, their psychological correlates may be similar and representative of a broader closed-minded versus open-minded way of thinking. For example, the results from Study 4 showed the presence of calling was associated with religious and paranormal beliefs, which indicate a closed-minded way of thinking and a reluctance to consider ideas that conflict with one's own (Aarnio & Lindeman, 2005; Gervais & Norenzayan, 2012). Conversely, the search for calling was associated with scepticism and

left-wing political ideology, which indicates an open-minded way of thinking and higher willingness to consider new ideas, even if they contradict one's own (Aarnio & Lindeman, 2005; Gervais & Norenzayan, 2012; Jost et al., 2009). Therefore, as a starting point, I draw upon the research examining the predictors of life meaning (presence vs search) to establish the potential predictors of calling (presence vs search).

Dogmatism

Research examining the predictors of life meaning suggests that the presence of, and search for, life meaning are associated with different levels of dogmatism, which is a tendency to feel sure about the truth of one's views and a reluctance to consider other perspectives (Steger et al., 2008). Specifically, people who score higher on dogmatism have a greater sense of meaning in life than those who score low on dogmatism. It is reasonable to predict that a similar pattern of findings will emerge for the presence of, versus search for, calling. The presence of calling has been associated with a relatively unchangeable certainty about one's career decisions (Hirschi & Hermann, 2013). It is related to a clear picture of what one is meant to do in life, and a strong commitment to one's career interests and goals (Dalla Rosa et al., 2019; Duffy & Sedlacek, 2007; Hirschi & Herrmann, 2012) regardless of setbacks or discouraging career feedback (Dobrow & Tosti-Kharas, 2012). Conversely, the search for calling is associated with lack of clarity regarding what one is meant to do in life (Duffy & Sedlacek, 2010) and high indecisiveness regarding one's career interests and goals (Duffy & Sedlacek, 2007). Therefore, the presence of calling may be associated with higher levels of dogmatism compared to the search for calling.

Time perspective

Prior research suggests that the presence of, and search for, life meaning are associated with different time perspectives. One the one hand, the presence of life meaning is associated with a *future perspective*—a focus on planning, setting and achieving future goals at the

expense of immediate gratification (Steger et al., 2008). This goal-seeking mindset is associated with less sensation and novelty-seeking (Zimbardo & Boyd, 2015). On the other hand, the search for meaning in life is related to a *past-negative perspective*—a focus on replaying and re-analysing the different negative aspects of past experiences (Steger et al., 2008). This type of thinking is associated with self-doubt, anxiety and rumination (Zimbardo & Boyd, 2015). I reason that the presence of calling might be associated with a future perspective because it is generally perceived as a life-long vocational goal (Dobrow & Tosti-Kharas, 2011). The presence of calling has been related to a sense of projection into the future and a focus on planning and achieving future goals (Dobrow & Tosti-Kharas, 2011; Hirschi & Herrmann, 2013; Zhang et al., 2017). A future-perspective is associated with a closed mindset (Vacchiano et al., 1969) because it involves less receptivity to new information and experiences that could alter one's plans (Zimbardo & Boyd, 2015). Conversely, the search for calling might be associated with a past-negative perspective—a tendency to question oneself, feel regret about past decisions, and ruminate about what could have happened (e.g., counterfactual thinking: "What if…", "If I had only…"). A past-negative perspective is associated with higher rumination and self-questioning, and leads to lower satisfaction in life (Zimbardo & Boyd, 2015).

Openness to experience

Research suggests that the search for meaning in life is associated with higher *openness to experience*—a tendency to be more inquisitive, investigative and self-questioning (Steger et al., 2008), and a willingness to engage in and explore a wide variety of experiences, including career alternatives (McCrae & Costa, 1997). I reason that the search for calling may also be related to higher openness to experience. The search for calling is an active exploration of meaningful vocational identities (Hirschi, 2011a), and it is associated with indecisiveness and discomfort in making career choices (Duffy & Sedlacek, 2007). This

suggests that searchers may be particularly inquisitive and open-minded, and struggle to choose one career interest over others. This contrasts with the presence of calling, which means that a person has found their chosen career and need not be open to other options.

Rumination

The search for meaning in life is also related to rumination or persistent worry and negative thinking about problems, and this trait is generally associated with anxiety and depression (Steger et al., 2008). The inquisitiveness and self-questioning of people searching for life meaning can, therefore, backfire when it means that they focus repetitively on the causes of their unfulfillment and negative emotions. I argue that the search for calling may also be associated with ruminative thinking. In Study 4, I found that the search for calling was predicted by intolerance of uncertainty, which is a trait associated with high rumination, anxiety and worry (de Jong-Meyer et al., 2009; Liao & Wei, 2011). Conversely, the presence of calling was unrelated to intolerance of uncertainty (Chapter 2), which suggests that people who have a calling tend to experience lower feelings of worry and anxiety (de Jong-Meyer et al., 2009; Liao & Wei, 2011). Therefore, the presence of calling should be associated with lower levels of ruminative thinking compared to the search for calling.

Other predictors of the presence versus search for calling

In addition to the proposed predictors of calling that are associated with life meaning, the findings from the previous chapter suggested that people's worldviews influence whether they perceive or seek a calling. In Study 4, the presence of calling was associated with *religiousness* and *paranormal beliefs*, whereas the search for calling was associated with *left-wing political ideology.* In the current research, I examine these relationships to replicate the previous findings. The link between the presence of calling and supernatural beliefs supports the hypothesis that perceiving a calling is related to a closed-minded way of thinking. Religious and supernatural beliefs are associated with dogmatism and lower inquisitiveness

(Aarnio & Lindeman, 2005; Gervais & Norenzayan, 2012; Meulemann, 2013). Conversely, the link between the search for calling and left-wing political ideology supports the hypothesis that seeking a calling is related to an open-minded way of thinking. Liberal political ideology is associated with openness to experience and higher inquisitiveness (Jost et al., 2009). Furthermore, the current research seeks to further elucidate the worldviews and belief-systems that may motivate the search for calling. Specifically, I propose that people searching for a calling may be particularly concerned with personal justice (Lerner, 1980).

Personal justice beliefs

Personal justice beliefs are based on the idea that the world is a fair place and one gets what one deserves in life (Lerner, 1980). People who endorse personal justice beliefs tend to deny that injustice exists and believe that their outcomes are a direct consequence of their actions (downplaying external factors such as luck; Sutton et al., 2008; Sutton & Douglas, 2005). Personal justice beliefs give people the illusion that they have control over their outcomes and their efforts will be justly rewarded. The hope that efforts will pay off enables people to work toward long-term pursuits and maintain motivation in the absence of short-term rewards (Lerner, 1980). Given that the process of finding a career calling is challenging and there is no guarantee of success (Damon, 2009), people who have strong personal justice beliefs may be more likely to search for a calling because they are more confident that their efforts will be fruitful. Although personal justice beliefs are associated with psychological adjustment, they are also associated with higher self-questioning because people are continually evaluating their actions to understand and explain their outcomes (e.g., they blame themselves for their unfortunate circumstances, even if these are out of their control; Sutton et al., 2008; Sutton & Douglas, 2005). This is consistent with the psychological profile associated with the search for calling, which is characterised by higher inquisitiveness and self-questioning. On the other hand, the presence of calling should be associated with lower

personal justice beliefs because it is related to worldviews that indicate external attributions of control (supernatural beliefs; Study 4). People who have a calling tend to believe that events are controlled by external forces, which suggests that they may be less likely to attribute their outcomes entirely to their own actions.

Overview of the studies

This research aims to advance knowledge on the multidimensional nature of calling by examining the predictors of both the presence of, and search for, calling. I predict that the presence of calling will be associated with factors that indicate closed-mindedness and lower inquisitiveness: presence of life meaning, dogmatism, future perspective and supernatural beliefs. This mindset might help individuals who have a calling to focus on a specific purpose, set goals for the future, and avoid external influences that might deviate them from their path; however, it may also make them less critical and analytic regarding their own beliefs. On the other hand, I predict that the search for calling will be associated with factors that indicate open-mindedness and higher inquisitiveness: search for life meaning, openness to experience, personal justice beliefs, left-wing political ideology—but also potentially destructive traits that fuel negative thinking and self-doubt: past-negative perspective and rumination.

Across two studies, I examined the personality and worldview predictors of the presence of, and search for, calling in university students. In Study 5, participants completed a multidimensional calling scale as well as measures of life meaning (presence and search), dogmatism, time perspective, openness to experience, rumination, religiousness and political ideology. In Study 6, participants completed the same calling scale alongside measures of religiousness, paranormal beliefs, political ideology and personal justice beliefs. As in Study 4, I partialled the calling variables from one another (removing shared variance) before examining their relationships with the predictors. This way, I ensured that I observed the unique predictors of each dimension of calling.

Study 5

In this study, I examined the relationships between the presence of, and search for, calling and the personality factors that have been associated with the two dimensions of life meaning. I predicted that the presence of calling would be related to the presence of meaning in life and its associated factors, which include dogmatism and future perspective. These factors indicate closed-mindedness and lower inquisitiveness and are associated with less novelty and sensation-seeking (Altemeyer, 2002; Zimbardo & Boyd, 2015). On the other hand, I predicted that the search for calling would be related to the search for life meaning and its associated factors, which include openness to experience, past-negative perspective, and rumination. These factors indicate open-mindedness and higher inquisitiveness, and encompass positive aspects such as higher curiosity, exploration and reflection (openness to experience: McCrae & Costa, 1997), but also negative aspects such as negative cognitions and anxious thinking (rumination and past-negative perspective; Tanner et al., 2013; Zimbardo & Boyd, 2015).

Additionally, I examined the relationship between the presence of, and search for, calling and two worldview factors that emerged as relevant to the distinction between the calling dimensions in Study 4: religiousness and political ideology. In light of the previous findings, I predicted that the presence of calling would be related to higher religiousness, which indicates resistance to change and is associated with dogmatism (Meulemann, 2013). Conversely, the search for calling would be associated with left-wing political ideology, which is a tendency to advocate change and is associated with openness to experience (Jost et al., 2009).

Method

Participants

Participants were university students recruited through the crowdsourcing platform Prolific, and they received £2 in exchange for their participation. An a priori power analysis (*G*Power*: Erdfelder et al., 1996) determined the minimum sample size required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 150$). The final sample included 240 participants, which incorporated 60% more responses to optimise statistical power and account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, "please select four for this item"), which enabled identification of 13 careless respondents who were excluded from the sample. A total of 227 students were included in the final sample, 40% of whom were female, 58% male, and 2% transgender (*Mage* = 26.11, *SDage* = 7.13). Participants were undergraduate (51%) and postgraduate (49%) students from different study fields[3] and they ranged in their year of study. Thirty either per cent were British, and the rest were from various Western (32% European, American and Australian) and non-Western (30% African and Asian) nationalities.

Design and procedure

The study was a cross-sectional design and was carried out as an online survey. After giving informed consent, participants completed scales of all the relevant constructs in a random order, as well as questions recording their age, gender, field of study, year of study, and average grade. The study procedure complied with the ethical standards of the British

[3] Mathematics, Computer science, Engineering and Technology (28%), Education, Psychology, Politics, Sociology and Anthropology (15%), Economics, Law, Business and Administrative studies (14%), Medicine, Veterinary and medical-related subjects (9%), History, Geography and Philosophy (9%), Biology, Zoology, Genetics, Biochemistry and Biophysics (8%), Chemistry, Physics and Astronomy (7%), Language, Literature and Information sciences (5%) and Creative Arts and Design (4%).

Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201714821442804251). The survey took participants an average of 12 minutes to complete. At the end of the study, participants were debriefed, thanked, and paid for their participation.

Materials

Calling. The Calling and Vocation Questionnaire (CVQ: Dik et al., 2012) was used to assess the presence of, and search for, calling. Given that the original scale is designed for working adults, the items were tailored to university students. Participants completed 12 items describing the presence of calling (e.g., "I believe that I have been called to my current line of study" and "I see my career as a path to purpose in life"; *1=Strongly disagree* to *5= Strongly agree*; α = .87) and 12 items describing the search for calling (e.g., "I yearn for a sense of calling in my career" and "I am looking for a career that will help me live out my life's purpose"; α = .88). Consistent with the original scale properties, a confirmatory factor analysis revealed that the overall scale measured two main factors (Eigenvalues > 1), which corresponded to the sub-scales of the presence of calling (explaining 38% of the variance) and search for calling (explaining 28% of the variance of the calling scores). Therefore, ratings were averaged across each sub-scale, and two independent scores were computed for the presence of, and search for, calling.

Life meaning. The Meaning in Life Questionnaire (MLQ; Steger et al., 2006) was used to assess the presence of, and search for, meaning in life. Participants completed five items assessing the presence of life meaning (e.g., "I understand my life's meaning" and "My life has a clear sense of purpose"; *1=Strongly disagree* to *5= Strongly agree*; α = .89) and five items assessing the search for life meaning (e.g., "I am looking for something that makes my life feel meaningful" and "I am seeking a purpose or mission for my life"; α = .90). Ratings

were averaged across each sub-scale, and two independent scores were computed for the presence of, and search for, life meaning.

Dogmatism. A brief version of the Dogmatism Scale (DOG: Altemeyer, 2002) was used to assess individuals' tendency to lay down principles as undeniably true. Participants rated the extent to which they agreed with 10 randomly selected items from the original scale, such as "My opinions are right and will stand the test of time" and "My opinions and beliefs fit together perfectly to make a crystal-clear picture of things" (*1=Strongly disagree* to *5=Strongly agree;* $\alpha = .79$).

Time perspective. Two sub-scales of the Brief Zimbardo Time Perspective Inventory (SZTPI; Zhang et al., 2013) were used to assess individuals' future and past-negative perspectives. Respondents rated how characteristic or true of them were three items reflecting a future perspective (e.g., "I complete projects on time by making steady progress" and "Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play"; *1=Very untrue* to *5=Very true*; $\alpha = .74$), and three items reflecting a past-negative perspective (e.g., "Painful past experiences keep being replayed in my mind" and "I've made mistakes in the past that I wish I could erase"; $\alpha = .85$).

Openness to experience. A sub-scale of the 24-item Brief HEXACO Personality Inventory (BHI: de Vries, 2013) was used to assess individuals' openness to experience. Participants rated their level of agreement with four items (e.g., "I have a lot of imagination" and "I can look at a painting for a long time"; *1=Strongly disagree* to *5=Strongly agree*). The sub-scale showed low reliability, which slightly improved when one of the items was removed (i.e., "I think science is boring" reverse-coded; α increase from .42 to .54). Therefore, ratings were averaged across the three remaining items.

Ruminative thinking. The Ruminative Thought Style Questionnaire (RTSQ; Tanner et al., 2013) was used to assess individuals' tendency to think about the symptoms of their

distress repetitively. Participants rated their endorsement of 22 items such as "I find that my mind goes over things again and again" and "I tend to replay past events as I would have liked them to happen" (*1=Almost never* to *5=Almost always*; α = .94).

Religiousness and political ideology. Religious beliefs and political views were assessed by asking participants to rate how religious they were on a scale from *1=Not at all religious* to *5=Very religious*, and to describe themselves politically on a scale from left to right (*1= Left-wing, 4=Centre, 7= Right-wing*).

Results

Unadjusted analyses

I conducted correlational analyses across all variables using the raw scores for the presence of, and search for, calling. Bonferroni-corrected zero-order correlations are presented in Table 10. Consistent with previous research (Dik et al., 2012; Duffy & Sedlacek, 2010), the presence of, and search for, calling showed a strong positive correlation. Additionally, the presence of calling was positively correlated with the presence of, and search for, life meaning, along with future perspective, and religiousness. Conversely, the search for calling was positively correlated with search for life meaning, openness to experience, rumination, and future perspective. Participants' age, gender, field of study, year of study, and average grade were not significantly related to the presence of, or search for, calling.

Table 10

Descriptive statistics and intercorrelations among all scales used in Study 5

		Descriptives			Intercorrelations									
		α	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1.	Presence of Calling	.87	3.12	0.77										
2.	Search for Calling	.88	3.46	0.74	.66									
3.	Presence of Life Meaning	.89	3.20	0.97	.46	.07								
4.	Search for Life Meaning	.90	3.44	0.94	.41	.66	-.05							
5.	Dogmatism	.79	2.15	0.57	.21	-.05	.15	-.03						
6.	Future Perspective	.74	3.52	0.89	.43	.25	.38	.14	.03					
7.	Past-Negative Perspective	.85	3.35	1.07	.04	.20	-.30	.36	-.03	-.06				
8.	Openness to Experience	.54	3.64	0.66	.14	.28	.04	.20	-.21	.04	.17			
9.	Rumination	.94	3.01	0.83	.10	.25	-.28	.33	.06	.00	.56	.06		
10.	Religiousness	-	1.85	1.23	.27	.13	.27	.08	.34	.11	.07	.01	.14	
11.	Political Liberalism	-	3.43	1.40	-.18	.00	-.09	.00	-.18	-.01	.03	.00	-.05	-.31

Note. $N = 227$. 1.-10. on scales from *1* to *5,* 11. on scale from *1* to *7.* Correlation coefficients of $|r| > .22$ significant at $p < .0009$ (Bonferroni-adjusted alpha for 55 bivariate correlations)

1

Analyses adjusting for the other dimension of calling

To investigate the unique predictors of the presence of, and search for, calling, I partialled the calling variables from one another (i.e., removing shared variance) before examining their correlates (as in Study 4). Specifically, I ran two simple regressions between the calling variables and obtained two residualised scores for the presence of calling (free of search) and the search for calling (free of presence). Next, I conducted two separate multiple regression analyses with all the psychological factors as predictors for the partialled calling variables. To account for two tests on the same data, I set the alpha level for the regression analyses to $\alpha = .025$ (Bonferroni- adjusted). I screened for multicollinearity by examining if any predictor's variance inflation factor (VIF) exceeded the critical value of 10 (Cohen et al., 2013). No predictor showed a VIF > 1.65, indicating that multicollinearity was not an issue.

Table 11 shows the standardised regression coefficients. Consistent with predictions, the presence of calling was positively associated with the presence of life meaning ($\beta = .464$, $p < .001$), dogmatism ($\beta = .234$, $p < .001$), and future time-perspective ($\beta = .190$, $p < .001$). Additionally it was associated with a right-wing political orientation ($\beta = -.165$, $p < .001$). The overall model ($R^2 = .432$, $F(9,217) = 18.35$, $p < .001$) indicated that the presence of life meaning was the strongest predictor of the presence of calling, followed by dogmatism. Conversely, the search for calling was negatively associated with the presence of life meaning ($\beta = -.276$, $p < .001$) and dogmatism ($\beta = -.188$, $p < .001$), and it was positively associated with the search for life meaning ($\beta = .492$, $p < .001$), openness to experience ($\beta = .134$, $p < .001$) and left-wing political ideology ($\beta = .125$, $p < .001$). The overall model ($R^2 = .435$, $F(9,217) = 18.54$, $p < .001$) indicated that the search for life meaning was the strongest predictor of the search for calling, followed by low life meaning and low dogmatism. The pattern of results remained the same when I included age, gender, year of study, and average

grade in the regression model. Field of study was not included due to the small number of participants in some study subjects.

Table 11

Summary of multiple regression analyses for variables predicting the presence of calling (free of search) and the search for calling (free of presence)

	Presence of calling[f]		**Search for calling[f]**	
Variable	*β*	*t*	*β*	*t*
Presence of Life Meaning	.464	7.39*	-.276	-4.39*
Search for Life Meaning	-.047	-0.81	.492	8.57*
Dogmatism	.234	4.13*	-.188	-3.13*
Future Perspective	.190	3.36*	-.031	-0.54
Past-Negative Perspective	.065	0.98	-.112	-1.70
Openness to Experience	-.038	-0.69	.134	2.45*
Ruminative Thinking	.007	0.10	.068	1.05
Religiousness	-.038	-0.63	.077	1.29
Political Liberalism	-.165	-3.05*	.125	2.13*
F		18.35*		18.54*
R^2		.432*		.435*

Note. $N = 227$. Asterisks indicate significant coefficients at $p < .025$ (Bonferroni-adjusted alpha for two regression tests). Political liberalism: negative scores indicate political conservatism.

Discussion

The current findings suggest that the presence of, and search for, calling are associated with different overall mindsets. As predicted, the presence of calling was related to factors that indicate closed-mindedness and lower inquisitiveness: presence of life meaning, dogmatism, and future perspective. Additionally, it was associated with right-wing political ideology, which also reflects closed-mindedness and lower inquisitiveness (Jost et al., 2009). In contrast, the search for calling was associated with factors that indicate open-mindedness and higher inquisitiveness: low life meaning and low dogmatism, along with a high search for meaning in life, openness to experience, and left-wing political ideology. These findings shed light on the negative aspects of the search for calling. Contrary to predictions, the search for calling was unrelated to ruminative thinking or a past-negative perspective. However, as expected, it was negatively associated with life meaning, which is a sign of unfulfilled needs and lower psychological wellbeing (Baumeister, 1991; Steger et al., 2008).

These findings support and extend previous research on the parallel link between the two dimensions of calling and the two dimensions of life meaning (Dik et al., 2012; Duffy & Sedlacek, 2010). They suggest that these dual variables share similar psychological predictors which broadly differentiate a "perceiving" closed-mindset from a "seeking" open-mindset. Moreover, like the search for life meaning, the search for calling seems to have a duality in itself, comprising positive aspects that indicate curiosity and exploration (openness to experience), but also negative aspects that indicate dysfunction and frustrated needs (decreased meaning in life; Steger et al., 2008). It is important to note that although the current results suggest that the final models explained 43% of the variance in the presence of, and search for, calling, most of this variance was explained by the presence of, and search for, life meaning (βs = .46 and .49, respectively). Thus, the total variance explained by the present models should be interpreted with caution, taking into account the inclusion of the life

meaning variables, which share a significant amount of conceptual overlap with the calling variables, and thus, magnify the predictive power (R^2) of the overall models.

The findings also shed light on the worldviews associated with the presence of, versus search for, calling. Unlike the findings from Study 4 and prior research (cf. Duffy & Sedlacek, 2010), the results from this study showed that religiousness was irrelevant to the distinction between the presence of, and search for, calling. Instead, the calling dimensions seemed to be more differentiated by political ideology, with the presence of calling related to conservatism and the search for calling related to liberalism. Religiousness and political conservatism share an underlying resistance to change and maintenance of tradition, which indicates lower inquisitiveness, whereas atheism and political liberalism share the opposite tendency (Jost et al., 2009). However, the importance of religious or political factors to the distinction between the calling dimensions may vary across samples. Specifically, in predominantly atheist samples such as the one in this study (75% of participants described themselves as non-religious), the worldview differences between the presence of, and search for, calling may not be religious or relevant to spiritual beliefs, but rather political, concerning attitudes toward the status quo.

In the next study, I further examined the psychological factors associated with the presence of, versus search for, calling. I investigated the relationships between the calling dimensions and other worldviews that reflect different levels of inquisitiveness and self-questioning. Specifically, I sought to replicate the findings of Chapter 2 and examine the relationship between the presence of calling and paranormal beliefs, which indicate lower self-questioning (Thalbourne, Dunbar & Delin, 1995). Conversely, I examined the possibility that the search for calling may be associated with stronger personal justice beliefs, which indicate higher self-questioning (Lerner, 1980).

Study 6

The purpose of this study was again to directly examine whether different psychological factors predict the presence of, and search for, calling. The results from Study 5 suggested that the presence of, and search for, calling were associated with different ways of thinking. The presence of calling was related to lower inquisitiveness and a lower tendency to critically evaluate one's ideas and beliefs (e.g., high dogmatism), whereas the search for calling was related to the opposite tendency (e.g., low dogmatism and high openness to experience). In this study, I was interested in further investigating the different worldviews associated with the presence of versus search for calling.

Specifically, I sought to replicate the findings from Study 4 (Chapter 2) by testing the relationship between the presence of calling and paranormal beliefs. The results from Study 4 suggested that the presence of calling was associated with a higher tendency to believe in paranormal realities (i.e., magical, superstitious and supernatural beliefs; Eckblad & Chapman, 1993), which is associated with lower inquisitiveness (Linderman & Arnio, 2006). Conversely, the search for calling was related to higher scepticism, which is associated with higher inquisitiveness (Aarnio & Lindeman, 2005). These differences are consistent with the hypothesis that the presence of calling is associated with a closed-minded way of thinking, whereas the search for calling is associated with an open-minded way of thinking. The current study examined the relationship between paranormal beliefs and the presence of versus search for calling while accounting for religiousness, which is a more traditional form of supernatural beliefs (Willard & Norenzayan, 2013).

This study also examined the possibility that the search for calling might be associated with personal justice beliefs, which are based on the conviction that the world is a fair place and one gets what one deserves in life (Lerner, 1980). Personal justice beliefs are associated with higher inquisitiveness and self-questioning because people believe that their outcomes

depend entirely on their actions (Sutton & Douglas, 2005). That is, they downplay the role of external influences (e.g., luck) and take full responsibility for their successes and failures in life (Lerner, 1980). Conversely, the presence of calling should be related to lower personal justice beliefs because it is associated with the conviction that events are controlled by supernatural agents, which implies external attributions of control (e.g., Chapter 2; Duffy, Allan, et al., 2014). This suggests that people who have the presence of a calling are less likely to believe that their outcomes are determined exclusively by their actions. The current study examined the relationship between personal justice beliefs and the two calling dimensions while accounting for other factors associated with general justice concerns, specifically political ideology (Jost et al., 2009).

This study measured all the variables mentioned above as well as presence of, and search for, meaning in life, which were the strongest predictors of the calling dimensions in Study 5. This study, therefore, also provided the opportunity to partially replicate the results of the previous study.

Method

Participants

Participants were undergraduate students majoring in Psychology at the University of Kent, and they received study credits in exchange for their participation. An a priori power analysis determined the minimum number of participants required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 130$; G**Power*: Erdfelder et al., 1996). The final sample included 360 participants, which incorporated 170% more responses to optimise statistical power and account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, “please select four for this item”), which enabled

identification of 9 careless respondents who were excluded from the sample. A total of 351 first-year and second-year students were included in the final sample, 81% of whom were female, 18% male, and 1% transgender (*Mage* = 19.34, *SDage* = 2.49). The sample included British students (68%) and students from various Western (19% European, American and Australian) and non-Western (13% African and Asian) nationalities.

Design and procedure

The study was a cross-sectional design and data were collected via an online survey. After giving informed consent, participants completed scales of all the relevant constructs in a random order, as well as questions recording their age, gender, year of study, and average grade. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201712812442804255). The survey took participants an average of eight minutes to complete. At the end of the study, participants were debriefed, thanked, and awarded with their course credit.

Materials

Paranormal beliefs. A brief version of the Magical Ideation Scale (Eckblad & Chapman, 1993) was used to assess individuals' paranormal beliefs. Participants were asked to rate the extent to which they agreed with ten randomly selected items from the original scale, including "Numbers like 13 or 7 have no special powers" (reverse-coded) and "At times I perform certain little rituals to avoid negative influences" (*1=Strongly disagree* to *5=Strongly agree*; $\alpha = .74$).

Personal justice beliefs. A sub-scale of the Belief in a Just World Scale for Self and Others (JWBS: Lipkusa et al., 1996) was used to assess individuals' personal justice beliefs (JWB-Self). Participants rated their agreement with eight items, such as "I feel that I get what

I deserve" and "I feel that people treat me fairly in life" (*1=Strongly disagree* to *5=Strongly agree*; α = .82).

The rest of the measures used were the same as in Study 1. *Calling* was assessed with the Calling and Vocation Questionnaire (Dik et al., 2012), which was adjusted for university students. Consistent with the original scale properties, a confirmatory factor analysis indicated that the scale measured two overall factors (Eigenvalues > 1), which corresponded to the dimensions of "presence" and "search" (explaining 37% and 27% of the variance of the calling scores, respectively). Thus, two scores were computed for the presence of and search for calling (αs .84 and .87). *Life meaning* was assessed with the Meaning in Life Questionnaire (Steger et al., 2006), and two scores were computed for the presence of, and search for, life meaning (αs .86 and .87). Lastly, two independent items assessed *religiousness* and *political ideology.*

Results

Unadjusted analyses

I conducted correlational analyses between all variables using the raw scores for the presence of and search for calling. Bonferroni-corrected zero-order correlations are presented in Table 12. As expected, the presence and search for calling showed a strong positive correlation. Additionally, the presence of calling was positively correlated with the presence and search for life meaning, religiousness and paranormal beliefs. Conversely, the search for calling was positively correlated with the search for life meaning. Participants' age, gender, year of study, and average grade were not significantly related to the presence of, or search for, calling.

Table 12

Descriptive statistics and intercorrelations among all scales used in Study 6

		Descriptives			Intercorrelations						
		α	*M*	*SD*	1	2	3	4	5	6	7
1.	Presence of Calling	.84	3.50	0.64							
2.	Search for Calling	.87	3.85	0.62	.67						
3.	Presence of Life meaning	.86	3.14	0.91	.40	.04					
4.	Search for Life meaning	.87	3.60	0.79	.37	.47	-.04				
5.	Religiousness	-	2.31	1.31	.33	.10	.22	.13			
6.	Paranormal Beliefs	.74	2.44	0.68	.23	.04	.05	.22	.19		
7.	Personal Justice Beliefs	.82	3.18	0.63	.04	.10	.16	.04	-.14	.09	
8.	Political Liberalism	-	3.28	1.24	-.09	-.12	.01	-.09	.07	.04	.03

Note. $N = 351$. 1.-7. on scales from *1* to *5,* 8. on a scale from *1* to *7.* Correlation coefficients of $|r| > .17$ significant at $p < .0017$ (Bonferroni-adjusted alpha for 28 bivariate correlations)

1

Analyses adjusting for the other dimension of calling

As in Study 5, I partialled the presence of, and search for, calling from one another to observe their unique predictors. First, I co-varied shared variance between the calling variables and obtained two residualised scores for the presence of calling (free of search) and the search for calling (free of presence). Then I ran two separate multiple regression analyses with all the psychological factors as predictors for the partialled calling variables. In both regression analyses, I set the alpha level to $\alpha = .025$ (Bonferroni- adjusted) to account for two tests on the same data. Multicollinearity screenings showed that no predictor had a variance inflation factor exceeding 1.65, indicating that multicollinearity was not an issue (VIF < 10; Cohen et al., 2013).

Table 13 shows the standardised regression coefficients. As expected, the presence of calling was positively associated with the presence of life meaning ($\beta = .460$, $p < .001$), paranormal beliefs ($\beta = .217$, $p < .001$), and religiousness ($\beta = .199$, $p < .001$), and it showed a negative relationship with personal justice beliefs ($\beta = -.102$, $p < .001$). The overall model ($R^2 = .366$, $F(6,342) = 32.90$, $p < .001$) indicated that the presence of life meaning was the strongest predictor of the presence of calling, followed by paranormal beliefs. Conversely, the search for calling was positively associated with the search for life meaning ($\beta = .332$, $p < .001$) and personal justice beliefs ($\beta = .134$, $p < .001$), and it showed a negative relationships with the presence of life meaning ($\beta = -.277$, $p < .001$) and paranormal beliefs ($\beta = -.213$, $p < .001$). The overall model ($R^2 = .244$, $F(6,342) = 18.42$, $p < .001$) indicated that the search for life meaning was the strongest predictor of the search for calling, followed by low life meaning and low paranormal beliefs. The pattern of results remained the same when I included participants' age, gender, year of study, and average grade in the regression model.

Table 13

Summary of multiple regression analyses for variables predicting the presence of calling (free of search) and the search for calling (free of presence)

	Presence of calling[f]		**Search for calling[f]**	
Variable	*β*	*t*	*β*	*t*
Presence of Life Meaning	.460	10.12*	-.277	-5.57*
Search for Life Meaning	.026	0.57	.332	6.76*
Religiousness	.199	4.26*	-.084	-1.64
Paranormal Beliefs	.217	4.80*	-.213	-4.32*
Personal Justice Beliefs	-.102	-2.26*	.134	2.73*
Political Liberalism	-.039	-0.89	-.036	-0.75
F		32.90*		18.42*
R^2		.366*		.244*

Note. $N = 351$. Asterisks indicate significant coefficients at $p < .025$ (Bonferroni-adjusted alpha for two regression tests)

Discussion

The current findings suggest again that the presence of, and search for, calling are associated with different psychological factors, which reflect two different thinking styles. As predicted, the presence of calling was associated with factors that indicate lower inquisitiveness and self-questioning: a higher presence of life meaning (as in Study 5), higher religiousness and paranormal beliefs (as in Study 4), and lower personal justice beliefs. On the other hand, the search for calling was associated with factors that indicate higher inquisitiveness and self-questioning: a higher search for meaning in life (as in Study 5) and higher personal justice beliefs, along with a lower presence of meaning in life (as in Study 5) and lower paranormal beliefs (as in Study 4). Together these findings provide further support for the assertion that the presence of, and search for, calling are associated with different overall mindsets.

The findings also support previous research on the differential link between the calling dimensions and religiousness (Duffy & Sedlacek, 2010), which was more pronounced in this study than in Study 5. The presence of calling was uniquely associated with religiousness, whereas in the previous study, it was uniquely associated with political conservatism. Both religiousness and conservatism indicate lower inquisitiveness (Thalbourne et al., 1995; Jost et al., 2009), but the importance of one or other worldview to the distinction between the calling dimensions may vary across samples. Specifically, it may depend on how religious or spiritual the overall sample is. In a relatively mixed sample such as the one in this study (41% of participants described themselves as religious), the differences between the presence of, and search for, calling were more religious than political. However, the opposite pattern emerged when participants were predominantly non-religious (Study 5).

General discussion

The current research sought to identify the psychological predictors of the presence of versus search for calling, and examine the extent to which these two pursuits of calling may encompass different overall mindsets. Specifically, this research examined the relationships between the two dimensions of calling and factors that indicate different levels of inquisitiveness and self-questioning. Study 5 revealed that the presence of calling was related to factors that indicate closed-mindedness and lower inquisitiveness: a high sense of meaning in life, dogmatism, future-perspective, and political conservatism. Conversely, the search for calling was related to factors that indicate open-mindedness and higher inquisitiveness: a low sense of meaning in life and low dogmatism, along with a high search for meaning in life, openness to experience, and political liberalism. Study 6 further supported these findings revealing that the presence of calling was related to factors that indicate lower inquisitiveness and self-questioning: stronger religious and paranormal beliefs (as in Chapter 2), along with weaker personal justice beliefs. On the other hand, the search for calling was related to factors that indicate higher inquisitiveness and self-questioning: stronger personal justice beliefs and weaker supernatural beliefs (as in Chapter 2). Together, these findings suggest that the presence of calling may be associated with a closed-minded way of thinking, whereas the search for calling may be associated with an open-minded way of thinking.

This research adds to a growing body of literature suggesting that there are fundamental differences between the presence of, and search for, calling (e.g., Dik et al., 2012). Previous research shows that the presence of calling is associated with higher meaning in life and religiousness, whereas the search for calling is associated with a higher search for meaning in life (Duffy & Sedlacek, 2010). The current findings extend this literature and provide a cognitive explanation for this divergence. The presence of calling seems to be associated with a dogmatic cognitive style, or a general reluctance to question and change

one's belief-systems. People who have a sense of calling seem to perceive that they understand the world and their unique fit in it (presence of life meaning), and they feel a relatively unchangeable, unjustified certainty about the truth of their own beliefs (religious and paranormal beliefs). They seem invested in preserving the status quo (political conservatism) and tend to harbour the beliefs that give their lives a sense of meaning. Conversely, the search for calling seems to be associated with an inquisitive cognitive style, or a tendency to be more questioning, curious, and investigative. People searching for a calling seem to be looking for new avenues toward meaning in their lives (search for life meaning), and they desire to explore, understand and evaluate a wide array of ideas and experiences (openness to experience). They seem invested in change (political liberalism), and appear to be looking for novel, complex, and intense experiences that might give their lives a sense of meaning.

Additionally, previous literature shows that having a calling is associated with career decisiveness and comfort in making career choices, whereas searching for a calling is associated with the opposite outcomes (Duffy & Sedlacek, 2007). The current findings provide a partial explanation of this divergence. The presence of calling appears to be associated with a dogmatic cognitive style that is characterised by a narrow future perspective. This narrow-mindedness allows those who have a calling to focus all their attention and efforts on the pursuit of their goals and to reject information and experiences that could alter their plans. This may partly explain why such individuals are more determined, decisive, and unhesitating in the career decision-making process (Duffy & Sedlacek, 2007). Alternatively, the search for calling appears to be associated with an inquisitive cognitive style that is characterised by an open mindset. This open-mindedness allows those searching for a calling to explore and consider diverse interests and to broaden their focus to increase their knowledge and experience. This may partly explain why such

individuals are uncomfortable in making career decisions that force them to choose one path over others (Duffy & Sedlacek, 2007).

Furthermore, these findings align with previous research suggesting that the presence of calling is related to higher psychological wellbeing, whereas the search for calling is associated with the opposite outcome (Duffy & Sedlacek, 2010). In the current research, the presence of calling was associated with factors that indicate higher life satisfaction, such as higher meaning in life, religiousness, and political conservatism (Schlenker et al., 2012; Steger et al., 2008; Steger & Frazier, 2005). These beliefs involve higher personal purpose and agency, self-worth, and transcendent moral beliefs, which are associated with happiness (Schlenker et al., 2012). Conversely, the search for calling was associated with variables that have ambivalent relationships with wellbeing. It was associated with a lack of meaning in life, which is a symptom of unhappiness and psychological dysfunction (Steger et al., 2008). However, it was also associated with personal justice beliefs, which indicate better psychological adjustment and wellbeing (Sutton et al., 2008). The search for calling seems to have negative aspects that involve perceiving one's life as void of meaning, but also positive aspects that are goal-directed, hopeful, and optimistic. This dual nature of the search for calling might explain why it has the potential to affect people's wellbeing negatively (Duffy & Sedlacek, 2010).

Because the present findings underscore the theoretical importance of investigating calling as a multidimensional construct, researchers who are interested in calling would benefit from taking them into account. Moreover, the current research shows the effectiveness of partialling to observe clearer links between the calling dimensions and other variables. The presence of, and search for, calling are highly correlated with one another, but they have different relations with other variables. Therefore, they can mask or suppress each other's effects. For example, in the current research, the presence of calling, but not the search, was

related to a future perspective. However, this divergence was only observable when the shared variance between the calling dimensions was removed. By partialling the calling dimensions from one another, I ensured that I examined the unique predictors of each calling dimension, and demonstrated that the psychological differences between the presence of, and search for, calling are clearer once their shared variance is accounted for. I encourage future calling researchers to consider this technique to control for overlapping calling constructs, with the caveat that results from these analyses must be interpreted with caution (see Lynam et al., 2006).

Limitations and future research

One of the risks of using partialled variables is that it can create challenges for the real-world application of the results (Lynam et al., 2006). Although removing shared variance between the calling variables allows examination of their unique predictors, this procedure only allows observation of two of the potential four typologies of calling, i.e., the presence of calling (without any search) and the search for calling (without any presence). Thus, the present results may not be applicable to other potential typologies of calling. For example, the presence of, and search for, calling usually co-vary and it is possible that individuals can have a high presence of calling and a high search for calling at the same time. It could be that these individuals are more inquisitive and open-minded than those who have a calling but are no longer searching. Therefore, in future research, it will be essential to elucidate if the presence of, and search for, calling represent two ends of a continuum, or if people can feel called and search for a calling at the same time.

Another limitation of the current studies is that they were cross-sectional designs, thus limiting causal inferences. For this reason, the results reported here should not be interpreted as causal models but as indicators of how well different psychological factors account for the differences between the presence of, and search for, calling. The order of variables in the

models were based on the assumption that basic personality traits should predict different career attitudes (Rubenstein et al., 2019). However, these variables are likely to affect each other (Woods et al., 2019), and this could be tested in future longitudinal studies.

Other major research limitation concerns the measure used to assess openness to experience, which showed little reliability and comprised only four items (one of which had to be removed due to compromised internal consistency). Although this personality measure used has shown validity and reliability in the past (HEXACO-24; de Vries, 2013), further research is needed to replicate the findings with longer, more reliable personality inventories (e.g., HEXACO-60; Ashton & Lee, 2009).

Lastly, it also seems important to further investigate the link between the search for a calling and lower psychological wellbeing. The current results suggest that the search for calling is associated with decreased meaning in life and higher self-questioning. These findings, coupled with the results from Chapter 2, which showed that the search for calling was related to negative self-evaluations, suggest that future research should pay closer attention to this construct because it could have negative effects. For example, the search for calling is often encouraged by popular culture, but evidence suggests that spurring students to *find* their passion can have detrimental effects on their wellbeing and career development (O'Keefe et al., 2018). Specifically, these imperatives can lead people to believe that talents and passions are predetermined entities awaiting to be *found* by and about the individual ("entity theories"), as opposed to skills that one develops and cultivates over time ("incremental theories"; Dweck et al., 1995; O'Keefe et al., 2018). Entity theories of ability lead to lower psychological wellbeing, depression and anxiety, whereas incremental theories have the opposite outcomes (Schroder et al., 2015). Therefore, it would be worthwhile examining how the presence of, and search for, calling relate to theories of ability and

whether popular mottos that encourage people to find their calling produce undesirable effects (e.g., an entity mindset).

Conclusion

Previous research suggests that the presence of, and search for, calling differ in important ways, but we know little about what predicts these two aspects of calling. The current research suggests that the presence of, and search for, calling are associated with different psychological factors, which potentially reflect two overall mindsets. The presence of calling was associated with factors that indicate closed-mindedness and lower inquisitiveness, such as a higher sense of meaning in life, dogmatism, future-perspective, political conservatism, and supernatural beliefs. Conversely, the search for calling was associated with factors that indicate open-mindedness and higher inquisitiveness, such as a higher search for meaning in life, openness to experience, political liberalism, and personal justice beliefs. These findings highlight the importance of basic personality traits in understanding the differences between the presence of, and search for, calling. However, to fully elucidate the contrast between these two pursuits of calling, it is crucial to investigate how they relate to relevant career variables. Therefore, the next chapter examined how the presence of and search for calling play out in the academic context.

Chapter 4

The achievement orientations associated with the presence of, versus search for, a career calling

* This chapter has been written in the form of an academic paper for publication. Therefore, there will be slight repetition in some sections between this chapter and the previous ones.

In Chapter 3, I examined the predictors of the presence of, versus search for, calling (a transcendent, meaningful and prosocial approach to work; Dik & Duffy, 2009), and found that these two calling dimensions were associated with different overall mindsets. The presence of calling was associated with personality traits that indicate a closed-minded way of thinking and lower inquisitiveness (e.g., high dogmatism and future perspective). In contrast, the search for calling was associated with personality traits that indicate an open-minded way of thinking and higher inquisitiveness (e.g., low dogmatism and high openness to experience). Given that students' personality traits affect their academic motivation and achievement (Conard, 2006; Dweck & Leggett, 1988; Poropat, 2009), it seems important to examine how these two mindsets may play out in the academic context. In this chapter, I do so by examining more closely how the presence of, and search for, calling differ in terms of achievement goals. I seek to elucidate the motivational differences between these two pursuits of calling and examine the extent to which perceiving and seeking a calling may be associated with different achievement orientations.

A growing body of research suggests that people who have a calling are particularly inflexible regarding their career choices (Lysova et al., 2019), but they are also more resilient facing career challenges than people who do not have a calling (Afiouni & Karam, 2019; Dobrow & Tosti-Kharas, 2011; Praskova et al., 2014; Thompson & Bunderson, 2019). Career resilience refers to "the ability to adapt to changing career circumstances, even when the circumstances are discouraging or disruptive" (Collard et al., 1996, p. 36). For example,

university students who perceive a career calling are more likely to pursue post-master's degrees, take on challenging careers, and persevere in the absence of positive feedback (Dobrow & Heller, 2015; Dobrow & Tosti-Kharas, 2012; Duffy & Sedlacek, 2007). Therefore, the presence of calling seems to involve a combination of heightened rigidity regarding one's career path (e.g., reluctance to consider other career directions; Chapter 3; Duffy & Sedlacek, 2007; Hirschi & Herrmann, 2013), and also heightened resilience to pursue one's chosen career path despite the challenges (Dobrow & Heller, 2015; Dobrow & Tosti-Kharas, 2012; Praskova et al., 2014; Thompson & Bunderson, 2019). In this chapter, I seek to extend this literature by examining how the presence of, and search for, calling differ in terms of cognitive rigidity and career resilience. Specifically, I examine the personality and motivational predictors of the presence of, versus search for, calling.

I argue that the personality differences between the presence of, and search for, calling identified in Chapters 2 and 3 may reflect different motivational orientations. More precisely, I reason that although being dogmatic and inflexible regarding one's career interests and goals may have some negative sides for students who perceive a calling (for example, decreased receptivity to career advice; Dobrow & Tosti-Kharas, 2012), it may also help individuals to work strenuously toward challenges and persist in the face of failure. Indeed, evidence suggests that people who focus their attention and efforts on a specific purpose and do not swerve from their goals have higher perseverance and resilience facing challenges and adversity (Duckworth & Quinn, 2009). Conversely, although being open-minded and flexible regarding one's career interests and goals may have some positive sides for students searching for a calling (for example, increased career exploration), it may also make individuals more likely to desist in the face of challenges and failure. Indeed, evidence suggests that people who scatter their attention and efforts, and switch interests and goals frequently, are less resilient to challenges and more likely to become discouraged facing

failure (Duckworth & Quinn, 2009). Therefore, the "tunnel vision" (e.g., high dogmatism) of people who perceive a calling may allow individuals to be resilient and persistent facing adversity because they refuse to change their career path, even when things get difficult. Conversely, the broad mindset (e.g., low dogmatism) of people who are seeking a calling may render individuals less resilient and persistent facing adversity because they are more likely to jump ship, especially when things become challenging.

Perceiving versus seeking a calling: Two achievement mindsets

I propose that students who perceive a calling may approach achievement as a marathon that requires stamina. Their single-mindedness may propel them to work strenuously toward challenges, maintaining effort and interest over long periods despite obstacles and setbacks. While failure may signal to others that it is time to change trajectory and cut losses, individuals who feel a calling may stay the distance (Dobrow & Heller, 2014, 2015; Praskova et al., 2014). Because they are working toward a personally meaningful long-term career goal, these students may also be interested in developing their abilities and mastering their academic subject. Thus, they may view failure as an opportunity to learn rather than a threat to their ego (Ames, 1992; Dweck et al., 1995; Dweck & Leggett, 1988; Elliot, 1999). Conversely, students who are searching for a calling may approach achievement as a test of their worth and competence. Their broad-mindedness may propel them to split their attention and efforts, and switch interests and goals frequently in search for cues regarding what they like and what they are good at. Because they lack a sense of self-clarity, self-worth and long-term purpose (Chapter 3; Duffy & Sedlacek, 2007), these students may also be interested in demonstrating their abilities and being judged able and competent in terms of normative performance standards (e.g., grades, social comparison). Thus, they may view failure as an assault to their ego rather than a learning opportunity (Ames, 1992; Dweck et al., 1995; Dweck & Leggett, 1988; Elliot, 1999).

Although previous research suggests that the presence of calling is related to higher academic motivation than the search for calling (Woitowicz & Domene, 2013), no research has examined whether these two types of calling are associated with different achievement orientations. I argue that the presence of calling may be associated with a motivation to *develop* one's competence: a mastery orientation (Ames, 1992). This motivational orientation is associated with positive coping strategies, higher persistence, preference for challenges, and higher resilience facing adversity (Ames, 1992; Dweck & Leggett, 1988; Elliot, 1999; Grant & Dweck, 2003). Conversely, the search for calling may be associated with a motivation to *demonstrate* one's competence: a performance orientation (Ames, 1992). This motivational orientation is associated with maladaptive patterns of cognition, affect and behaviour such as withdrawal from difficult tasks and lower resilience facing challenges (Ames, 1992; Dweck & Leggett, 1988; Grant & Dweck, 2003). Prior research suggests that people's achievement orientations are partly determined by their beliefs about their capabilities (Dweck, 2000, 2015). Individuals who believe that their abilities can grow and improve are concerned with developing their skills, whereas individuals who believe that their abilities are fixed and determined at birth are concerned with demonstrating their skills (Dweck, 2000). Therefore, as a first step, I examined whether the presence of, and search for, calling are associated with different implicit theories of ability.

Implicit theories of ability

People have different implicit theories about the nature of their intelligence and talents, and these theories shape the way they understand and respond to challenges (Dweck, 2000; Dweck et al., 1995). Some people have *incremental* theories and believe that abilities are acquired and developed through hard work (e.g., "You can always substantially change how much talent you have"; Dweck, 2000). Conversely, others have *entity* theories and believe that abilities are unchangeable, innate gifts (e.g., "You have a certain amount of talent,

and you can't really do much to change it"; Dweck, 2000). People with incremental theories tend to be more effortful and persistent with problems, which allows them to overcome challenging situations (Dweck et al., 2000). This is because they do not attach their identity to their results and do not look at failure as a threat to their self-esteem (Dweck et al., 1995). For them, failure is not devastating because although they might currently lack the ability in question, this deficit can be remedied through increased effort (Dweck et al., 1995). On the other hand, people who have entity theories tend to be less effortful and persistent with problems (Dweck, 2000). This is because they attach their identity to their results and look at failure as an assault on who they are as a person (Dweck et al., 1995). For them, failure threatens self-esteem because it indicates that they lack the ability in question and will never have it. Therefore they are less resilient facing challenges (Dweck, 2000; Dweck et al., 1995; Dweck & Leggett, 1988).

I argue that the presence of calling might be associated with incremental theories of ability. Although individuals who have a calling tend to show more rigidity (e.g., career inflexibility and less openness to alternative career paths), they also show more resilience and stay the course when things become difficult (Thompson & Bunderson, 2019). For example, the presence of calling is associated with increased effort and dedication to career activities (Elangovan et al., 2010; Hall & Chandler, 2005; Hunter et al., 2010), higher resilience in the face of adversity (Dobrow & Tosti-Kharas, 2012) and more creative effort in overcoming career challenges (Schabram & Maitlis, 2017). Additionally, the presence of calling is associated with personal growth initiative, which is an active investment in growing and improving as a person (Bott & Duffy, 2015; Duffy, Douglass, et al., 2014). Thus, although people who have a calling may have a "tunnel vision" regarding their career path, they may also have a focus on development and growth in their chosen career domain, as well as an ability to bounce back from adversity (Thompson & Bunderson, 2019). I therefore predict that

individuals who perceive a calling may believe that their talents can increase through an earnest effort to cultivate them.

Conversely, I argue that the search for calling might be associated with entity theories of ability. People often refer to calling as a pre-existing entity that ought to be found or discovered by and about the individual (Bunderson & Thompson, 2009; Wrzesniewski, 2011). Moreover, increasingly popular career mottos that encourage people to *find* their passion promote the belief that talents and passions are determined at birth and awaiting to be discovered (O'Keefe et al., 2018). Indeed, people who are searching for a calling tend to be looking for the career that they were destined or "meant to" pursue as if it was already predetermined (Dik et al., 2012). Therefore, many people who are searching for a calling may believe that their talents and passions are predetermined entities and their job is to find or discover them. Duffy and Sedlacek (2007) found that students who are searching for a calling show lower effort and dedication to career activities. This may be because searchers may tend to hold entity theories, and in trying to find their talents and the career they are meant to pursue, they may be interested in activities that they are naturally good at and align with their innate gifts, avoiding activities that require effort and demand skills that they currently lack. Thus, although searchers may express more flexibility and openness to change their career path, they may be more focused on discovering their abilities than on developing them, and show less resilience and perseverance when things become difficult. I therefore predict that individuals who are seeking a calling may believe that talents are predetermined entities awaiting to be discovered.

As a next step, I examined the extent to which the presence of, and search for, calling may be associated with different goal orientations. Students' implicit theories of ability orient them toward different goals at school (Dweck, 2000). Individuals who have incremental theories of ability tend to have mastery goals, in which they are concerned with increasing

their competence (Dweck & Leggett, 1988; Grant & Dweck, 2003). Conversely, individuals who have entity theories of ability tend to have performance goals, in which they are concerned with gaining favourable judgements of their competence (Dweck & Leggett, 1988; Grant & Dweck, 2003).

Goal orientation

Goal orientation theory posits that individuals can have two types of goals in achievement situations: *mastery* goals (also called "task-involved" or "learning-focused") versus *performance* goals (also called "ego-involved" or "ability-focused"; Ames, 1992; Dweck & Leggett, 1988; Elliot, 1999). Achievement orientation theory has provided a framework for extensive research on motivational orientations that contribute to students' adaptive and maladaptive patterns of engagement (Grant & Dweck, 2003; Kaplan & Maehr, 2007). Mastery-oriented students focus on learning, understanding, developing skills and mastering information ("I want to learn as much as possible at school"; Grant & Dweck, 2003). Students' endorsement of mastery goals is associated with positive outcomes, such as higher effort and persistence, deeper learning strategies, higher retention of information learned, along with positive affect and wellbeing (Elliot, 1999; Grant & Dweck, 2003). Students who have mastery goals tend to see achievement situations as opportunities to learn new skills or improve old ones, and regard failures and mistakes as providing important information on how to improve. Therefore, they show a preference for academic tasks that are challenging and require effort and skill training (Ames, 1992; Dweck, 2000; Grant & Dweck, 2003).

In contrast, performance-oriented students focus on managing the impression that others have of their ability: trying to create an impression of high ability and avoid creating an impression of low ability (Dweck & Leggett, 1988). Often, this is done through comparison with others' ability (e.g., "It is important for me to do better than other students"; Grant &

Dweck, 2003). Students' endorsement of performance goals is associated with less favourable outcomes, such as the use of surface rather than deep learning strategies, low retention of knowledge (Midgley et al., 2001), and higher anxiety and negative affect in events involving challenge or difficulty (Ames, 1992; Midgley, 2014). Students who have performance goals tend to see achievement situations as opportunities to prove or demonstrate their skills, and regard failures and mistakes as threats to their self-image (Elliot, 1999). Thus, they show a preference for tasks that they already know how to perform well and avoid challenging tasks that present the risk of failure (Ames, 1992; Grant & Dweck, 2003).

I argue that the presence of calling may be associated with a mastery orientation. People who perceive a calling are more willing to pursue challenging careers (Dobrow & Heller, 2014), they are self-directed and effortful in the pursuit of their calling, and maintain persistence in the face of setbacks (Dobrow & Heller, 2015; Dobrow & Tosti-Kharas, 2012; Elangovan et al., 2010; Hall & Chandler, 2005). People who have a calling tend to also have higher intrinsic motivation than those who are searching for a calling (Woitowicz & Domene, 2013). This indicates that students with a calling tend to work at school for the pleasure of doing so, and not necessarily for external rewards (e.g., grades, social recognition). This suggests that people who perceive a calling may focus on learning, improving and achieving mastery in their careers, and prioritise learning over failure. That is, they may prefer to invest their time and effort in challenging academic projects that provide opportunities to learn, even if they also present a high risk of failure (Grant & Dweck, 2003).

On the other hand, the search for calling may be associated with a performance orientation. Students who are searching for a calling tend to be less self-directed and effortful in career-related activities (Duffy & Sedlacek, 2007) and have lower intrinsic motivation than students who have a calling (Woitowicz & Domene, 2013). This indicates that students who are seeking a calling may perform at school to gain recognition or avoid punishment, not

necessarily for the pleasure they derive from the schoolwork itself. Moreover, students who are seeking a calling tend to experience low self-esteem and lack of confidence in their abilities (Chapter 2; Duffy & Sedlacek, 2007). This suggests that searchers may focus on proving and demonstrating their worth and abilities, and prioritise failure over learning. That is, they may prefer to work in academic projects that they know they can perform well to protect or boost their self-esteem, even if they cannot learn anything from doing so (Grant & Dweck, 2003).

Outline of the studies

In the current research, I seek to better understand the complex psychological profile of calling in careers by identifying the personality and motivational predictors of the presence of, versus search for, calling. I predict that the presence of calling will be associated with factors that indicate rigidity regarding one's chosen career path—high dogmatism (Chapter 3), but also factors that indicate higher resilience to academic challenges and motivation to develop one's competence—incremental theories and mastery goals. On the other hand, I predict that the search for calling will be associated with factors that indicate flexibility regarding one's career path—low dogmatism (Chapter 3), but also factors that indicate lower resilience to academic challenges and motivation to demonstrate one's competence—entity theories and performance goals. These predictions were tested in two studies with university students. In Study 7, participants completed a calling measure incorporating both the presence of, and search for, calling (Dik et al., 2012), along with measures of dogmatism and implicit theories of ability. In Study 8, participants completed the same measures as well as a measure of achievement goals.

Study 7

In this study, I examined how the presence of, and search for, calling, relate to two personality factors: *dogmatism*, which is associated with people's cognitive style or overall

way of thinking (rigid vs flexible; Altemeyer, 2002), and *implicit theories of ability*, which refers to the specific beliefs people hold about intelligence and talents (incremental vs entity; Dweck, 2000). I predicted that the presence of calling would be associated with high dogmatism, which indicates cognitive rigidity (Altemeyer, 2002), but also incremental theories of ability, which indicate higher resilience and perseverance facing challenges (Dweck & Leggett, 1988). Conversely, I predicted that the search for calling would be associated with low dogmatism, which indicates cognitive flexibility (Altemeyer, 2002), but also entity theories of ability, which indicate lower resilience and perseverance facing challenges (Dweck & Leggett, 1988). I measured participants' age, gender, year of study and average grade as covariates.

Method

Participants

In this study, I recruited university students majoring in psychology. Approximately half of the participants were recruited at the University of Kent and were given study credits in exchange for their participation. The other half was recruited through the crowdsourcing platform Prolific and were rewarded with £2. An a priori power analysis determined the minimum number of participants required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 100$; G**Power*: Erdfelder et al., 1996). The final sample included 320 participants, which incorporated 200% more responses to optimise statistical power and account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, "please select four for this item"), which enabled identification of 7 careless respondents who were excluded from the sample. A total of 313 university students were included in the final sample, 78% of whom were female, 19% were male and 3% were

transgender (*Mage* = 23.38, *SDage* = 6.66). Fifty-six per cent were undergraduate students, and 44% were postgraduate students. Approximately half of the participants were British (53%), and the remaining half were distributed between Western (24% European, American and Australian) and non-Western nationalities (23% African and Asian).

Design and procedure

The study had a cross-sectional design and was carried out as an online survey. Once participants gave informed consent, they completed measures of all the relevant constructs in random order, and at the end of the study, they were asked for their age, gender, year of study, and average grade. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201801671252804288). On completion, participants were debriefed, thanked, and compensated. The procedure took an average of 12 minutes for participants to complete.

Materials

Calling. The Calling and Vocation Questionnaire (CVQ: Dik et al., 2012) was used to assess the presence of, and search for, calling. Items were tailored to a university student population. Participants rated the extent to which they agreed with 12 items describing the presence of calling (e.g., "I believe that I have been called to my current line of study" and "I see my career as a path to purpose in life"; *1=Strongly disagree* to *5= Strongly agree*; α = .87) and 12 items describing a search for calling (e.g., "I yearn for a sense of calling in my career" and "I am looking for a career that will help me live out my life's purpose"; α = .88). A confirmatory factor analysis revealed that the overall scale measured two distinct factors (Eigenvalues > 1), which corresponded to the sub-scales of the presence of calling (32% of the variance) and search for calling (26% of the variance). Therefore, I averaged the ratings across each sub-scale, and computed two scores for the presence of, and search for, calling.

Dogmatism. The Dogmatism Scale (DOG: Altemeyer, 2002) was used to assess individuals' tendency to lay down principles as undeniably true. Participants rated the extent to which they agreed with ten randomly selected items from the original scale, such as "My opinions are right and will stand the test of time" and "My opinions and beliefs fit together perfectly to make a crystal-clear picture of things" (*1=Strongly disagree* to *5=Strongly agree;* $\alpha = .78$).

Implicit theories of ability. A brief version of the Implicit Theories of Intelligence Scale (ITIS: Dweck, 2000) was used to assess participants' incremental versus entity theories of ability. Participants rated the extent to which they agreed with five items assessing incremental theories of ability (e.g., "No matter who you are, you can significantly change your intelligence" and "You can always substantially change how much talent you have"), and five items assessing entity theories of ability (e.g., "You can learn new things, but you can't really change how intelligent you are" and "Your talent in an area is something about you that you can't change very much"; *1=Strongly disagree* to *6=Strongly agree*). As per the original scale directions (Dweck, 2000), I averaged the scores of the ten items into an overall implicit theory score ($\alpha = .90$), with higher scores indicating incremental theories and lower scores indicating entity theories.

Results

Unadjusted analyses

I first conducted correlational analyses between all variables using the raw scores for the presence of, and search for, calling (Table 15). Consistent with previous research, the two dimensions of calling showed a strong positive correlation. Additionally, the presence of calling was positively related to incremental theories of ability. The search for calling was also positively related to incremental theories and it was negatively related to dogmatism.

Participants' age, gender and year of study were not significantly related to the presence of, or search for, calling.

Analyses adjusting for the other dimension of calling

As in the previous chapters, I partialled the presence of, and search for, calling from one another (i.e., removing their shared variance) before examining their relationships with the predictors. This procedure enabled examination of the unique predictors of each calling dimension. As a first step, I ran two simple regressions between the calling variables and obtained two residualised scores for the presence of calling (free of search) and the search for calling (free of presence). Next, I conducted two separate multiple regression analyses with all the psychological factors as predictors for the partialled calling variables. Table 15 shows the standardised regression coefficients. Consistent with predictions, the presence of calling was associated with higher dogmatism ($\beta = .174$, $p < .01$) and incremental theories of ability ($\beta = .206$, $p < .001$). The overall model ($R^2 = .070$, $F(2,306) = 11.58$, $p < .001$) indicated that incremental theories of ability was the strongest predictor of the presence of calling. Conversely, the search for calling was negatively associated with dogmatism ($\beta = -.212$, $p < .01$) and it did not show a significant relationship with implicit theories of ability (overall model $R^2 = .045$, $F(2,306) = 7.18$, $p = .001$). The results remained the same when I included participants' age, gender, year of study, and average grade in the regression model.

Discussion

The present findings suggest that the presence of, and search for, calling are associated with factors that indicate different levels of rigidity and resilience. As expected, the presence of calling was related to higher dogmatism and incremental theories of ability. These results replicate the prior findings showing that the presence of calling is associated with heightened cognitive rigidity and closed-mindedness (Chapter 3). Additionally, they indicate that people who have a calling tend to have incremental theories of ability and believe that their

intelligence and talents can be cultivated through hard work. Together, these findings suggest that the presence of calling is characterised by high rigidity but also a strong initiative to develop and grow, which is a marker of resilience facing adversity and challenges (Dweck, 2000). Conversely, the search for calling was associated with lower dogmatism, and it did not show a specific pattern of relationships with implicit theories. These results replicate the prior findings showing that the search for calling is associated with heightened cognitive flexibility and open-mindedness (Chapter 3). Additionally, they indicate that searchers do not have a specific pattern of beliefs about ability. Some searchers may hold entity theories and believe that a calling will enable them to discover their innate talents, while other searchers may hold incremental theories and believe that a calling will enable them to develop their level of talent in a specific area.

These findings extend previous research showing that the presence of calling is associated with higher resilience and perseverance for long-term goals, and higher effort in career-related activities (Dobrow & Heller, 2014; Praskova et al., 2014). They further suggest people who perceive a calling tend to have incremental theories of ability, and thus, believe that their intelligence and talents are malleable and can be substantially developed through effort. Incremental theorists consider effort as more important than innate ability in the achievement of successful outcomes (Dweck & Leggett, 1988). This may partly explain why individuals who perceive a calling work more persistently and effortfully than individuals who do not feel a calling (Dobrow & Heller, 2014; Praskova et al., 2014).

In the next study, I sought to replicate and build upon these findings. Specifically, I examined the possibility that the presence of, and search for, calling may be associated with different goal orientations.

Table 14

Descriptive statistics and intercorrelations among all variables measured in Study 7

		Descriptives			Intercorrelations		
		α	*M*	*SD*	1	2	3
1.	Presence of Calling	.87	3.43	0.67			
2.	Search for Calling	.88	3.82	0.60	.58***		
3.	Dogmatism	.78	2.05	0.52	.06	-.13*	
4.	Incremental Theories	.90	2.99	0.88	.24***	.13*	.05

Note. $N = 313$. 1.-3. on scales from *1* to *5,* and 4. on a scale from *1* to *6.* * $p < .05$, *** $p < .001$

Table 15

Summary of multiple regression analyses for variables predicting the presence of calling (free of search) and the search for a calling (free of presence)

	Presence of calling[f]		**Search for calling[f]**	
Variable	*β*	*t*	*β*	*t*
Dogmatism	.174	3.15**	-.212	-3.78***
Incremental Theories	.206	3.74***	.016	0.27
F		11.58***		7.18**
R^2		.070		.045

Note. $N = 313$. ** $p < .01$, *** $p < .001$

Study 8

The purpose of this study was to replicate and extend the previous findings examining the achievement orientations associated with the presence of, and search for, calling. In Study 7, the presence of calling was associated with incremental theories of ability, whereas the search for calling was not. Students' implicit theories of ability orient them toward different goals at school (Dweck & Leggett, 1988). Specifically, incremental theories of ability are associated with mastery goals (as opposed to performance goals; Grant & Dweck, 2003). Therefore, to further understand the differences between the presence of, and search for, calling, this study examined the achievement goals associated with each dimension of calling.

I predicted the presence of calling would be associated with mastery goals, in which individuals are concerned with learning new skills and improving old ones (Ames, 1992; Elliot, 1999; Button et al., 1996). Mastery-oriented students tend to prefer challenging tasks that force them to learn new things, even if they also pose a higher risk of failure (Grant & Dweck, 2003). On the other hand, I predicted that the search for calling would be associated with performance goals, in which individuals are concerned with being judged able and competent compared to others (Ames, 1992; Elliot, 1999; Button et al., 1996). Performance-oriented students tend to avoid challenging tasks because they present the risk of failure and pose a threat to their self-esteem and self-image (Grant & Dweck, 2003).

I examined the relationship between the two pursuits of calling and goal orientation while also including the personality variables measured in Study 7 (dogmatism and implicit theories of ability). I aimed to replicate the previous findings and identify the strongest predictors of the presence of, and search for, calling (i.e., examining which predictors remain related to the calling variables after holding other factors constant). Overall, I expected that the presence of calling would be associated with high dogmatism, and incremental theories of ability (as in Study 7), along with mastery goals. On the other hand, I predicted that the search

for calling would be associated with low dogmatism (as in Study 7) along with performance goals. I measured participants' age, gender, year of study and field of study as covariates.

Method

Participants

In this study, I recruited students from different study fields to observe the consistency of the predictors of the presence of, and search for, calling across different student samples. Participants were university students recruited online through the crowdsourcing platform Prolific, and they received a £2 payment in exchange for their participation. An a priori power analysis determined the minimum number of participants required to detect moderate effects ($f^2 = .10$) with 80% power using multiple linear regression ($N > 125$; G**Power*: Erdfelder et al., 1996). The final sample included 330 participants, which incorporated 160% more responses to optimise statistical power and account for participants who respond carelessly to items (estimated between 5% and 60% of survey respondents; Johnson, 2005; Hauser & Schwarz, 2016). To ensure data quality, the questionnaires included attention checks (e.g., on a scale from 1 to 5, an item that reads, "please select four for this item"), which enabled identification of 14 careless respondents who were excluded from the sample. Of the 316 participants who were included in the final sample, 44% were female, 53% were male and 3% were transgender ($M_{age} = 24.91$, $SD = 11.33$). Sixty-five per cent of participants were undergraduates and 35% postgraduates. They ranged in their study subject from Mathematics, Computer Science, Engineering and Technology (32%) to Education, Psychology, Politics, Sociology and Anthropology (18%), Economics, Law, Business and Administrative Studies (13%), Language, Literature and Information Sciences (9%), Medicine, Veterinary and Medical-related subjects (8%), Biology, Zoology, Genetics, Biochemistry and Biophysics (8%), Creative Arts and Design (5%), History, Geography and Philosophy (2%), and Chemistry, Physics and Astronomy (5%).

Design and procedure

The study had a cross-sectional design and was carried out as an online survey. After giving informed consent, participants completed measures of all the relevant constructs in random order, and at the end of the study, they were asked to indicate their age, gender, year of study, and average grade. The study procedure complied with the ethical standards of the British Psychological Society and was previously approved by the Kent Psychology Ethics Committee (Ethics ID #201817742419804222). On completion, participants were debriefed, thanked, and compensated. The procedure took an average of nine minutes for participants to complete.

Materials

Goal Orientation. The Learning Goal Orientation scale (LGO: Button et al., 1996) was used to assess students' mastery and performance goals. Participants rated the extent to which they agreed with eight items describing mastery goals (e.g., "I prefer to work on tasks that force me to learn new things" and "I do my best when I'm working on a fairly difficult task"; *1=Strongly disagree* to *7=Strongly agree*; $\alpha = .85$) and eight items describing performance goals (e.g., "I like to be fairly confident that I can successfully perform a task before I attempt it" and "I feel smart when I can do something better than most other people"; $\alpha = .82$).

As in the previous study, the presence of, and search for, calling were assessed with the Calling and Vocation Questionnaire (CVQ: Dik et al., 2012), which was tailored to university students. Consistent with the original scale properties, a confirmatory factor analysis revealed that the questionnaire measured two main factors (Eigenvalues >1) which corresponded to the "presence" and "search" sub-scales (29% and 25% of the variance of calling, respectively). Therefore, two independent scores were computed for the presence of calling ($\alpha = .82$) and search for calling ($\alpha = .86$). The rest of the measures used were

computed in the same ways as in Study 7. Dogmatism was assessed with the Dogmatism Scale (DOG: Altemeyer, 2002) and I computed an overall dogmatism score (α = .73). Implicit theories of abilities were measured with a brief version of the Implicit Theories of Intelligence Scale (ITIS: Dweck, 2009) and I computed an overall implicit theory score (α = .87), with higher scores indicating incremental theories and lower scores indicating entity theories.

Results

Unadjusted analyses

I first conducted correlational analyses between all variables using the raw scores for the presence of, and search for, calling (Table 16). As expected, the presence of, and search for, calling showed a strong positive correlation. Additionally, the presence of calling was positively related to dogmatism and mastery goals. Conversely, the search for calling was positively related to mastery goals and performance goals. Participants' age, gender, year of study and field of study were not significantly related to the presence of, or search for, calling.

Analyses adjusting for the other dimension of calling

As in the previous studies, I partialled the calling variables from one another to investigate their unique associations with the predictors. I co-varied shared variance between the calling variables and obtained two residualised scores for the presence of calling (free of search) and the search for calling (free of presence). I then conducted two separate multiple regression analyses with all the psychological factors as predictors for the partialled calling variables. Table 17 shows the standardised regression coefficients. As predicted, the presence of calling was positively associated with dogmatism (β = .315, $p < .001$) and mastery goals (β = .233, $p < .001$). However, it was unrelated to implicit theories of ability. The overall model ($R^2 = .112$, $F(4,295) = 9.26$, $p < .001$) indicated that dogmatism was the strongest predictor of the presence of calling. On the other hand, the search for calling was associated with

performance goals (β = .167, $p < .01$), but it was unrelated to implicit theories of ability, and unlike the previous study, it was also unrelated to dogmatism (overall model $R^2 = .061$, $F(4,295) = 4.75$, $p = .001$). The pattern of results remained the same when I included participants' age, gender, year of study and average grade in the regression model. I did not include participants' field of study due to the small number of people in some study subjects.

Discussion

The present findings suggest that the presence of, and search for, calling are associated with different goal orientations at school. The presence of calling was associated with mastery goals, which indicate a desire to learn and achieve proficiency, and a preference for challenges (Button et al., 1996). Conversely, the search for calling was associated with performance goals, which indicate a desire to be judged able and competent, and avoidance of challenges (Button et al., 1996). These results suggest that students who perceive a calling and those that are seeking a calling have different motivational orientations. Individuals with a presence of calling seem to be focused on developing their competence achieving mastery, which is an adaptive pattern of engagement and is associated with higher resilience facing adversity (Grant & Dweck, 2003). Conversely, individuals searching for a calling seem to be focused on demonstrating their competence and avoiding failure, which is a maladaptive pattern of engagement and is associated with lower resilience facing adversity (Grant & Dweck, 2003).

The current results also replicate the previous findings, showing that the presence of calling was positively associated with dogmatism (Chapter 3; Study 7). This provides further evidence that people who perceive a calling tend to be more rigid and closed-minded regarding their ideas and beliefs, including their career interests and goals (Dobrow & Tosti-Kharas, 2012; Lysova et al., 2018). Conversely, the search for calling was unrelated to dogmatism. This aligns with the hypothesis that people who are seeking a calling tend to be

more flexible and open-minded regarding their ideas and beliefs than those who already perceive a calling. However, this feature of the search for calling was less pronounced than in the previous study. This may be because the search for calling is associated with cognitive flexibility (low dogmatism) and open-mindedness (openness to experience), but these are two distinct aspects of personality. For example, some searches may be particularly flexible regarding their ideas and beliefs (low dogmatism; Study 7), and might feel confused and unsure about their career interests (Duffy & Sedlacek, 2007). However, other searchers may particularly open-minded and have a wide variety of interests (openness to experience; Chapter 3) and struggle to choose one career path over others. Indeed, in Chapter 3 I found that the search for calling is associated with low dogmatism and high openness to experience, and these are two differentiable components of the quest for a calling. Thus, the search for calling may be associated with either cognitive flexibility (low dogmatism), open-mindedness (high openness to experience), or a combination of both, depending on the sample of participants.

An important difference between the results from this study and the previous one was that implicit theories of ability were unrelated to calling. Although this may be partly due to differences across samples, it also suggests that achievement goals may be more important than implicit theories to the distinction between the presence of, and search for, calling. Both implicit theories and achievement goals reflect two main motivational orientations: a focus on developing competence (incremental theories and mastery goals) versus a focus on demonstrating competence (entity theories and performance goals). However, implicit theories of ability concern people's beliefs, whereas achievement goals concern people's behaviour (Grant & Dweck, 2003). The current findings suggest that the clearest difference between students who perceive a calling and those who are seeking a calling is that, in the same situation, they pursue different goals. People who perceive a calling tend to set mastery

goals and are more interested in competing with themselves. Conversely, people who are seeking a calling tend to set performance goals and are more interested in gaining external feedback and validation.

Altogether, the results from these two studies provide further evidence that the presence of, and search for, calling are associated with different overall mindsets. The presence of calling seems to be associated factors that indicate cognitive rigidity but also higher resilience to challenges in one's career (high dogmatism, incremental theories of ability and mastery goals). In contrast, the search for calling seems to be associated with factors that indicate cognitive flexibility and but also lower resilience to challenges in one's career (low dogmatism and performance goals).

Table 16

Descriptive statistics and intercorrelations among all scales used in Study 8

		Descriptives			Intercorrelations				
		α	*M*	*SD*	1	2	3	4	5
1.	Presence of Calling	.82	3.23	0.64					
2.	Search for Calling	.86	3.75	0.61	.49***				
3.	Dogmatism	.73	2.15	0.51	.21***	.00			
4.	Incremental Theories	.87	3.11	0.90	.07	.10	-.17**		
5.	Mastery Goals	.85	5.57	0.78	.27***	.30***	-.29***	.23***	
6.	Performance Goals	.87	5.53	0.82	.10	.22***	-.14**	.11*	.23***

Note. $N = 316$. 1.-3. on scales from *1* to *5;* 4. on scale from *1* to 6; 5.-6. on scales from *1* to *7.*

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 17

Summary of multiple regression analyses for variables predicting the presence of calling (free of search) and the search for a calling (free of presence)

	Presence of calling[f]		**Search for calling[f]**	
Variable	*β*	*t*	*β*	*t*
Dogmatism	.315	5.43***	-.039	-0.65
Incremental Theories	.031	0.53	.065	1.10
Mastery Goals	.233	3.86***	.110	1.77
Performance Goals	-.007	-0.12	.167	2.83**
F		9.26***		4.75**
R^2		.112		.061

Note. $N = 313$. ** $p < .01$, *** $p < .001$

General Discussion

This research aimed to identify the personality traits and achievement goals associated with the presence of, and search for, calling. In light of prior research, I predicted that the presence of calling would be associated with personality traits that indicate cognitive rigidity, but achievement goals that indicate higher resilience to challenges. In contrast, the search for calling would be associated with personality traits that indicate cognitive flexibility, but achievement goals that indicate lower resilience to challenges. Study 7 revealed that the presence of calling was positively related to dogmatism, which indicates higher rigidity, but it was also related to incremental theories of ability, which indicate higher resilience facing challenges and failure. Conversely, the search for calling was negatively related to dogmatism, which indicates higher flexibility, and it did not show a defined pattern of relationships with implicit theories of ability. Study 8 extended these findings revealing that the presence of calling was related to mastery goals, which are based on developing one's competence and seeking challenges to maximise learning. On the other hand, the search for

calling was related to performance goals, which are based on demonstrating competence and avoiding challenges to minimise failure. Together, these findings suggest that the presence of, and search for calling are associated with different personality traits and achievement goals, which reflect different levels of rigidity and resilience.

This research replicates the findings of the previous chapter, suggesting that the presence of calling is associated with a rigid way of thinking, whereas the search for calling is associated with a more flexible way of thinking. In addition, the current findings suggest that these two pursuits of calling are associated with different achievement goals, which shape the way individuals understand and respond to challenges. Overall, the presence of calling seems to be associated with higher rigidity and inflexibility regarding one's interests and goals (high dogmatism). This allows individuals to be less reliant on external indicators of performance, persevere in the absence of positive feedback and be resilient to challenges. Specifically, in the academic context, students who have a calling seem to be focused on developing their competence (incremental theories of ability) and are more interested in competing with themselves and improving their past performance than on gaining favourable feedback (mastery goals). In contrast, the search for calling seems to be associated with higher flexibility regarding one's interests and goals (low dogmatism). This seems to make individuals more reliant on external indicators of performance, which can undermine their persistence and resilience facing challenges and negative feedback. Specifically, in the academic context, students who are searching for a calling seem to be focused on demonstrating their competence and are more interested in gaining external validation, or avoiding negative feedback, than on developing their skills (performance goals).

These findings extend previous research which shows that the presence of, and search for, calling are associated with different career-related outcomes, and the presence of calling is more positively related to positive outcomes than the search for calling (Duffy & Sedlacek,

2007; Woitowicz & Domene, 2013). In the current research, the presence of calling was associated with mastery goals, which are associated with positive affect in events involving difficulty, and higher persistence and achievement in the face of challenge (Elliot, 1999; Grant & Dweck, 2003). Conversely, the search for calling was associated with performance goals, which are associated with negative affect in events involving difficulty, withdrawal and poorer performance in the face of challenge (Ames, 1992; Midgley et al., 2014). The current findings also align with previous research which suggests that the presence of calling is more strongly associated with intrinsic motivation than the search for calling (Woitowicz & Domene, 2013). In the current research, the presence of calling was associated with a mastery orientation, which reflects higher intrinsic motivation (Tanaka & Yamauchi, 2001). In contrast, the search for calling was associated with a performance orientation, which reflects higher extrinsic motivation (Elliot, 1999).

Furthermore, the current research extends prior studies which suggest that people who have the presence of a calling are less receptive to career advice than those who do not have a calling (Dobrow & Tosti-Kharas, 2012). In the current research, the presence of calling was associated with factors that indicate lower reliance on feedback and lower concern about other people's opinions. Specifically, it was related to high dogmatism, which indicates a reluctance to consider ideas that contradict one's views, and mastery goals, which indicate lower interest in gaining recognition or praise. These findings suggest that individuals who perceive a calling are less interested in gaining external approval than those who are searching for a calling. This mindset may enable people who have a calling to persevere and maintain motivation in the absence of positive feedback.

As in the previous chapters of this thesis, the present research shows the importance of partialling the calling dimensions from one another to observe their unique relationships with psychological variables. Given that the presence of, and search for, calling are highly related

to one another but have different relationships with other variables, they can mask or suppress each other's effects. For example, in the current research, the search for calling was associated with performance goals (rather than mastery goals), but this was only observable once the shared variance with the presence of calling was removed. Thus, controlling for the overlap between calling dimensions allows for a clearer observation of their unique correlates, antecedents and outcomes (Duffy & Sedlacek, 2007).

Limitations and future research

Although partialling the calling variables from one another seems to be crucial understand their unique correlates, this technique can create challenges for the interpretability of the results because only two of four possible typologies of calling are being examined, i.e., the presence of calling (without any search) and the search for calling (without any presence). However, people may be able to have the presence of calling and the search for calling at the same time (or have neither the presence nor the search for calling), and these individuals may show different psychological profiles. For example, the current research suggests that people who perceive a calling are notably more resilient to challenges than those how are searching for a calling but do not have a calling yet (mastery goals). However, this motivational pattern may be less clear among people who perceive and seek a calling at the same time, who may show different responses to challenges in different situations (e.g., both mastery and performance goals). Future research would provide valuable insight by disentangling the link between the presence of, and search for, calling, and examining whether and how these variables relate to other potential typologies of calling.

Another limitation of the current studies is that the data were cross-sectional in both studies, thus limiting inferences of causal directionality. The order of variables in the models was based on the assumption that psychological and motivational factors influence people's career attitudes (Dweck & Leggett, 1988; Rubenstein et al., 2019). However, these

relationships are likely bi-directional (Woods et al., 2019). Therefore, future longitudinal and experimental research would shed considerable light on the causal order of these relationships. Longitudinal studies could examine how the presence of, and search for, calling change throughout the university period and whether or not the search for calling leads to the presence of calling. Experimental studies could examine whether people who are searching for a calling have lower resilience facing challenges. Prior research suggests that individuals' self-esteem is threatened when they receive negative feedback (Brown, 2010), and the current results suggest that students who are searching for a calling may suffer more from such threats.

Conclusion

Previous research suggests that perceiving and seeking a calling have different academic and career-related outcomes, but little is known about what predicts these two aspects of calling. The current research suggests that the presence of, and search for, calling are associated with different personality traits and achievement orientations. The presence of calling was associated with factors that indicate cognitive rigidity but also higher resilience facing academic challenges (dogmatism, incremental theories of ability, and mastery goals). Conversely, the search for calling was associated with factors that indicate cognitive flexibility but also lower resilience facing academic challenges (low dogmatism and performance goals). These findings suggest that the presence of, and search for, calling are associated with different mindsets, which structure the way students understand and respond to achievement situations. In the final chapter, I take stock of the findings and assess their value and implications in the context of previous literature.

Chapter 5

Discussion and conclusions

This thesis aimed to advance knowledge of the psychology of career callings. Specifically, the present research examined two critical topics regarding calling that have been debated or understudied in the literature: (1) the conceptualisation and measurement of calling, and (2) the psychological predictors of calling. All of the studies in this thesis report findings from university students, who are beginning to formulate their long-term career goals and vary in their pursuit of callings, with some actively searching for a calling, others with a presence of calling, and others who may not view calling as a relevant concept in their careers. The purpose of this last chapter is to take stock of the current findings and assess their value and implications in the broader context of existing literature. The following sections provide a summary of the findings and highlight their theoretical and practical relevance. They also describe the research limitations that may affect the generalisability of the results and make recommendations for future research.

The psychological correlates of different meanings and measures of calling

Given that there is no standard conceptualisation of calling in the literature, Chapter 2 examined the psychological correlates associated with different meanings and measures of calling. The first part of the research investigated the differences between prosocial and personal conceptualisations of calling, using two unidimensional calling measures (Dobrow & Tosti-Kharas, 2011; Praskova et al., 2015a). The results suggested that people who have prosocial callings and those who have personal callings share similar psychological characteristics (e.g., a sense of life meaning, positive self-evaluations, paranormal beliefs). The main difference was that religious individuals were more likely to have prosocial callings, whereas less religious individuals (as well as those who had a left-wing political ideology) were more likely to have personal callings. These results align with previous

research which shows that religious individuals tend to have self-transcendent work values and are more likely to pursue prosocial callings (Hirschi, 2011a). Conversely, less religious individuals are more likely to have self-enhancing work values and tend to pursue personal callings (Hirschi, 2011a). The findings also add to the literature on the conceptualisation of calling, providing more evidence that prosocial callings emphasise the religious and classical aspects of callings, whereas personal callings emphasise the secular, modern and progressive aspects of calling (Dik & Shimizu, 2018; Duffy et al., 2018; Shimizu et al., 2018; Thompson & Bunderson, 2019). Overall, these findings highlight the importance of ideological variables in understanding the different meanings that people assign to their callings.

The second part of the research investigated the differences between the presence of, and search for, calling using a multidimensional calling measure (Dik et al., 2012). The results suggested that there are critical psychological differences between perceiving and seeking a calling. For example, the presence of, and search for, calling were associated with different personality traits. Individuals with a presence of calling were more likely to report positive self-evaluations (e.g., high self-esteem and self-efficacy). Conversely, individuals searching for a calling were more likely to report negative self-evaluations (e.g., low self-esteem and self-efficacy) and lower tolerance to uncertainty (i.e., anxiety about unknown future events). These findings align with prior studies which suggest that the presence of calling is associated with positive self-views, self-clarity and higher psychological wellbeing (Duffy & Sedlacek, 2007, 2010; Hirschi, 2011b; Hirschi & Herrmann, 2012). In contrast, the search for calling is associated with identity confusion and lower psychological wellbeing (Duffy & Sedlacek, 2007, 2010). Furthermore, the results provide new insight into the negative side of the search for calling, suggesting that it is associated with negative self-views, which indicate higher neuroticism (Judge et al., 2003), as well as intolerance of uncertainty, which is a marker of anxiety, rumination and worry (de Jong-Meyer et al., 2009).

Another crucial difference between the presence of, and search for calling was that the two pursuits of calling were related to different worldviews. Individuals with a presence of calling were more likely to hold supernatural beliefs (religious and paranormal beliefs). Conversely, individuals searching for a calling were more sceptical of supernatural beliefs and more likely to lean towards a left-wing political ideology. These findings align with prior research which suggests that the presence of calling is associated with higher religiousness, whereas the search for calling is not (Duffy & Sedlacek, 2010). They further suggest that perceiving and seeking a calling may be associated with two different ways of thinking. The presence of calling was associated with a general tendency to believe in supernatural phenomena (religious and paranormal beliefs), which indicates a lower tendency to critically analyse one's ideas and beliefs (Gervais & Norenzayan, 2012; Willard & Norenzayan, 2013). Conversely, the search for calling was associated with a general tendency to be sceptical and a higher endorsement of left-wing political ideas, which indicates a higher tendency to critically analyse one's ideas and beliefs (Gervais & Norenzayan, 2012; Jost et al., 2009; Willard & Norenzayan, 2013).

Overall, this second group of findings highlight the importance of examining calling as a multidimensional construct, which comprises both the presence of, and search for, calling (Dik et al., 2012; Dik & Duffy, 2009). The results add to a growing body of research which suggests that the presence of, and search for, calling are associated with different psychological variables, and the presence of calling is more strongly related to positive outcomes than the search for calling (Buis et al., 2019; Duffy & Sedlacek, 2007, 2010; Woitowicz & Domene, 2013). In the current studies, the presence of calling of calling was associated with variables that indicate self-confidence (positive self-evaluations) and lower self-questioning (supernatural beliefs). Conversely, the search for calling was associated with variables that indicate self-doubt (negative self-evaluations), anxiety (intolerance of

uncertainty), and higher self-questioning (scepticism, left-wing political ideology). Together, the findings outlined in Chapter 2 suggest that the presence of, and search for, calling may be associated with different overall mindsets. Therefore, the following two empirical chapters examined more closely the psychological factors associated with the presence of, and search for, a calling.

The psychological factors associated with the presence of, versus search for, calling

Chapter 3 examined the psychological differences between the presence of, and search for, calling, and the extent to which these two pursuits of calling may be associated with different overall mindsets. The results suggested that the presence of calling was associated with personality traits that indicate closed-mindedness and lower inquisitiveness, such as a high sense of life meaning, high dogmatism and future perspective. In the same vein, the presence of calling was associated with worldviews that indicate lower inquisitiveness and self-questioning, such as high supernatural beliefs (as in Chapter 2) and low personal justice beliefs. These variables indicate high rigidity regarding one's beliefs and a reluctance to change one's ideas or deviate from one's goals. In contrast, the search for calling was associated with personality traits that indicate open-mindedness and higher inquisitiveness, such as a low sense of life meaning and low dogmatism, along with a high search for life meaning and openness to experience. In addition, the search for calling was associated with worldviews that indicate higher inquisitiveness and self-questioning, such as low supernatural beliefs, left-wing political ideology (as in Chapter 2), and high personal justice beliefs. These variables indicate high flexibility regarding one's beliefs and openness to new ideas.

Together, the findings outlined in Chapter 3 suggest that the presence of, and search for, a career calling are associated with different overall mindsets, which involve different levels of inquisitiveness and cognitive flexibility. The presence of calling seems to be

associated with rigidity and resistance to change one's beliefs (e.g., dogmatism), whereas the search for calling seems to be associated with flexibility and willingness to explore new ideas (e.g., openness to experience). These results align with prior research on the career-related outcomes of calling, which suggests that the presence of calling is associated with higher clarity regarding one's career direction (Duffy & Sedlacek, 2007; Hirschi & Herrmann, 2012), higher career inflexibility (Lysova et al., 2018) and reluctance to change one's career path (Dobrow & Heller, 2015; Dobrow & Tosti-Kharas, 2012). Conversely, the search for calling is associated with confusion regarding one's career direction, higher career flexibility, and willingness to make changes in one's career path (Duffy & Sedlacek, 2007; Wrzesniewski, 2002). Overall, these findings underscore the importance of basic personality traits in understanding the differences between perceiving and seeking a calling. However, to fully comprehend the psychological profile of the presence of, and search for, calling in students, it is crucial to also examine how these two pursuits of calling may differ in the academic context. Therefore, the next chapter examined the personality traits and achievement orientations associated with the presence of, and search for, calling.

The achievement orientations associated with the presence of, versus search for, a calling

Chapter 4 examined the personality traits and achievement goals associated with the presence of, and search for, calling. The results replicated the previous findings regarding the personality differences between these two pursuits of calling. Individuals with a presence of calling tended to score high on dogmatism—they were particularly rigid and closed-minded regarding their ideas and beliefs. In contrast, individuals searching for a tended to score low on dogmatism—they were notably more flexible and open-minded regarding their ideas and beliefs. In addition, the findings suggested that the presence of, and search for calling were associated with different achievement orientations. Students with a presence of calling were

more likely to have mastery goals—they were more interested in learning and developing their competence, and showed a preference for challenging academic tasks. Conversely, students searching for calling were more likely to have performance goals—they were more interested in proving and demonstrating their competence, and showed avoidance of challenging academic tasks. Together, the findings outlined in Chapter 4 suggest that the presence of calling is associated with higher cognitive rigidity, but also higher resilience facing academic challenges. Individuals who have a calling tend to respond positively to challenges because they are concerned with learning, and regard failures as important cues as to how to improve (mastery orientation). Conversely, the search for calling is associated with higher cognitive flexibility, but also lower resilience facing academic challenges. Individuals searching for a calling tend to respond negatively to challenges because they are concerned with being judged competent, and regard failure as a threat to their ego (performance orientation).

These findings align with prior research, which suggests that individuals with a presence of calling tend to be inflexible regarding their career interests (Duffy & Sedlacek, 2007). However, they also tend to pursue more challenging careers (Dobrow & Heller, 2015; Duffy & Sedlacek, 2010) and have higher resilience facing obstacles in their career path (Dobrow & Heller, 2015; Esteves & Lopes, 2017; Praskova et al., 2014; Schabram & Maitlis, 2017). Conversely, the current findings suggest that individuals searching for calling tend to be more flexible regarding their career interests (Duffy & Sedlacek, 2007), but they also avoid challenging tasks and have lower resilience facing failure. Overall, these findings provide a more comprehensive psychological profile of the presence of, and search for, calling, incorporating personal characteristics (personality traits) and context-related factors (motivational orientations). They suggest that the presence of calling is characterised by closed-minded way of thinking, which enables individuals to commit single-mindedly to a

particular career domain. In the academic context, it also allows individuals to focus on mastering this domain and persevere despite the challenges. In contrast, the search for calling seems to be characterised by an open-minded way of thinking, which enables individuals to explore different career alternatives. However, in the academic context, it also makes individuals more reliant on feedback and external indicators of performance, which can undermine their ability to overcome challenges.

Wider implications

The findings described in this thesis have theoretical and practical implications. For theory, this research can provide valuable information regarding the conceptualisation and measurement of calling. The present results underscore the importance of examining calling as a multidimensional construct, which includes both the presence of, and search for, calling (Dik et al., 2012; Dik & Duffy, 2009). This seems to be particularly important to investigate calling in university students, who are at different stages of their career development and can be actively searching for a calling, or already feeling called to a specific career (Duffy & Sedlacek, 2007, 2010). In the current studies, the presence of, and search for, calling were associated with different, and sometimes opposite, psychological predictors. These results, coupled with previous research showing that the presence of, and search for, calling are associated with different wellbeing and career-related outcomes (Duffy & Sedlacek, 2007, 2010), suggest that that the distinction between these two dimensions of calling is critical and deserves more research attention. Assessing calling as a multidimensional construct allows exploration of more complex research questions and provides a more comprehensive picture of the psychology of calling in university students. Therefore, future research investigating calling in young adults would benefit from taking these two pursuits of calling into account.

The current research also provides new insight into the "darker side" of the presence of calling, and contributes to a growing body of literature which suggests that having a

calling can have both positive and negative outcomes (e.g., Bunderson & Thompson, 2009; Clinton et al., 2017; Duffy & Dik, 2013; Lysova et al., 2018). The present results mirror the "double-edge sword" view of calling in terms of outcomes, and suggest that the presence of calling can have positive predictors, such as *mastery goals*, but also potentially negative ones, such as *dogmatism.* These results add to prior research which points to a darker side of calling for individuals who foreclose too early on their career choices and refuse to consider career other alternatives (Duffy & Dik, 2013; Lysova et al., 2018). However, the limited literature on the downsides of calling makes any conclusions suggestive rather than definitive. By elucidating the "bright" and "dark" antecedents of calling, this research can guide future scholarship on the darker side of calling, helping to understand the variety of ways calling may lead to negative outcomes, and the potential moderator variables that help explain what types of individuals are most likely to experience such outcomes.

For practice, these results can inform counsellors assisting university students on career-related issues, as the interest in pursuing meaningful work and finding a calling is growing (e.g., Lysova et al., 2018). By demonstrating the psychological differences between the presence of, and search for, calling, this research draws attention to the importance of working with individuals who perceive a calling and those who are seeking for a calling in different ways. Students who perceive a calling may need career counselling to fulfil that calling, rather than counselling to help them identify their vocational interests (Duffy & Sedlacek, 2007), as they are highly likely to be dogmatic and reluctant to change their career goals. Career counsellors can help these students to find a line of work that aligns with their calling and prevent them from constricting their career options (e.g., by exposing individuals to a broad range of jobs and career alternatives in which they can apply their skills, or helping them to recognise situations of becoming obsessed with a calling). On the other hand, students who are searching for a calling may need career counselling for assistance in this

quest (Duffy & Sedlacek, 2007). When assisting these students, counsellors can capitalise on their existing tendencies for exploration and self-reflection to identify personal interests, skills and career preferences, while managing students' expectations and self-defeating thoughts. Based on the current findings, the process of finding a career calling may take a considerable amount of time as students searching for a calling and those who already perceive a calling show very different psychological profiles.

Lastly, this research can also inform educational practice. The current results imply that university students are more likely to develop a sense of calling when they focus on learning and mastering academic tasks, rather than performing well in examinations. Evidence suggests that educators play a critical role in shaping students' achievement goals in schools and classrooms (Ames, 1992; Midgley, 2014). When educators highlight the importance of learning and apply this principle to their educational practices, students set mastery goals, even in the presence of high-stakes evaluations (e.g., Anderman & Anderman, 2009). Therefore, educators can also play a key role in promoting a sense of calling in students by creating a classroom environment that prioritises learning over normative performance standards. Based on the current results, educational settings that encourage students to engage intrinsically with the tasks, take risks, and challenge themselves may be more likely to nurture a sense of calling in students than educational settings that emphasise correctness, absence of errors, and normative success.

Limitations and future directions

The results, discussion and implications of this research need to be considered in light of several limitations. First, although the proposed models examined calling as an outcome of psychological predictors, the data were cross-sectional in all studies, hence limiting conclusions of causal inferences. The models were based on the assumption that psychological dispositions should predict different experiences of calling (Bott & Duffy,

2015). However, these relationships are likely to be reciprocal because people's perceptions of calling can also shape their psychological traits (Dalla Rosa et al., 2019). Longitudinal and experimental work would provide valuable insight into the causal order of these relationships. Longitudinal research might explore the developmental trajectories of calling and how feeling called and searching for a calling change throughout the university period. Experimental research might examine whether people searching for a calling respond negatively to challenging situations. For example, receiving negative feedback can threaten students' self-esteem (Brown, 2010), and the current results suggest that individuals searching for a calling might suffer more from such threats.

A second research limitation is the nature of the samples surveyed, which consisted of university students from different fields of study and at different stages of their university education (undergraduate and postgraduate). While the samples might be considered relatively diverse, it is difficult to extend these results to working adults because they may be less likely to search for a calling than younger participants. The search for calling has been mainly studied in college and university students (Dik et al., 2012; Duffy & Sedlacek, 2007), and it might be that young adults are more concerned with finding a career calling (Duffy & Sedlacek, 2010). Therefore, it would be worthwhile investigating how the search for calling develops throughout the lifespan, as well as whether it correlates with different variables at younger and older ages. Perhaps the search for calling is more prevalent in young adults and it is a natural part of how people develop their vocational identity. In older adults, however, it might indicate considerable difficulty or failure to translate one's interests into coherent career goals. Therefore, factors related to the presence of, and search for, calling in age-diverse populations deserve considerable attention. For example, future research could examine whether the relationship between the search for calling and negative indicators of wellbeing, such as negative self-evaluations, increases as people age.

Another limitation to the generalisability of the findings is the use of partialled variables. The present research partialled the presence of, and search for, calling from one another before examining their relationships with other variables. Partialling in the context of multiple regression is a useful and common technique in psychology (Lynam et al., 2006). It entails removing shared variance between variables so that independent effects can be isolated. In the case of the presence of, and search for, calling, this procedure allowed examination of the unique correlates of each calling dimension. The two dimensions of calling are positively correlated to one another, but they have different, and sometimes opposite associations with other variables. Therefore, they can mask or suppress each other's effects. For example, in Chapter 4, the presence of calling was associated with a mastery orientation (as opposed to a performance orientation), but this was only observable when the relative search for calling was partialled out. Examining the dimensions of calling independently therefore allows to answer a number of interesting research questions regarding their unique correlates, antecedents and effects (Duffy & Sedlacek, 2007). However, it also entails difficulties in the real-world application of results because the dimensions of calling are not considered in combination. It is possible that individuals can have a calling and search for a calling at the same time, and these two variables in tandem may have different associations with other variables. For example, individuals with a high presence of calling and a high search for calling might be less dogmatic than those with a high presence of calling and low search feelings. This is important to note in future research examining these two calling dimensions; it will be essential to elucidate if they represent two ends of a continuum, or if people can feel called and search for a calling at the same time (Duffy & Sedlacek, 2007).

A final limitation to note is the absence of common method variance analyses in the studies, which is an important issue for cross-sectional survey research as it informs about the

variations in responses that are caused by the instruments rather than the respondents' predispositions (e.g., Spector & Brannick, 2010). The current research sought to avoid any potential common method bias in the research design stage, by using reliable and valid scales, and applying a number of procedural remedies in designing and administering the questionnaires, from mixing the order of the questions to using different scale types (e.g., Podsakoff, MacKenzie, et al., 2003). In addition, all the studies included multicollinearity analyses, which showed that the measures were not highly correlated with one another (VIFs < 2), and therefore, common method bias was unlikely (Cohen et al. 2013). As a last remark, the present studies did not use Structural Equation Modelling techniques (SEM) to analyse the data, but other analytical strategies that can be thought of as specific forms of SEM, such as linear regression and confirmatory factor analysis. The differences between these two approaches is that SEM allows the researcher to combine several of these simpler analytical techniques in a single analysis, rather than conducting separate analyses using multiple steps. However, the use of one or other analytical approach does not influence the value or quality of the research outputs in any way (Raykov & Marcoulides, 2006).

Conclusions

The overall conclusion of this thesis is that people's psychological characteristics affect their understanding and pursuit of callings. Regarding individuals' understanding of calling, this research suggests that people's worldviews influence the way they conceptualise calling. Religious individuals are more likely to endorse prosocial callings (i.e., oriented towards meeting other people's needs and contributing to society). Conversely, less religious individuals, as well as those with a left-wing political ideology, are more likely to endorse personal callings (i.e., oriented toward meeting one's needs and achieving self-fulfilment). These results suggest that religious and political beliefs determine, in part, the meanings and motivations that people attach to their callings. Therefore, future research on the

conceptualisation of calling would benefit from carefully considering these ideological variables.

In addition, the current research suggests that people's psychological traits affect the way they pursue callings. Specifically, individuals' personality, worldviews and achievement orientations influence whether they have the presence of a calling, or are searching for a calling. The presence of calling is associated with personality traits and worldviews that indicate cognitive rigidity, closed-mindedness and lower inquisitiveness: a higher sense of life meaning, dogmatism, future perspective and supernatural beliefs. However, in the academic context, the presence of calling is associated with achievement goals that indicate higher resilience to challenges: mastery orientation. In contrast, the search for calling is associated with personality traits and worldviews that indicate cognitive flexibility, open-mindedness and higher inquisitiveness: a higher search for life meaning, openness to experience, personal justice beliefs and left-wing political ideology. However, in the academic context, the search for calling is associated with achievement goals that indicate lower resilience to challenges: performance goals. These findings highlight the complexity of calling, suggesting that perceiving and seeking a calling are associated with different overall mindsets.

This research suggests that the presence of, and search for, calling have different psychological predictors and knowledge of how they are influenced by people's personality is just beginning to be discovered. Future research on the personal and contextual differences between these two dimensions of calling, as well as their interrelation, promises to yield valuable insights for theory and practice. Therefore, researchers, counsellors and educators are encouraged to include these two calling constructs in their vocabulary.

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Appendix A

Calling measures

Unidimensional scales

Prosocial calling.

Career Calling Scale for Emerging Adults (Praskova et al., 2015). "Take a moment to think about your future career. Please indicate your level of agreement with each of the following statements from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- It is my calling to benefit others in my future chosen career
- I have no clear sense of a future career direction that would be meaningful for me (reverse-coded)
- All I want to do now is to pursue the career that is inspiring to me
- I feel a sense of satisfaction because I have chosen a career path that I see as personally meaningful
- I think of benefiting others through my future chosen career all the time; it is like my calling
- Everything I do to prepare for my career is enjoyable and draws me towards it
- Preparing for my career is contributing to my personal growth
- I believe that I can make an important contribution to the community in my future chosen career
- I am obsessed about the career I am aiming for to the point that sometimes nothing else interests me
- I have chosen a career path that will give a real purpose to my life
- I take every opportunity to progress my career goals
- I enjoy that my future career will be recognised in the community as important

- I struggle to identify an important career goal that would give me a reason to get up in the morning and do something about it (reverse-coded)
- When it comes to planning for my dream career, I do not waste time; it is like I am on a mission
- It is more important that my career benefits others, rather than just benefits me
- All I want to do now is to pursue the career that is inspiring to me

Personal calling

Calling Scale (Dobrow & Tosti-Kharas, 2011). "Take a moment to think about your field of study (psychology). Please indicate the extent to which you agree or disagree with each of the following statements in the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- I am passionate about my future career in psychology
- I enjoy psychology more than anything else
- Studying psychology gives me immense personal satisfaction
- I would sacrifice everything for a career in psychology
- The first thing I often think about when I describe myself to others is that I'm a psychology student
- I would pursue a career in psychology even in the face of severe obstacles
- I know that psychology will always be part of my life
- I feel a sense of destiny about becoming a psychologist
- Psychology is always in my mind in some way
- Even when I'm not studying psychology, I often think about it
- My existence would be much less meaningful without my involvement in psychology
- Studying psychology is a deeply moving and gratifying experience for me

Multidimensional scale

Calling and Vocation Questionnaire (Dik et al., 2012). "Please indicate the degree to which you believe the following statements describe you, using the following scale from 1 = *Strongly disagree* to 5 = *Strongly agree*. Please respond with your career as a whole in mind. For example, if you are currently working part time in a job that you don't consider part of your career, focus on your career as a whole and not your current job. Try not to respond merely as you think you "should" respond; rather, try to be as accurate and as objective as possible in evaluating yourself. If any of the questions simply do not seem relevant to you, "1" may be the most appropriate answer."

Presence of calling

- I believe that I have been called to my current line of study
- My chosen career helps me live out my life's purpose
- I do not believe that a force beyond myself has helped guide me to my current career (reverse-coded)
- The most important aspect of my chosen career is its role in helping to meet the needs of others
- I was drawn by something beyond myself to pursue my current line of study
- Making a difference for others is the primary motivation in my career
- I see my career as a path to purpose in life
- My chosen career contributes to the common good
- My career is an important part of my life's meaning
- I am always trying to evaluate how beneficial my chosen career is to others
- I am pursuing my current line of study because I believe I have been called to do so
- I try to live out my life purpose when I am studying

Search for calling

- I'm searching for my calling in my career
- I am looking for a career that will help me live out my life's purpose
- I am trying to find a career that ultimately makes the world a better place
- I intend to construct a career that will give my life meaning
- I want to find a career that meets some of society's needs
- I am trying to build a career that benefits society
- I yearn for a sense of calling in my career
- Eventually, I hope my career will align with my purpose in life
- I am looking for a career where my job clearly benefits others
- I am trying to figure out what my calling is in the context of my career
- I am trying to identify the career I was meant to pursue
- I want to pursue a career that is a good fit with the reason for my existence.

Appendix B

Personality and worldview measures used in Chapters 2 and 3

Personality traits

Life meaning

Meaning in Life Questionnaire (Steger et al., 2006). "Take a moment to think about what makes your life feel important to you. Please indicate the extent to which you agree or disagree with each of the following statements using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

Presence of life meaning

- I understand my life's meaning
- My life has a clear sense of purpose
- I have a good sense of what makes my life meaningful
- I have discovered a satisfying life purpose
- My life has no clear purpose (reverse-coded)

Search for calling

- I am looking for something that makes my life feel meaningful
- I am always looking to find my life's purpose
- I am always searching for something that makes my life feel significant
- I am searching for meaning in my life
- I am seeking a purpose or mission for my life

Core self-evaluations

Core Self-Evaluations Scale (Judge et al., 2003). "Below are several statements about you with which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each item using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- I am confident I get the success I deserve in life
- Sometimes I feel depressed (reverse-coded)
- When I try, I generally succeed
- Sometimes when I fail I feel worthless (reverse-coded)
- I complete tasks successfully
- Sometimes, I do not feel in control of my work (reverse-coded)
- Overall, I am satisfied with myself
- I am filled with doubts about my competence (reverse-coded)
- I determine what will happen in my life
- I do not feel in control of my success in my career (reverse-coded)
- I am capable of coping with most of my problems
- There are times when things look pretty bleak and hopeless to me (reverse-coded)

Intolerance of uncertainty

Intolerance of Uncertainty Scale (Carleton et al., 2007). "Please indicate your level of agreement with each of the following statements using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- Unforeseen events upset me greatly
- It frustrates me not having all the information I need
- One should always look ahead so as to avoid surprises
- A small, unforeseen event can spoil everything, even with the best of planning
- I always want to know what the future has in store for me
- I can't stand being taken by surprise
- I should be able to organise everything in advance

Dogmatism

Dogmatism Scale (Altemeyer, 2002). "Please indicate the extent to which you agree or disagree with each of the following statements using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- There are so many things we have not discovered yet and nobody should be absolutely certain that his or her beliefs are right (reverse-coded)
- It is best to be open to all possibilities and ready to re-evaluate all your beliefs (reverse-coded)
- My opinions are right and will stand the test of time
- Flexibility is a real virtue in thinking, since you may well be wrong (reverse-coded)
- My opinions and beliefs fit together perfectly to make a crystal-clear "picture" of things
- There are no discoveries or facts that could possibly make me change my mind about the things that matter most in life
- The person who is absolutely certain that he or she has the truth will probably never find it (reverse-coded)
- The people who disagree with me may well turn out to be right (reverse-coded)
- Twenty years from now, some of my opinions about the important things in life will probably have changed (reverse-coded)
- No one knows all the essential truths about the central issues in life (reverse-coded)

Openness to experience

Brief HEXACO Inventory (de Vries, 2013). "Please indicate to what extent you agree with the following statements using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- I can look at a painting for a long time
- I think science is boring (reverse-coded)
- I have a lot of imagination
- I like people with strange ideas

Time perspective

Short Zimbardo Time-Perspective Inventory (Zhang et al., 2013). "Below you will find a series of statements about you. Please read each statement and indicate how characteristic or true of you is that statement. Use the scale from 1 = *Very untrue* to 5 = *Very true*."

Future perspective

- When I want to achieve something, I set goals and consider specific means for reaching those goals
- Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play
- I complete projects on time by making steady progress

Past-negative perspective

- I think about the bad things that have happened to me in the past
- Painful past experiences keep being replayed in my mind
- It's hard for me to forget unpleasant images of my youth

Rumination

Ruminative Thought Style Questionnaire (Tanner et al., 2013). "Below you will find a series of statements about you. Please read each statement and indicate how often or rarely each statement occurs to you. Use the scale from 1 = *Almost never* to 5 = *Almost always*."

- I find that my mind goes over things again and again
- When I have a problem, it will gnaw on my mind for a long time
- I find that some thoughts come to my mind over and over throughout the day
- I can't stop thinking about some things
- When I am expecting to meet someone, I will imagine every possible scenario and conversation
- I tend to replay past events as I would have liked them to happen
- I find myself daydreaming about things I wish I had done
- When I feel I have had a bad interaction with someone, I tend to imagine various scenarios where I would have acted differently
- When trying to solve a complicated problem, I find that I just keep coming back to the beginning without ever finding a solution
- If there is an important event coming up, I think about it so much that I work myself up
- I have never been able to distract myself from unwanted thoughts
- I think about a recent situation wishing it had gone better
- I think Why do I have problems that other people don't have?
- I think about how sad I feel
- I think about shortcomings, failings, faults, mistakes
- I think about how I don't feel up to doing anything

- I analyse my personality to try to understand why I am depressed
- I go someplace alone to think about my feelings
- I think about how angry I am with myself
- I listen to sad music
- I isolate myself and think about the reasons why I feel sad
- I try to understand myself by focusing on depressed feelings

Worldviews

Religiousness and political ideology

- How religious do you see yourself to be on a scale from 1 = *Not at all religious* to 5 = *Very religious*.
- How would you describe yourself politically on a scale from 1 = *Completely left-wing* to 7 = *Completely right-wing.*

Paranormal beliefs

Magical Ideation Scale (Eckblad & Chapman, 1993). "Please indicate the extent to which you agree or disagree with each of the following statements using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree*."

- Some people can make me aware of them just by thinking about me
- At times I have felt that a professor's lecture was meant especially for me
- I almost never dream about things before they happen (reverse-coded)
- I think I could learn to read others' minds if I wanted to
- Horoscopes are right too often for it to be a coincidence
- Things sometimes seem to be in different places when I get home, even though no one has been there
- Numbers like 13 or 7 have no special powers (reverse-coded)

- I sometimes have a feeling of gaining or losing energy when certain people look at me or touch me
- I have worried that people on other planets may be influencing what happens on earth
- The government refuses to tell us the truth about flying saucers

Just-world beliefs

Just World Beliefs Scale for Self (Lipkusa et al., 1996). "Please indicate the extent to which you agree or disagree with each of the following statements using the scale from 1 = *Strongly disagree* to 5 = *Strongly agree.*"

- I feel that the world treats me fairly
- I feel that I get what I deserve
- I feel that people treat me fairly in life
- I feel that I earn the rewards and punishments I get
- I feel that people treat me with the respect I deserve
- I feel that I get what I am entitled to have
- I feel that my efforts are noticed and rewarded
- I feel that when I meet with misfortune, I have brought it upon myself

Appendix C

Personality and goal orientation measures used in Chapter 4

Implicit theories of ability

Implicit Theories of Intelligence Scale (Dweck, 2009). "The questions below are about your ideas regarding intelligence and talents. There are no right or wrong answers. We are curious about your ideas. Please indicate the extent to which you agree or disagree with each of the following statements by using the scale from 1 = *Strongly disagree* to 6 = *Strongly agree*."

Incremental theories

- No matter who you are, you can significantly change your intelligence
- No matter how much intelligence you have, you can always change it quite a bit
- You can always substantially change how intelligent you are
- No matter who you are, you can significantly change your level of talent
- No matter how much talent you have, you can always change it quite a bit
- You can always substantially change how much talent you have

Entity theories

- You have a certain amount of intelligence, and you can't really do much to change it
- Your intelligence is something about you that you can't really change
- You can learn new things, but you can't really change your basic intelligence
- You have a certain amount of talent, and you can't really do much to change it
- Your talent in an area is something about you that you can't really change
- You can learn new things, but you can't change your basic level of talent

Achievement goals

Learning Goal Orientation Scale (Button et al., 1996). "The questions below are about your feelings toward university coursework. Please indicate the extent to which you agree or disagree with each of the following statements using the scale from 1 = *Strongly disagree* to 7 = *Strongly agree*."

Mastery goals

- The opportunity to do challenging work is important to me
- When I fail to complete a difficult task, I plan to try harder the next time I work on it
- I prefer to work on tasks that force me to learn new things
- The opportunity to learn new things is important to me
- I do my best when I'm working on a fairly difficult task
- I try hard to improve on my past performance
- The opportunity to extend the range of my abilities is important to me
- When I have difficulty solving a problem, I enjoy trying different approaches to see which one will work

Performance goals

- I prefer to do things that I can do well rather than things that I do poorly
- I'm happiest at university when I perform tasks on which I know that I won't make any errors
- The things I enjoy the most are the things I do the best
- The opinions others have about how well I can do certain things are important to me
- I feel smart when I do something without making any mistakes

- I like to be fairly confident that I can successfully perform a task before I attempt it
- I like to work on tasks that I have done well on in the past
- I feel smart when I can do something better than most other people