UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Sede Amministrativa: Università degli Studi di Padova

Dipartimento di Filosofia, Sociologia, Pedagogia e Psicologia Applicata.

CORSO DI DOTTORATO DI RICERCA IN: Scienze Psicologiche
CURRICOLO: Social, Cultural and Group Psychology
CICLO: XXIX

LONGITUDINAL PREDICTORS OF THE DEVELOPMENT OF A CALLING: A TWO-WAVE STUDY AMONG COLLEGE STUDENTS.

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ABSTRACT

A calling is an inner drive toward a specific meaningful life role, experienced as a transcendent summons and characterized by passion, personal fulfillment and motivation. In a sample of college students, we tested the longitudinal relationship between the experience of having a calling and four antecedents of its development over a year, namely: (1) the presence of a supportive social environment, (2) the relationship with a mentor, (3) the experience of engagement in learning activities, and (4) the clarity of professional identity.

Contrary to common expectations, this study suggests that calling does not help people to determine their careers. Rather, calling is a way people think, talk and feel about a career that they have already chosen. Clarity of professional identity and engagement in learning were indeed found to be antecedents, rather than consequences, of calling development. Students who are actively engaged in their studies and have a clear idea of their occupational future are more likely to develop a calling over time. In addition, results suggest that the presence of a supportive environment helps students to develop their calling, and that the mere presence of a mentor, independently from the quality of the mentorship relation, is beneficial for the development of a calling.

TABLE OF CONTENTS

INTRODUCTION

Theoretical background

A calling is an inner drive toward a specific meaningful life role, experienced as a transcendent summons and characterized by passion, personal fulfillment and motivation. How a person develops a sense of having a calling, and the effects of this feeling on people's lives are virtually unexplored.

The most common assumption about the development of calling sees it as a predictor of well-being and professional development (Duffy & Dik, 2013; Duffy, Manuel, Borges, & Bott, 2011). In this perspective, the sense of having a calling is the result of personal dispositions (*a priori calling development*), and calling, like a motivating source, positively influences people's career development (Dobrow & Tosti-Kharas, 2012; 2013; Hirschi & Hermann, 2012; 2013).

Some researchers have proposed a different perspective of calling development (Duffy, Manuel et al., 2011; Hirschi & Hermann, 2013). Empirical findings have, in fact, suggested that the sense of having a calling develops as a consequence of positive and favourable experiences in a domain (*a posteriori calling development*), which lead a person to feel called to do something that is satisfying, meaningful and interesting.

In line with the "*a posteriori*" assumption about calling development, the presence of a supportive social environment, a relationship with people who see their work as a vocation, and positive work or learning experience might create a positive condition for the development of a calling. In line with the "*a priori*" assumption about calling development, the sense of having a calling might promote the development of future career plans and clarify people's ideas about their vocational identity.

The aim of this study is to further analyze the development of a calling over time, investigating its temporal precedence in relation to four variables: (1) social support from family, friends and significant others, (2) the presence of a mentoring relationship and the example of work attitude provided by a mentor, (3) the experience of engagement in learning, and (4) the clarity of professional identity.

Social support, the presence of a mentoring relationship and satisfying engagement in learning activities are expected to create the positive conditions for the development of a calling over time

(Research Questions 1, 2 and 3). A positive role model provided by a mentor is expected to influence the protégé's orientation toward work and to help the development of a calling (Research Question 2). Finally, the experience of having a calling is expected to increase participants' clarity of professional identity (Research Question 4).

Methodology

A two-wave survey was used to test the longitudinal relationships between the experience of having a calling and its possible predictors and consequences. To that end, a sample of 5886 college students was assessed twice over the space of a year. Alternative and competitive Path Models within the Structural Equation Modeling (SEM) paradigm were estimated and compared, to test for the temporal precedence between calling, social support, mentor's attitude toward work, engagement in learning and clarity of professional identity. Multi-group analyses and mediation analysis, within the SEM paradigm, were performed to further analyze the processes and the conditions that influence the relationships between variables. Generalized Linear Model analyses were performed to explore the effect of having a mentor on the development of a calling.

Objectives

Contrary to the "*a priori"* hypothesis about calling development and the widespread assumption that calling is predictors of clarity of professional identity, this study will show that having a calling is a consequence of positive experiences in the calling domain. Specifically, social support, engagement in learning and clarity of professional identity will be shown to increase the sense of having a calling over time.

We will provide results suggesting that the presence of a supportive social environment and a mentoring relationship fosters the development of a calling. In addition, we will show that a significant reciprocal effect over time exist between calling and engagement in learning. The degree at which academic studies in the calling domain are important and meaningful for life, the student is active and interested in class, and participates in learning activities promote the development of calling. Having a calling, in turn, influences the experience of engagement in learning activities.

We argue that a sense of calling emerges as the result of positive and favourable conditions to pursue a career in a domain, such as: career exploration, involvement in the calling domain,

social support and the presence of a relationship with a mentor. This study supports the *a posteriori* hypothesis of calling development.

Dissertation Structure

Chapter 1 presents a review of literature. First, there will be a description of the definitions of calling, and this will be followed by a description of the nomological network of calling with references to empirical findings from correlational studies. The chapter ends with a review of findings from longitudinal studies and a discussion about open questions in literature.

Chapter 2 presents and discusses research questions and hypotheses of this study.

Chapter 3 presents the research: participants, study design, instruments used, and the attrition analysis and statistical approach employed.

Chapters 4, 5 and 6 present the results of our studies. The fourth chapter is dedicated to research questions 1 and 2 concerning the relationship between calling, social support and mentorship. The fifth and sixth chapters present findings regarding the relationship between calling, engagement in learning and clarity of professional identity.

The final chapter summarizes the main findings and discuss limits and directions for future research on the topic.

CHAPTER 1. LITERATURE REVIEW

This chapter discusses literature on having a calling. An introduction of the definitions of calling will be followed by a presentation of the results of correlational studies exploring the nomological network of calling. We will then move on to the discussion of findings from longitudinal studies regarding possible predictors and outcomes of calling. The conclusion will summarize open questions and the limits of this study.

Definitions of calling

> "My life experiences have defined my personality and my calling. A calling is something you feel inside, like an instinct. I have a calling for economy and my experience in this field helped me to identify the branch that's right for me."
>
> (Marco, 22 years old)

> "Since high school, I felt that the study of architecture was part of who I was. Now that I'm in my third year at college, I'm sure. I could not study anything else, because architecture is the most beautiful major. I can help to build homes, spaces in general. A house can make you feel good or bad [...] this is my calling."
>
> (Francesca, 22 years old)

Marco and Francesca have a calling that guides them in their academic careers. They both define the presence of a calling as an instinct, something you feel inside that defines who you are and what you want to be in the future. The way people with a calling describe their experience is probably the best way to understand what having a calling means.

For some of the students who took part in this research, a calling is something that has always been a part of their lives. A calling is like a mission for someone, a process that forms an individual's sense of identity as a result of actions they take to achieve their goals or a clear sense of their identity (Duffy & Sedlacek, 2007).

> "I have always wanted to be a teacher, since kindergarten, when I used to help other children. Pursuing my vocation will not be easy, but I cannot avoid it. It is what I really want to do in my life."

Sometimes experience, work and study help people to find their calling:

> "When I started college I was only interested in my major; gradually, studying, attending classes and meeting people that work in this field changed my life. Now it is part of me."

A calling is a subjective orientation people experience toward a life role, a job, or a domain that provides a sense of purpose and meaningfulness, and is related to a sense of inevitability and destiny.

> "After my internship I realized that what I had always thought of as a passion was actually a vocation; if I do not do it, I feel like something is missing and I am not complete."

> "When I found my vocation, I finally realized where my place in the world was."

Having a calling might seem to have little to do with day-to-day reality, but empirical evidence shows that a sizable proportion of workers in various occupations would say that they feel called to practice their profession (Dik, Duffy, & Eldridge, 2009; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). Forty percent of the individuals questioned by Duffy and Sedlacek (2010) said that it was mostly or totally true that they felt a calling to their occupation (and the same was true in Hunter, Dik, & Banning, 2009).

The construct of "Calling" has previously been defined as a summons to serve God (Davidson & Caddell, 1994), an attitude to one's job motivated by a need for personal satisfaction and a desire to have a positive impact on society (Bellah, Madsen, Sullivan, Swidler, & Tipton, 2007), a sense of passion and direction conferred on humans by a superior being (Sellers, Thomas, Batts, & Ostman, 2005), a job that someone perceives as their goal in life (Hall & Chandler,

2005), and as a person's proper place in the working world (Bunderson & Thompson, 2009). Calling has been seen as a sentiment (Dobrow, 2013), an attitude (Wrzesniewski et al., 1997), a course of action (Elangovan, Pinder, & McLean, 2010), a job *per se* (Hall & Chandler, 2005), and as a driving force from outside or, to be more specific, a transcendent summons (Dik et al., 2009).

The definition of calling has gradually changed from being strictly religious to an essentially secular construct. The term has origins in Christian theology and it was only after the Protestant Reformation that its sense was extended to all areas of employment, acquiring the meaning of a vocation to diligently pursue a profession in order to contribute to the common good. John Calvin enriched the definition of calling with reference to a more personal meaning: people are called to express their talents in work, realizing in this way their transcendent relationship with God (Berkelaar, & Buzzanell, 2015; Bunderson & Thompson, 2009; Dawson, 2005).

Now two main theoretical approaches can be distinguished (see Dalla Rosa, Galliani & Vianello, 2014 for a review of calling definitions and its measures). The *neoclassical* view (Baumeister, 1991), emphasizes the sense of destiny and prosocial duty. The calling is "[…] that place in the world of productive work that one was created, designed, or destined to fill by virtue of God-given gifts and talents, and the opportunities presented by one's station in life" (Bunderson & Thompson, 2009, p. 38). With the construct's secularization, the religious dimension has been replaced by a generically spiritual and transcendent sense (Dik & Duffy, 2009; Bunderson & Thompson, 2009). The *modern* view focuses on the subjective nature of calling: "one's calling is that place in the occupational division of labor in society that one feels destined to fill by virtue of particular gifts, talents, and/or idiosyncratic life opportunities" (Bunderson & Thompson, 2009, p. 38). In contrast with the neoclassical approach, a calling is viewed as an inner guide that directs individuals towards a full realization of the self, to experience satisfaction derived from consistency between their occupational and social roles and their personal identity.

In this study, three definitions of calling were selected and unified in an integrative theoretical definition that we apply throughout our study.

1) The definition provided by Dobrow (2004) and translated into the Integrating Calling Scale (ICS; Dobrow & Tosti-Kharas, 2011). The presence of a calling consists of seven elements: passion, identity, need to do or urgency, longevity, pervasiveness ("a calling engulfs one's consciousness", Dobrow, 2004, p. 4), sense of meaning, and self-esteem. The author later focuses on an operative conceptualization (Dobrow & Tosti-Kharas, 2011), suggesting that a calling is "a consuming, meaningful passion people experience toward a domain" (p. 1005). Dobrow and

Tosti-Kharas (2011) underscore the subjective nature of a calling, describing it as a person's profound passion for a domain that is extremely significant to them, a phenomenon that they identify with, associated with a sense of inevitability and destiny. This internal psychological construct has an external object (domain or occupation) and a specific setting. It is not binary – either present or absent in a person – but exists along a continuum, ranging from a weaker to a stronger influence. The authors also emphasize that the object of a calling is not necessarily work-related, but might include life domains or studies, voluntary work, family, and even artistic and sporting activities.

2) The definition of a calling drawn from Bellah and colleagues (2007) and translated into a measure by Wrzesniewski and colleagues (1997). People who experience their work as a calling cannot imagine their life without it; their work is a core part of their identity. They work to achieve personal satisfaction and the enrichment that their profession seems to afford them. Their motivation is intrinsic and their work satisfies them on a deeper level, like a sort of nourishment for the inner self.

3) The definition of a calling developed by Dik and Duffy (2009). "A calling is 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" (Dik & Duffy, 2009, p. 427). In this model, calling has three defining elements, a *transcendent summons* (which is not necessarily religious), the *significance* associated with the role, and a *prosocial orientation*. The transcendent summons could be any driving force that individuals experience as coming from outside or beyond the self, such as the needs of society or family ties. The reference to meaningfulness concerns the process by which a person's work helps to make sense of, and give meaning and importance to life. Finally, people following their calling believe that what they do is directly or indirectly helping others.

From these three definitions, it is possible to identify some common dimensions. An integrated view of a calling is provided by a set of four dimensions (Dalla Rosa, Galliani, Vianello, in press).

The first component of the definition of calling is the *identity dimension*, which concerns the role of a calling in defining personal identity and self-concept. A calling defines a person's identity because what they do for living is a vital part of who they are (Wrzesniewski et al., 1997). The role of a calling in defining identity is measured in Dobrow and Tosti-Kharas's Integrated

Calling Scale: “The first thing I often think about when I describe myself to others is that I’m a musician/an artist/in business/a manager” (Dobrow & Tosti-Kharas, 2011, p. 1048). In addition, the calling is always in some way in a person’s thoughts: “Music/my artistic specialty/business/being a manager *is always in my mind* in some way” (Dobrow & Tosti-Kharas, 2011, p. 1049).

The second component is *spiritual*: work or occupation is related to how a person sees their destiny. Even if the religious component of calling is no longer part of its definition, a reference to the spiritual dimension remains. The connection with a spiritual dimension has been translated in different ways: a calling is a transcendent summons for Dik, Eldridge, Steger, and Duffy (2012): “I was drawn by something beyond myself to pursue my current line of work” (p. 260), and is part of destiny for Dobrow and Tosti-Kharas (2011): “I feel a sense of destiny about being a musician/an artist/in business/a manager” (p. 1049). A calling is related to a greater meaning and purpose, as defined by Dik and Duffy (2009; Dik et al., 2012): “a calling is a […] summons to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness” (p. 427) and enhances the meaning in life: “My existence would be much less meaningful without my involvement [in the calling domain]” (Dobrow & Tosti-Kharas, 2011, p. 1049). Finally, the spiritual dimension of a calling is related to the common good; a calling is a way “to approach a particular life role in a manner that holds […] other-oriented values and goals as primary sources of motivation” (Dik & Duffy, 2009, p. 427). For Wrzesniewski and colleagues, a person with a calling thinks that: “My work makes the world a better place” (Wrzesniewski et al., 1997, p. 25).

The third component is *motivational* and refers to commitment, perseverance and willingness to make sacrifices. People with a calling are willing to sacrifice time and energy in order to answer it, as observed by Bunderson and Thompson in their study on calling among zookeepers (1997). In addition to sacrifice, a person with a calling is extremely involved with and committed to their calling domain. As suggested by Wrzesniewski and colleagues (1997), a person with a calling orientation tends to take work home with them and on vacation. Dobrow and Tosti-Kharas measured this dimension with items such as: “I would continue being a musician/an artist/in business/a manager even in the face of severe obstacles” (Dobrow & Tosti-Kharas, 2011, p. 1048).

Table 1.
Dimensions of calling definitions

	Dobrow & Tosti-Kharas (2011)	Dik & Duffy, 2009; Dik et al. (2012)	Wrzesniewski et al. (1997)
	Self-concept		
Identity	✓		✓
Pervasiveness	✓		✓
	Spirituality		
Transcendent summons		✓	
Destiny	✓		
Meaning – purpose	✓	✓	
Prosocial orientation		✓	✓
	Motivation		
Willingness to sacrifice	✓		
Commitment -involvement	✓		✓
	Affection		
Passion	✓		✓
Pleasure -Satisfaction	✓		✓

Finally, the fourth component is *affective* and includes passion, satisfaction and intrinsic pleasure related to the calling domain. Passion is one of the crucial elements of the definition of a calling for Dobrow and Tosti-Kharas (2011), who describe it as: "a consuming, meaningful passion" (p. 1001). In Wrzesniewski and colleagues (1997), a person with a calling thinks that "work is one of the most important parts of [their] life […] [they] love it" (p. 24). A calling is also a source of pleasure and satisfaction: "I enjoy playing music/engaging in my artistic speciality […] more than anything else", "Playing music/engaging in my artistic speciality […] gives me immense personal satisfaction" (Dobrow & Tosti-Kharas, 2011, p 1048); "Mr. C [a general person with a calling orientation toward work] […] is very pleased that he is in this line of work" (Wrzesniewski et al., 1997, p. 24). Table 1 shows the dimensions of calling and the relative reference to the original definitions. We define calling as an inner drive toward a specific meaningful life role, which is experienced as a transcendent summons characterized by passion, motivation and personal fulfillment. A calling is a vital part of people's lives; it contributes to the definition of identity and to personal fulfillment. An individual is motivated to be involved and to invest time and energy in activities related to the calling domains that are experienced as source of

pleasure and satisfaction. A calling is related to the meaning in life and to the values (like for example the desire to help others) that guide a person's choices in life.

It is important to notice that – regardless of the specific conceptualization of calling - looking for a calling, having a calling and living out a calling are specific subjective states that are worth differentiating (Duffy & Autin, 2013). The distinction between perceiving a present calling and searching for a calling is given by Dik and colleagues (2012), they think that some people perceive that they currently have a calling (*presence*), and others might not currently have a calling but they are looking for it (*search*). The concept of living out a calling emerged later and refers to "the degree to which an individual is currently engaging in activities or work that meet this calling" (Duffy & Autin, 2013, p. 220). Thus, the presence of a calling is measured with items like "I have a calling to a particular kind of work" (Dik et al., 2012, p. 261) and living out a calling is measured with items like "I have regular opportunities to live out my calling" (Duffy, Allan, & Bott, 2012, p. 474). This distinction is becoming relevant since living a calling has been found to explain and influence the association between the presence of a calling and other related constructs. Research results differ depending on the experience of calling analyzed. The search for a calling, the presence of a calling and actually living it out describe different stages in calling development and are consequently related differently to outcomes and antecedents (Duffy, Bott, Allan, Torrey, & Dik, 2012; Duffy, Allan, Autin, & Bott, 2013).

The nomological network of calling

Most studies on the presence of calling are correlational and describe the associations of having a calling with many other constructs. In this paragraph, we review the associations that accumulate the most empirical evidence and we place calling within a nomological network comprising four general domains: well-being, attitude toward work and learning, self-concept and career development. Table 2 reports the meta-analytic indices for the correlations between calling and other variables.

A sense of calling is related to well-being through a positive, but distal and moderated correlation with satisfaction in life and work. The associations between calling and job satisfaction and between calling and life satisfaction are among the most studied (Duffy et al., 2013; Duffy, Bott et al., 2012; Hagmeier & Abele, 2012; Duffy, Manuel et al., 2011; Hirschi & Herrmann, 2012; Peterson, Park, Hall, & Seligman, 2009; Praskova, Creed, & Hood, 2014; Torrey & Duffy,

2012). Correlations with job satisfaction range from .17 to .66 with a meta-analytic mean of .51 (95% CI [.50, .53], $Q_{(15)}$ = 243.25, I^2 = 93.83; Dalla Rosa, Galliani, Vianello, in press). Correlations of calling with life satisfaction are lower than correlations with job satisfaction; calling-life satisfaction correlation ranges from -.01 to .48 with a meta-analytic mean of .28 (95% CI [.27, .30], $Q_{(12)}$ = 131.71, I^2 = 90.89). Searching for a calling has a lower and negative correlation with life satisfaction (r = -.09) than the presence of a calling. Therefore, having a calling and seeking one have different associations with well-being. People with a calling show higher satisfaction with life then people who are still seeking one. The wide variability observed in correlation indices suggests the presence of moderators at work in the relationship between calling and both job and life satisfaction.

Table 2.
Meta-analyses of the correlations between calling and other variables in its nomological network

Measures of calling	Other constructs	*r*	95% CI	*Q* (*df*)	I^2
Presence	Career Decision Self-Efficacy	.35	[.30, .40]	19.26 (4)	79.24
	Career Related Self-Efficacy	.35	[.31, .39]	12.03 (7)	41.79
	Engagement in work and learning	.58	[.54, .62]	25.72 (5)	80.56
	Extrinsic Motivation	.27	[.22, .31]	61.17 (8)	86.97
	Intrinsic Motivation	.34	[.30, .38]	33.68 (8)	76.26
	Job Satisfaction	.51	[.50, .53]	243.25 (15)	93.83
	Life Satisfaction	.28	[.27, .30]	131.71 (12)	90.89
	Work meaning	.52	[.37, .64]	145.58 (6)	95.88
	Career Commitment	.50	[.27, .68]	3.38 (4)	.00
	Life Meaning (presence)	.44	[.42; .46]	87.58 (12)	86.3
	Life Meaning (search)	.01	[-.02, .04]	3.2 (5)	.00
Search	Life Satisfaction	-.09	[-.13, -.05]	14.11 (3)	78.73
	Life Meaning (presence)	-.16	[-.20, -.13]	14.75 (2)	86.43
	Life Meaning (search)	.30	[.27,.34]	13.31 (2)	84.97

Note. r: inverse-variance-weighted meta-analytic correlation, 95% CI = 95% confidence interval; *Q* test (Cochran, 1954; Hedges & Olkin, 2014) and I^2 (Higgins & Thompson, 2002). Results are detailed in Dalla Rosa, Galliani & Vianello (in press).

The second domain of our nomological network pertains to the relationship between calling, identity and self-concept. A calling positively relates to professional and organizational

identification[1] (Cardador, Dane, & Pratt, 2011; Bunderson & Thompson, 2009), and meaning in life and work (Dik et al., 2012; Duffy & Sedlacek, 2010; Duffy, Allan, & Dik, 2011; Duffy, Douglass, Autin, & Allan, 2014; Duffy, Manuel et al., 2011; Coulson, Oades, & Stoyles, 2012; Praskova, Hood, & Creed, 2014; Duffy, Bott et al., 2012; Duffy et al., 2013; Steger, Dik, & Duffy, 2012; Bunderson & Thompson, 2009). These constructs are strictly interrelated. Identification with a profession seems to foster the perception of meaning in life and work.

Calling is positively related with professional identification, *r* ranges from .36 to .46, and organizational identification (*r* = .42; Cardador et al., 2011; Bunderson & Thompson, 2009). A person who feels a vocation for a profession tends to identify with it and to experience their work as important and meaningful (Professional Identification; Bunderson & Thompson, 2009). A calling provides the basis for identification with a profession and for the feeling of oneness with the other members of the occupational community (Bunderson & Thompson, 2009; Dobrow, 2004). By identifying with a profession, a person can glean values, beliefs and ideologies from the community of people involved in that professional domain. This process is fundamental for positive career development and a positive attitude toward work, and it is beneficial for personal meaning and satisfaction. Identification has, in fact, been found to mediate the relationship between a sense of calling and the meaningfulness of work (Bunderson & Thompson, 2009), between calling and occupational importance and between calling and willingness to sacrifice time and energy for one's work (Bunderson & Thompson, 2009). Identification with a profession is important to understand how calling is related to other variables, such as meaning, job satisfaction, commitment to work and attitude toward work, and also to understand the role of calling in career development.

In line with these observations, calling was found to be related to other variables concerning self-concept, such as vocational clarity, clarity of vocational identity and career insight. Calling is positively associated with *Vocational Clarity*[2] a measure of how much a person is certain about the occupations they wish to perform or could perform well (Duffy, Douglass et al., 2014), *r*

[1] Occupational and organizational identification measure the degree to which an individual views a professional role and an organization as an important part of their self-concept (Ashforth & Mael, 1989; Pratt, 1998).

[2] Vocational Clarity was measured with item such as: "I am uncertain about the occupations I could perform well", "No single occupation appeals strongly to me", and "I am uncertain which occupation I would enjoy." (My Vocational Situation Scale; Holland, Johnston, & Asama, 1993; Duffy, Douglass et al., 2014, p. 312).

ranges from .52 to .54. Calling was also found to be related to *Career Insight* [3] (r = .25 over 3.5 years and .21 over 7 years, r = .48 and r = .47 at the same time; Dobrow & Tosti-Kharas, 2011), meaning "the extent to which people have realistic perceptions of themselves and the organization, and relate these perceptions to career goals" (London, 1983, p. 621; Dobrow & Tosti-Kharas, 2011), and C*larity of Professional Identity*[4] (r = .21 over 3.5 years and .18 over 7 years, r = .34 at the same time; Dobrow & Tosti-Kharas, 2011), meaning "the constellation of attributes, beliefs, values, motives, and experiences in terms of which people define themselves in a professional role" (Ibarra, 1999, pp. 764–765; Schein, 1978). However, little attention was devoted to the study of the relationship between calling and identity development.

The presence of a calling always positively correlates to meaning in life, "the sense made of, and significance felt regarding the nature of one's being and existence" (Steger, Frazier, Oishi, & Kaler, 2006, p. 81). Across studies, the meta-analytic mean is r = .44 (ranging from .07 to .59; 95% CI [.42, .46], $Q_{(12)}$ = 87.58, I^2 = 86.30) for meaning in life, and .52 for meaning in work (ranging from .30 to .73; 95% CI [.37, .64] $Q_{(6)}$ = 145.58, I^2 = 95.88). There is a high level of heterogeneity in the effects, which is probably due to the variety of measures employed across studies and perhaps to other known and/or unknown moderators, such as professional identification, for example.

Calling was found to be related to positive behavior and attitudes toward work and calling domains (e.g., toward music or study). Calling correlates to career commitment (Duffy, Dik et al., 2011; Duffy, Bott et al., 2012; Duffy et al., 2013), motivation (Dobrow & Tosti-Kharas, 2011; Dik et al., 2012), and engagement in work and learning (Phillips, 2011; Dobrow & Tosti-Kharas, 2011). Calling has a positive and strong correlation with engagement in work (Schein, 1978), and engagement in learning (Schreiner & Louis, 2006), r = .58, 95% CI [.54, .62], $Q_{(5)}$ = 25.72, I^2 = 80.56. This association is the highest in our literature review and meta-analysis. People with a calling are more likely to actively engage in their work or learning activities. In this case too, the variability observed is high, suggesting the presence of moderators. The study of the association between calling and engagement in learning is relevant for the study of calling development.

[3] Career insight was measured with items such as: "I have a strategy for achieving my career goals," "I know what I need to do to reach my career goals," and "I have a plan for my career" (Day & Allen, 2004; London, 1983; Dobrow & Tosti-Kharas, 2011, p. 1034).

[4] Clarity of professional identity was measured with items such as like "I have developed a clear career and professional identity" and "I am still searching for my career and professional identity" (Dobrow & Tosti-Kharas, 2011, p. 1034).

Being engaged in an activity is part of the definition of calling. Being engaged in learning has been indicated as one of the possible antecedents of calling (Phillips, 2011), behavioral engagement has been found to predict calling and its development (Dobrow, 2013), but being engaged can also be a consequence of having a calling (professional involvement and work effort has been found to be the outcome of a calling; Dobrow & Heller, 2014; Praskova, Hood et al., 2014). Therefore, clarifying the longitudinal relationship between calling and engagement is important in order to understand how calling develops over time.

Calling is positively related to career commitment, r = .50, 95% CI [.27, .68], $Q_{(4)}$ = 3.38, I^2 = 0. The correlations between the presence of a sense of calling and career commitment range from .20 to .48, and increase to .68 and .69 when career commitment is related to a measure of living out a calling at work (Duffy, Bott et al., 2012; Duffy et al., 2013; Duffy, Dik & Steger, 2011). In addition, living out a calling has been found to mediate the relationship between the presence of a calling and career commitment (Duffy, Bott et al., 2012). Being committed is one of the conditions that support the association of calling with greater job satisfaction (Duffy, Bott et al., 2012; Duffy, Dik et al., 2011; Duffy et al., 2013), along with greater organizational commitment (Duffy, Dik et al., 2011), and lesser withdrawal intention (Duffy, Dik et al., 2011).

Calling has been found to be positively related to intrinsic and extrinsic motivation (Dobrow & Tosti-Kharas, 2011; Dik et al., 2012), the correlation is stronger with intrinsic motivation (weighted mean correlation: r = .34 with intrinsic motivation, r = .27 with extrinsic motivation). Motivation is supposed to be one of the stronger correlates of calling, but associations of calling with meaning in work, job satisfaction, work engagement and career commitment were found to be stronger than the association between calling and motivation. Hence, it seems that calling is not only a motivational construct: the affective and identity components are key in defining the construct and its relationship with people's experience.

Analysis of literature reveals some open questions regarding the experience of having a calling and its relationship with different constructs.

A first gap that we identified in previous studies concerns the development of a calling in relation to the social context. There are few researches that have investigated the role of others in calling development. Therefore, an open question is if and how a student's relationship network influences calling development (Dobrow, 2013; Dobrow & Heller, 2014; Phillips, 2011; Dobrow & Tosti-Kharas, 2012; Guo et al., 2014; Peterson et al., 2009; Harzer & Rusch, 2012).

A second line of research concerns the relationship between calling and the development of a professional identity. There is empirical evidence of the positive association of calling with variables related with professional identity and its development, but the results are not clear and, more importantly, there is a lack of knowledge about the role of calling in professional identity development.

A third line of research regards the relationship between calling and behavior. In this study, we will be focusing on the behavioral, affective and cognitive dimensions of engagement in learning. We know that calling is related to behavior and attitudes toward work and calling domains, but there are few researches, and longitudinal relationship are needed to understand the temporal precedence between engagement in activities and development of a calling in the same domain.

Finally, most scientists suggest a longitudinal interpretation of their results, positioning calling as a predictor of well-being and positive outcomes in career development. However, there is a need for more empirical evidence supporting this hypothesis. A review of longitudinal studies and their findings is presented in the following section of this chapter.

Calling development: a review of longitudinal studies

> My vocation dates back to childhood; it is something that I have always had and it has gradually developed as a result of different experiences.
>
> (Giulia, 21 years old)

> My experiences increase my awareness of my calling.
>
> (Francesco, 24 years old)

> My calling has changed in recent years, I think due to some changes that have taken place in my life, and also because I am no longer sure that I want to do the work for which I felt a calling.
>
> (Chiara, 25 years old)

Although several studies have suggested the role of calling as a predictor of positive outcomes in the workplace, the absence of longitudinal research precludes a causal interpretation of their results. In this section, we review the results of previous longitudinal studies on calling. A calling seems not to be a discovery, but the result of an on-going process, operated by the subject, of definition and assessment of goals, meanings and activities, and their possible contribution to the common good (Dobrow, 2013; Duffy, Manuel et al., 2011; Dik & Steger, 2008). Longitudinal research might help to identify the factors that motivate and support this on-going process.

There are different reasons for which it is important to study calling development over time. Firstly, as we have seen, calling is associated with several different constructs, and some of these constructs are involved in the process of choosing a career. Consequently, calling may be important in both cases: when making a decision, such as choosing a college or a profession, or after the choice, influencing how people act and achieve professional goals (Dobrow & Heller, 2014; Praskova, Hood et al., 2014; Hirschi & Hermann, 2013; Duffy, Douglass et al., 2014; Duffy & Dik, 2013). Knowing the outcomes and antecedents of calling may turn out to be important in helping people during the hard work of finding and building up a successful career.

Secondly, how calling arises and develops is not clear yet. A calling can have some positive consequences such as increasing self-confidence in decision-making, greater comfort, greater satisfaction. But, it could also be the result of positive work experiences. Calling can be the reinterpretation of a satisfying professional role. In this case, comfort and satisfaction in the domain might be predictors of calling and not its consequences. As has emerged from interviews carried out by Berg, Grant and Johnson (2010), people actively change their work and non-work activities in order to integrate or emphasize aspects of their unanswered calling (job crafting techniques). In their study, calling is the result of a flexible process: people come to feel a calling by searching and changing their work activities (Duffy & Sedlacek, 2007).

The change of calling over time

Whether calling increases or decreases over time is one of the open research questions in literature. Only two studies analyze the general change of calling among two specific samples: amateur musicians (Dobrow, 2013) and medical students (Duffy, Manuel et al., 2011). Their findings suggest that calling significantly decreases over time. For seven years, Dobrow (2013) monitored a group of music students enrolled in a summer school, assessing their level of calling

four times. Calling significantly decreased every year (β = -.08, $p < .001$, $n = 225$, observations = 624), with an observed decrement in calling from 5.86 ($SD = .81$) to 5.32 ($SD = 1.07$) between Time 1 and Time 4. The variability of change in calling between subjects is significant (within-person random effect = .23, $p < .001$) suggesting that the level of calling might increase, decrease or remain stable at the individual level. The author provided different explanations for the decrease in calling over time: difficulties in maintaining a high calling, comparison with others who are more talented (big-fish-little-pond effect), habits, changing values and priorities (honeymoon-hangover effect).

A significant decrease in calling over time was also observed by Duffy, Manuel and colleagues (2011). Data were collected at two points in time among medical students, at the beginning of the first and third years of school. Third-year participants had lower levels of calling (6.32 vs. 5.68, $F = 6.25$, $p < .01$) and life satisfaction (28.19 vs. 26.02, $F = 13.32$, $p < .01$) compared to the levels shown before beginning school. The authors suggested that this decline is due to the characteristics of the medical curriculum which seems to deteriorate students' psychological well-being over time (Dyrbye et al., 2010; Lloyd & Gartrell, 1984; Raj, Simpson, Hopman, & Singer, 2000; Rosal et al., 1997). The first two years of training are very demanding for students; some researchers (for a review, see Duffy, Manuel et al., 2011) found an increase in negative emotional states (stress, burnout, anxiety, etc.) during the second year of training. Although calling seems to slowly decrease over time, it is still positively associated with life meaning and career development.

While both studies found calling to significantly decrease over time, Dobrow (2013) found a significant variation within individuals indicating that calling may increase, decrease or remain stable depending on unknown variables. Further analyses are required in order to understand which conditions foster a change in individual levels of calling.

Antecedents of calling

There are people who think they are called or destined to a specific profession, and people who choose a profession because an expert or a test suggested that they were meant for that work. There are people who choose a job for convenience and then change some aspects of their profession to meet their values and passion, modifying their work into a calling. There are also people without a calling who are not interested in finding one. It is very likely that some of these

categories of people would have a higher score on a calling scale even if the processes through which their calling developed are different.

Variables that have been found to predict calling and its development have been identified in literature and summarized in Table 3. To our knowledge, only five studies collected data at more than one point in time. Predictors of calling found in literature can be categorized in four dimensions:

a. Career decidedness, career development and vocational clarity relating to the level of career preparation, how much a person has a clear idea and plan about their future career (Hirschi & Hermann, 2013; Duffy, Manuel et al., 2011; Duffy, Douglass et al., 2014).
b. Behavioral involvement in activities related to the calling domain (Dobrow, 2013).
c. Presence and search for meaning in life (Duffy, Manuel et al., 2011; Duffy, Douglass et al.,2014; Duffy, Allan, Autin, & Douglass, 2014).
d. Well-being, such as job satisfaction, meaning in work, social comfort within the calling domain (Dobrow, 2013; Duffy, Allan et al., 2014).

Researchers have found that calling is predicted by effective career decision-making processes, decidedness, active career planning (Hirschi & Hermann, 2013), vocational development or readiness to cope with developmental tasks (Duffy, Manuel et al., 2011), and clarity of vocational situation (Duffy, Douglass et al., 2014).

Hirschi and Hermann (2013) analyzed the longitudinal relationship between calling, career decision-making or decidedness (Holland, Daiger, & Power, 1980), planning and self-efficacy in a three-wave one-year study. Decidedness at Time 1 was found to positively predict calling at Time 2: $\gamma = .14$, $p < .01$; and at Time 3: $\gamma = .17$, $p < .01$, $n = 846$. Therefore, students with higher career decidedness are more likely to develop a calling. Planning at Time 1 predicts calling at Time 3: $\gamma = .18$, $p < .05$. Even if the reciprocal effect of calling at Time 1 on career planning at Time 3 is statistically significant ($\gamma = .11$, $p < .01$, $n = 846$), the stronger effect identifies career planning as predictor of having a calling. Therefore, students with a sense of control over their vocational development, who have a clear idea about their professional preferences and career goals (*career decidedness*), and who are able to imagine and plan future career stages (*career planning*) tend to increase their calling over time. Having experience of certainty about future career and making plans in order to realize the planned future might help students to discover their passions, talents and interests, supporting the development of a calling.

Duffy, Douglass et al. (2014) have found vocational clarity[5] to predict calling (β = .15, *n* = 292). In line with this result, Duffy, Manuel et al. (2011) have found that the vocational development (*B* = .25, β = .04), readiness to cope with the developmental tasks encountered in a physician's career (Savickas, 1984), of medical students at the beginning of their education, predicts their calling after three years. Students who feel clearer about the occupational world ahead of them are more likely to endorse a calling two years later.

Career decidedness and planning, vocational clarity and vocational development, which were found to predict calling (Hirschi & Hermann, 2013; Duffy, Manuel et al., 2011; Duffy, Douglass et al.,2014), are indices of a greater personal knowledge. Students who know their passions, who have collected experiences and gained information about their future alternatives, are in a better position to discover and develop the sense of having a calling for a specific life role. Having a clear idea about future career plans might be related not only to a deep knowledge of professional preference but also to the goals of a person in life. Indeed, two studies have found calling to be predicted by having and searching for meaning in life (Duffy, Manuel et al., 2011; Duffy, Douglass et al., 2014). Feeling that life and work are meaningful might create a positive environment for the development of a calling. Meaning in life and work constitute another positive condition for the development of a calling. One of the most common assumptions about the development of a calling is that people first develop or find a calling, and then their calling leads to positive outcomes such as well-being and engagement. These studies (Hirschi & Hermann, 2013; Duffy, Manuel et al., 2011; Duffy, Douglass et al., 2014), however, tell a different story. They suggest that it is the increase in various aspects of well-being, such as vocational development and life meaning, that predicts the endorsement of a calling rather than the opposite. In other words, feeling positive about life, and feeling prepared for a career, helps students to live their work as a calling.

Calling was found to be predicted by different dimensions of well-being, specifically job satisfaction, career commitment, meaning in work (Duffy, Allan et al., 2014) and social comfort (Dobrow, 2013).

Duffy, Allan and colleagues (2014) found that living a calling at Time 2 (T2) and Time 3 (T3) is predicted by career commitment (career commitment at Time 1 to calling at T2: γ = .25, *p*

[5] Vocational clarity was measured by items like: "I am uncertain about the occupations I could perform well", "No single occupation appeals strongly to me", and "I am uncertain which occupation I would enjoy".

< .05; T2 vs T3: β = .27, p < .05, n = 217), work meaning (T1 vs T2: γ = .24, p < .05; T2 vs T3: β = .31, p < .05, n = 217), and job satisfaction (T1 vs T2: γ = .12, p < .05; T2 vs T3: β = .12, p < .05, n = 217) measured at Time 1 and Time 2. These effects are reciprocal: calling was also found to predict work meaning and career commitment, but its effects are smaller in size than its reversals, suggesting that the direction of influence is from work meaning and career commitment toward calling.

These findings contradict common expectations about the development of calling, which is often positioned as an antecedent of positive attitudes and feelings concerning career, such as commitment, satisfaction and meaning in work. Consequently, individuals who are committed to their work, who derive more meaning from their career and are more satisfied with their jobs, are more likely to feel that they are living a calling in the future. Taken together, these studies suggest that calling might be the effect of positive experience at work, a feeling or attitude towards work that emerges and develops when working conditions are favorable.

Other factors related with well-being that have been found to predict calling over time are social encouragement and support.

In 2006, Dobrow found that music students whose parents were more involved in the arts have a stronger initial calling (β = .05, p = .01), and students that enjoy spending time with other musicians tend to have a higher calling (β = .12, p = <.001).

In a subsequent study, Dobrow (2013) observed that individuals who felt greater social comfort[6] in the music domain presented higher levels of calling early on (β = .20, p < .001), but they experienced a decline in calling over time (β = -.02, p < .01). In this last study, enjoying the company of other people interested in music was found to be positively related with initial calling, but social comfort did not foster later calling development. However, the study presents some limits that might explain these controversial findings. Social comfort was measured only at the beginning of the study and not on subsequent data collections, so the results have not been checked for changes in social comfort. In addition, the study monitored participants for seven years across four waves of data collection, so the perception of social comfort at the beginning of the study probably changed over seven years and other types of relationship and contexts might have become more important in participants' lives.

[6] Social comfort was measured with the following two items: "I feel more comfortable around musicians than around any other group of people" and "I enjoy socializing with musicians more than with any other group of people".

The study of social comfort in relation to calling constituted one of the first attempts to incorporate a relational perspective in the study of calling. Although none of the previous studies of calling had relationships with others as a primary focus of their analysis, other researchers have identified the relationship with family, peers and trusted mentors as an important source of career-related attitude, values and behaviors.

Analyzing the relationship with others was found to be crucial in understanding some process regarding career development and work attitude such as professional identity (Dobrow & Higgins, 2005) career changes (Higgins, 2001), career intrinsic success (Van Emmerik, 2004), career and professional commitment (Payne & Huffman, 2005; Ragins, Cotton & Miller, 2000; Aryee & Chay, 1994). We tend to think that a person's network of relationships is important to the development of calling for several theoretical and empirical reasons.

First, calling is an attitude toward a life role that can be influenced by orientations, opinions and others' values. People learn by imitating observed behaviors and tend to look at others for signs on how to think and behave (Bandura, 1977; Salancik & Pfeffer, 1978): "Individuals develop attitude or need statements as a function of the information available to them" (Salancik & Pfeffer, 1978, p.226). Parental socialization, family expectation, information from other sources in the world of work, shape people's expectations, attitude and understanding of what the work experience will be (Duffy & Dik, 2009; Whiston & Keller, 2004; Mannetti & Tanucci, 1993; Bryant, Zvonkovic, & Reynolds, 2006). Wrzesniewski (2010) suggests that parental influences and the early models of what it means to work, act together to build up a sense of what work is as a calling.

Second, calling is related to clarity of professional identity. Research has suggested that people develop their professional identity by experimenting with trial identities, or "provisional selves" (Ibarra, 1999). Relationships with others seem to be a means by which people are able to explore their professional alternatives (Dobrow & Higgins, 2005; Ibarra, 1999; Kram, 1996). For example, a relationship with others helps people at the beginning of their career to acquire a variety of role models and professional roles (Ibarra, 1999).

Third, calling is a positive attitude toward a domain manifested by passion, satisfaction and affective commitment. There are several studies suggesting that the presence of a mentor predicts positive attitude toward work, such as affective commitment, career and organizational commitment, job involvement and career satisfaction (Payne & Huffman, 2005; Ragins et al., 2000; Aryee & Chay, 1994). Mentoring is significantly related to positive behavioral, attitudinal,

motivational, and career outcomes (Eby, Allen, Evans, Ng, & DuBois, 2008). Eby et al. (2008) in their meta-analysis found that the biggest effect regards the relationship between having a mentor and school and career attitudes (Eby et al., 2008). Mentoring is related to career outcomes and work attitudes (Allen, Eby, Poteet, Lentz, & Lima, 2004; Underhill, 2006; DuBois, Holloway, Valentine, & Cooper, 2002; Sambunjak, Straus, & Marusic, 2006). Yet literature on calling has not explored the role of mentoring and relationships with important others in the development of calling. We expect to find that a mentoring relationship fosters the development of a calling.

Calling was found to be predicted by the involvement in activities related to the calling domain (Dobrow, 2013). In the same study, where social comfort was found to predict calling, Dobrow (2013) analyzed the association between calling for music and behavioral involvement in music activities. The number of music activities in which students were engaged before the beginning of study ($\beta = .08$, $p < .01$, $n = 225$, obs. = 624) positively predicts initial calling and negatively predicts changes in calling over time ($\beta = -.02$, $p < .05$, $n = 225$, obs. = 624). Participants with higher behavioral involvement feel a stronger initial calling. Calling is a consequence of greater knowledge of one's future plans and career decidedness that might be reached through concrete experience. Being involved in activities that bring satisfaction, sense of meaning and personal values might be another way by which people develop a calling. Voluntary behavioral involvement in a particular domain is connected to motivation and enjoyment (Ericsson, Krampe, & Tesch-Romer, 1993), which are linked to stronger callings (Dobrow & Tosti-Kharas, 2012; 2011; Dik et al., 2012; Wrzesniewski et al., 1997). Experiences in work-related activities help the development of a professional identity and provide the opportunity to test a career domain (Ibarra, 1999). Involvement in a domain can be translated into different activities. For example, studying a discipline and attending classes may be positive, meaningful and interesting, or they can be the opposite. Yet, as we will see in the paragraph dedicated to the consequences of having a calling, behavioral involvement has been found to be an outcome of calling (Dobrow & Heller, 2014). These constructs might be involved in a previously unstudied reciprocal causation model. The longitudinal relationship between calling and behavioral involvement in the calling domain is an open question that needs to be addressed.

Table 3.
Longitudinal predictors of calling

Variables	Study	Sample	Time frame	Effect estimation
Behavioral involvement	Dobrow, 2013	Amateur musicians, summer school (Initial mean age: 17.34)	4-wave, 7 years	β = -.02, $p < .01$, $n = 225$, obs. = 624
Social comfort	Dobrow, 2013	Amateur musicians, summer school (Initial mean age: 17.34)	4-wave, 7 years	β = -.02, $p < .001$., $n = 225$, obs. = 624
Decidedness	Hirschi & Hermann, 2013	College students	3-wave, 6 months apart	T1 vs T2: γ = .14, $p < .01$; T1 vs T3: γ = .17, $p < .01$, $n = 846$
Career planning	Hirschi & Hermann, 2013	College students	3-wave, 6 months apart	T1 vs T3: γ = .18, $p < .05$, $n = 846$
Vocational development	Duffy, Manuel et al., 2011	Medical students	2-wave, 3 years apart	$B = .25$, β = .04, $p < .05$, $n = 68$
Vocational clarity	Duffy, Douglass et al.,2014	Undergraduate students	2-wave, 3 months apart	β = .15, $p < .05$, $n = 291$
Career commitment (a)	Duffy, Allan et al., 2014	Adult (Initial mean age = 33.26)	3wave, 6 months apart	T1 vs T2: γ = .25, $p < .05$; T2 vs T3: β = .27, $p < .05$, $n = 217$
Life meaning	Duffy, Manuel et al., 2011	Medical students	2-wave, 3 years apart	$B = .31$; β = .12, $p < .001$, $n = 68$
Life meaning (a)	Duffy, Douglass et al.,2014	Undergraduate students	2-wave, 3 months apart	β = .23; $p < .05$, $n = 292$
Work meaning (a)	Duffy, Allan et al., 2014	Adult (Initial mean age = 33.26)	3-wave, 6 month	T1 vs T2: γ = .24, $p < .05$; T2 vs T3: β = .31, $p < .05$, $n = 217$
Search for life meaning	Duffy, Douglass et al.,2014	Undergraduate students	2-wave, 3 months apart	β = .13, $n = 292$
Job satisfaction (a)	Duffy, Allan et al., 2014	Adult (Initial mean age = 33.26)	3-wave, 6 month	T1 vs T2: γ = .12, $p < .05$; T2 vs T3: β = .12, $p < .05$, $n = 217$

Note. (a) = effect on living out a calling; construct in *Italic* was found to be both predictor and outcome of calling (reciprocal effect); T = Time.

Outcomes of calling

In the literature, there is a tendency to position calling as the predictor of most of its correlates. The dominant point of view is that calling influences, both at work and at school, behavioral, attitudinal, cognitive and affective processes. Many scholars view calling as playing an important role in people's careers, but there is little research evidence supporting calling as a predictor of career pursuit. Table 4 reports the results of seven longitudinal studies that have identified possible outcomes of calling. The outcomes of calling can be categorized as follow:

a. Calling predicts career pursuit with effects on intention to continue a career, academic choice, involvement and effort in professional activities (Praskova, Hood et al., 2014; Dobrow & Heller, 2014).
b. Calling influences how people perceive themselves and the advice given by others (Dobrow & Tosti-Kharas, 2012; Dobrow & Heller, 2014).
c. Calling influences career development though personal growth, the use of career strategies and adaptability to change (Duffy, Douglass et al., 2014; Praskova, Hood et al., 2014).
d. Decidedness and self-efficacy: calling predicts career related self-efficacy, career exploration and decidedness (Hirschi & Hermann, 2012; 2013).
e. Calling predicts the level of clarity in career goals, such as career insight and clarity of professional identity (Dobrow & Tosti-Kharas, 2011; Hirschi & Herrmann, 2012).
f. Calling influences people's well-being via satisfaction in the calling domain and life meaning (Praskova, Hood et al., 2014; Duffy, Douglass et al., 2014; Duffy, Allan et al., 2014; Dobrow & Tosti-Kharas, 2011).

Calling influences career development in different ways. First, some studies have found that calling predicts behaviors and intention to pursue a career (Praskova, Hood et al., 2014; Dobrow & Heller, 2014), and influences the perception of one's possibility to succeed in the calling domain (Dobrow & Tosti-Kharas, 2012; Dobrow & Heller, 2014). As observed by Praskova, Hood et al. (2014), people with a calling tend to be more persistent in reaching their career goals (work effort: $\beta = .15$, $p = .016$, $n = 216$).

Dobrow and Heller (2014) analyzed the relationship between early callings, later career pursuit and the role of perceived and actual abilities in the music domain. They found that people with a stronger calling for music during adolescence are more likely to earn a college music degree and to be professionally involved in music later in life. Initial calling is associated with two indicators of career pursuit: college degree earned (the degree of coherence with the music domain: $\beta = .70$, $p < .001$, $n = 146$) and professional involvement (percentage of income earned from and percentage of time spent on professional activities related to music: $\beta = .21$, $p < .05$, $n = 146$). The effect of calling on career pursuit is partially mediated by perceived ability (Dobrow & Heller, 2014), but not by actual ability. Therefore, people with a stronger early calling are likely to perceive their abilities more favorably and, regardless of their actual ability, they are more likely to purse music professionally. This result is in line with the expectation of calling as a predictor of positive career - related outcomes, and it demonstrates that having a calling is beneficial to the realization of one's career.

The experience of having a calling influences self-perception, feedback receptivity and the evaluation of one's ability to achieve professional success in the calling domain. First, as found by Dobrow and Heller (2014), calling positively predicts perceived ability after three years ($\beta = .19$, $p < .05$, $n = 121$), but does not predict actual ability ($\beta = -.01$, ns, $n = 121$). Therefore, people with a stronger calling are likely to perceive their abilities more favorably than people with a weaker calling. Second, people with higher levels of calling are less responsive to advice that discourages them from pursuing their calling's domain professionally (Dobrow & Tosti-Kharas, 2012). Indeed, Dobrow and Tosti-Kharas (2012) found that calling negatively predicts the degree to which young people (amateur musicians and business students) are willing to ignore discouraging career advice[7] six weeks later ($\beta = -.35$, $p < .001$, $n = 167$), 3 ½ years later ($\beta = -.20$, $p < .05$, $n = 147$), and seven years later ($\beta = -.29$, $p < .001$, $n = 115$). Students with a stronger calling are more willing to ignore the discouraging career-related advice given by a trusted mentor. Lower receptivity to career advice (Dobrow & Tosti-Kharas, 2012) and higher perception of personal abilities (Dobrow & Heller, 2014) are consequences of having a calling: they increase the likelihood that people will pursue the desired career, making them more secure about their possibility of success. This first set of studies demonstrated that people with higher levels of calling are more likely to realize their vocation at work and this process seems to be facilitated by the effect of calling on self-perception and feedback receptivity.

[7] Receptivity to negative career advice was measured with one item: "If my private music teacher/a trusted mentor discouraged me from becoming a professional musician, I would follow his/her advice and do something else."

The second way in which calling influences career development concerns its effects on career preparation and personal growth (Duffy, Douglass et al., 2014; Praskova, Hood et al.,2014).

Personal growth initiative is the degree to which one actively engages in personal development (Duffy, Douglass et al., 2014). Duffy, Douglass et al. (2014) found that calling predicts personal growth initiative ($\beta = .14$, $n = 292$). Students who have a calling are more likely to endorse a growth orientation because calling, such as goals (e.g., Sheldon & Elliot, 1999), serves as a motivating force. Finding that calling predicts personal growth (Duffy, Douglass et al., 2014) is a new result and contradicts Duffy, Allan et al.'s (2011) study in which vocational development was found to be an antecedent of calling.

In a two-wave study (six-month interval), Praskova, Hood et al. (2014) tested the relationship between calling, career strategies and adaptability. Calling predicts an increase in the use of career strategies (Praskova, Hood et al., 2014) such as: work involvement, seeking career guidance, creating career opportunities, and self-presentation ($\beta = .17$, $p = .016$, $n = 216$). In addition, calling positively predicts the perceptions of being able to cope with and capitalize on change and recovering when unforeseen events alter career plans (career adaptability: $\beta = .29$, $p < .001$, $n = 216$).

Therefore, the experience of having a calling motivates people to invest more in their preparation, to adopt career strategies and to be ready to cope with problems along their career path. These results reinforce the assumption that calling is beneficial for career development.

The process of creating and finding a career requires exploration of alternatives, evaluation of information and a series of choices regarding education and professional experiences. Calling has been found to have a positive association with self-efficacy, career planning (Hirschi & Hermann, 2013), career decidedness and exploration over time (Hirschi & Herrmann, 2012).

Hirschi and Herrmann, (2012) demonstrated that the presence of calling is related[8] to career decidedness and exploration six months later ($\beta = .21$, $p < .001$, $\Delta R^2 = .04$, $n = 269$). Hirschi and Herrmann (2013) found that calling at Time 1 predicts self-efficacy[9] at time 2: $\gamma = .21$, $p < .001$; and calling at Time 2 predicts self-efficacy at Time 3: $\beta = .19$, $p < .001$; $n = 846$. Student with calling tend to develop more self-confidence in their career choice and feel more comfortable with the challenge of the chosen path. They also found that calling at Time 1 predicts an increase in career planning at Time 3 (measured with items like "I have a strategy for reaching my career goals"): $\beta = .11$, $p < .01$; $n = 846$.

[8] Decidedness and career exploration were collected only at Time 2 and calling only at time 1, so findings were not checked for the previous level of outcomes and the change in calling over time.

[9] Self-efficacy was measured with items like: "Whatever comes on my way in my job, I can usually handle it".

This last result suggests that calling motivates students to imagine their professional future and to make plans for their careers. Calling predicts self-efficacy, career decidedness and exploration, but, as already noted (p. 24), the relationship between calling and career planning is reciprocal and the strongest effect is from career planning to calling (Hirschi & Herrmann, 2013).

The direction of the effect between calling, career decidedness and exploration is not clear. In addition, career planning and calling were found to predict each other over time and the effect suggests that career planning is a predictor of calling and not the opposite (Hirschi & Herrmann, 2013). Therefore, it is not clear whether a positive attitude toward career decisions (self-efficacy and career decidedness), career exploration and planning is a consequence of having a calling or its predictor.

The presence of a clear idea about one's professional future is strictly related to attitude toward career decision and career planning. Calling was found to be related over time to clarity of professional identity and career insight. However, in this case too, the direction of the effect is not clear. Dobrow and Tosti-Kharas (2011) surveyed a group of aspiring musicians at three time points over a seven-year period. They found calling at time 1 to significantly and positively correlate with clarity of professional identity and career insight. Therefore, people with a calling at the beginning of their music career have a clearer idea about their professional identity and professional plans. However, this study was not focused on the longitudinal effect, so they did not analyze the direction of influence between calling and other variables[10]. The only study that analyzed the direction of influence between calling and clarity of vocation was conducted by Duffy, Douglass et al. (2014), and they found vocational clarity to positively predict calling.

In short, findings are consistent in proving that calling supports career pursuit, that the experience of having a calling motivates people to invest in their preparation, to adopt career strategies and to be ready to cope with problems in their career path. Calling provides a motivational drive to engage and commit to activities related to their calling (Praskova, Hood et al., 2014; Dobrow & Heller, 2014), influences the perception of one's possibility to success in the calling domain (Dobrow & Tosti-Kharas, 2012; Dobrow & Heller, 2014) supporting the realization of one's goals. In addition, results are clear in demonstrating that calling motivates people to invest more in their career preparation, to adopt career strategies and to be ready to cope with problems along their career path (Duffy, Douglass et al., 2014; Praskova, Hood et al., 2014).

[10] The focus of the study was the assessment of convergent and discriminant validity of the Integrated Calling Scale, the longitudinal data was analyzed to test the predicted validity of calling.

Calling influences how people make decisions: it has an effect on career related self-efficacy[11] (Dobrow & Tosti-Kharas, 2011; Hirschi & Hermann, 2013), on personal growth, adaptability, ability to cope and use career strategies (Duffy, Douglass et al., 2014; Praskova, Hood et al., 2014; Hirschi & Hermann, 2013).

There is less empirical evidence and fewer inconsistent findings regarding career decidedness, career exploration and planning, clarity of professional identity and career insight.

We think that a key research question regards the relationship between calling and vocational clarity (Dobrow & Tosti-Kharas, 2011; Hirschi & Herrmann, 2012). Having a clear idea of one's future profession (clarity of professional identity) is related to greater decidedness. Decidedness is part of vocational identity achievement, conceptualized by Hirschi and Hermann (2012) as the result of identity commitment and exploration (Marcia, 1980). Having a calling entails a clear idea of what a person wants to do in their professional future. Therefore we expect the experience of a calling to facilitate the development of a clear sense of what a person wants to be, which work is meaningful and, in conclusion, promotes the development of a clear professional identity. An exploration of the influence of calling on the development of a professional identity might clarify the relationship of calling with vocational development and career exploration.

Finally, calling not only influences career development but also has a positive effect on life meaning (Duffy, Douglass et al., 2014; Praskova, Hood et al., 2014; Duffy, Allan et al., 2014) and satisfaction (Dobrow & Tosti-Kharas, 2011).

It seems that having a calling is a consequence of positive experiences and feelings at work. This positive environment helps people to live out their calling, and in turn the realization of one's calling promotes satisfaction, commitment to career, and meaning in work.

[11] Career related self-efficacy measures the degree to which individuals believe they are capable of successfully managing their careers and fulfilling the tasks involved in their job.

Table 4.
Longitudinal outcomes of calling

Variables	Study	Sample	Design	Results
Satisfaction in the music domain	Dobrow & Tosti-Kharas, 2011	Amateur musicians, summer high school music programs.	3-wave, 7 years	3.5 years later: $r = .23$, $p < .001$; 7 years later: $r = .18$, $p < .05$
Personal growth initiative	Duffy, Douglass et al., 2014	Undergraduate students	2-wave, 3 months apart	$\beta = .14$, $p < .05$, $n = 292$
Career planning	Hirschi & Hermann, 2013	College students	3-wave, 6 months apart	T1 vs T3: $\gamma = .11$, $p < .01$; $n = 846$
Career strategies	Praskova, Hood et al., 2014	Young adults (mean initial age: 20.23)	2-wave, 6 months apart	$\beta = .17$, $p = .016$, $n = 216$
Career adaptability	Praskova, Hood et al., 2014	Young adults (mean initial age: 20.23)	2-wave, 6 months apart	$\beta = .29$, $p < .001$, $n = 216$
Career self-efficacy	Dobrow & Tosti-Kharas, 2011	Amateur musicians, summer high school music programs.	3-wave, 7 years	3.5 years later: $r = .20$, $p < .01$; 7 years later: $r = .21$, $p < .01$
Self-efficacy	Hirschi & Hermann, 2013	College students	3-wave, 6 months apart	T1 vs T2: $\gamma = .21$, $p < .001$; T2 vs T3: $\beta = .19$, $p < .001$; $n = 846$
Career insight	Dobrow & Tosti-Kharas, 2011	Amateur musicians, summer high school music programs.	3-wave, 7 years	3.5 years later: $r = .25$, $p < .001$; 7 years later: $r = .21$, $p < .01$
Clarity of professional identity	Dobrow & Tosti-Kharas, 2011	Amateur musicians, summer high school music programs.	3-wave, 7 years	3.5 years later: $r = .21$, $p < .01$; 7 years later: $r = .18$, $p < .01$
Vocational identity (b)	Hirschi & Herrmann, 2012	College students	2-wave, 6 months apart	$\beta = .21$, $p < .001$, $\Delta R^2 = .04$, $n = 269$
Intentions to pursue a career	Dobrow & Tosti-Kharas, 2011	Amateur musicians, summer high school music programs.	3-wave, 7 years	3.5 years later: $r = .27$, $p < .001$; 7 years later: $r = .26$, $p < .001$
College degree earned	Dobrow & Heller, 2014	Amateur musicians, summer high school music programs.	5-wave, 11 years	$\beta = .70$, $p < .001$, $n = 146$
Professional involvement	Dobrow & Heller, 2014	Amateur musicians, summer high school music programs.	5-wave, 11 years	$\beta = .21$, $p < .05$, $n = 146$
Career commitment (a)	Duffy, Allan et al., 2014	Adult (mean initial age = 33.26)	3-wave, 6 months	T2 vs T3: $\beta = .10$, $p < .05$, $n = 217$

Perceived ability	Dobrow & Heller, 2014	Amateur musicians, summer high school music programs.	5-wave, 11 year	B = .19, p < .05, n = 121
Willingness to ignore career advice	Dobrow & Tosti-Kharas, 2012	Amateur musicians and business students	4-wave, 7 years	Six weeks later: β = -.35, p < .001, n =167; 3 ½ years later: β = -.20, p < .05, n = 147; 7 years later: β = -.29, p < .001, n = 115
Work effort	Praskova, Hood et al., 2014	Young adults (mean initial age: 20.23)	2-wave study, 6 months apart	β = .15, p = .016, n = 216
Life meaning	Praskova, Hood et al., 2014	Young adults (mean initial age: 20.23)	2-wave study, 6 months apart	β = .17, p = .016, n = 216
Life meaning	Duffy, Douglass et al., 2014	Undergraduate students	3-wave, 3 months apart	β = .15, n = 292
Work meaning $_{(a)}$	Duffy, Allan et al., 2014	Adult (mean initial age = 33.26)	3-wave, 6 months	T2 vs T3: β = .07, p < .05, n = 217

Note. (a) = predicted by living out a calling; (b) Variable collected only at time 2, combination of career decidedness and exploration. *Italic* indicates constructs that were found to be both predictors and outcomes of calling (reciprocal effect).

Discussion

Two ways on how calling might develop were identified: calling might lead to occupational choices, or occupational choices lead to calling via mechanisms such as reducing cognitive dissonance (Festinger, 1962; Vroom, 1966) or fostering retrospective rationalization (London, 1983).

In the first way, calling develops *a priori*. In this case calling is originated by some individual characteristics and is the result of an introspective process of reflection and maturation. For example, some people declare that their calling has always been part of their life, since childhood. Calling is "in their blood", the same as for some of the participants in the Bunderson and Thompson study (2009), which claimed that there is a feeling of inevitability and in this case calling needs to be discovered. People might discover their calling early or later in life and then find a place in the occupational world that answers their calling. In this case, the presence of a calling represents the condition for career exploration and development of professional identity.

According to a second possible scenario, calling develops *a posteriori*: people first start a career, make decisions on their studies, profession and role in society and then develop a calling. In this case, positive experiences in a domain and career exploration represent the condition for the development of a calling. Being involved in a domain which provides satisfaction and positive feedback might lead a person to redefine and rebuild their career identity and transform a profession, an activity or a study domain into a calling.

One way does not exclude the other. People might feel like they are in "the wrong place" but identify their calling only after experience and exploration. Results of longitudinal and qualitative studies partially support these different interpretations of calling development. Calling is predicted by commitment, positive experience, perception of efficacy and clarity in a domain, and these results support the *a posteriori* theory of calling development, but calling was found to predict the same variables in line with the *a priori* assumption. It is plausible that positive experience, satisfaction in a domain, commitment to a profession and the discovery of ability in a domain push people to recognize the domain of skill as a calling (Duffy, Allan et al., 2014). But it has also been found that a greater awareness of themselves such as having a high level of life meaning, searching for life meaning and vocational clarity, predicts calling.

Calling was found to be related over time to career development and well-being. As summarized in Table 5, antecedents and consequences of calling can be divided into seven main categories.

Table 5.
Antecedents and consequences of having a calling

	Decidedness and self-efficacy	
Predictors	*Outcomes*	*Reciprocal effects*
Decidedness	Vocational identity – combination of career decidedness and exploration	
	Career self-efficacy	
	Self-efficacy	
	Career development	
Predictors	*Outcomes*	*Reciprocal effects*
Vocational development	Personal growth initiative	
	Career strategies	Career planning (stronger effect from career planning to calling)
	Career adaptability	
	Clarity	
Predictors	*Outcomes*	*Reciprocal effects*
	Career insight	
Vocational clarity	Clarity of professional identity	
	Career pursuit and behavior	
Predictors	*Outcomes*	*Reciprocal effects*
Behavioral involvement	Intentions to pursue a career	
	College degree earned	
	Professional involvement	
	Work effort	
	Self-perception and feedback receptivity	
Predictors	*Outcomes*	*Reciprocal effects*
	Perceived ability	
	Willingness to ignore career advice	
	Meaning in life and work	
Predictors	*Outcomes*	*Reciprocal effects*
Life meaning		Life meaning (stronger effect from life meaning to calling)
Search for life meaning	Life meaning	Work meaning (stronger effect from work meaning on living out a calling)
	Well-being dimension	
Predictors	*Outcomes*	*Reciprocal effects*
Social comfort		
Job satisfaction (on living out a calling)	Satisfaction in the music domain	
		Career commitment (stronger effect from career commitment on living out a calling)

The analysis of literature highlighted some limits and lack of knowledge about calling development. We have identified three areas of research that will be further analyzed in this study.

Research on calling has yet to deeply analyze the development of a calling in relation to the social context and influence (Table 6). Social encouragement and social support were found to positively predict initial calling (Dobrow, 2006; 2013). Parents' involvement is the same domain and students' enjoyment of the company of people with the same calling promotes calling (Dobrow, 2006). Social comfort was also found to have a negative effect on its development (Dobrow, 2013). Another study analyzed the relationship between calling and a mentor. Calling was found to reduce the effect of a mentor suggesting that students with a higher calling are more likely to ignore negative career-related advice provided by a mentor (Dobrow & Tosti-Kharas, 2012). One fundamental question is whether calling has an inner development or if others might play a role in its growth. It is possible that a reliable source of information or individuals with advanced experience plays an important part in the development of a calling by providing a role and an attitude model (Ragins et al., 2000).

Table 6.
Variables and studies identified in literature regarding the role of social context in calling development.

Predictors of calling	*Outcomes of calling*
Social comfort (Dobrow, 2013)	Perceived ability (Dobrow & Heller, 2014)
Parents' involvement in calling domain (Dobrow, 2006)	Willing to ignore career advice (Dobrow & Tosti-Kharas, 2012)

Research into career development, specifically regarding career attitude and commitment, suggests the importance of others, especially family, peers and mentor, on career development. Therefore, despite being slight, there is evidence of a connection between the intimate experience of having a calling and relationships with others and the social context. If and how a social context nurtures calling development over time is the first open question that we will address in this study.

Findings from longitudinal studies outline a mixed picture of whether calling is best positioned as a predictor or as an outcome of behavioral and affective involvement in calling related activities and vocational clarity. Career pursuit and behavioral involvement in calling domains were studied in the literature and the findings lead to a mixed interpretation of calling's role. See Table 7 for a summary of the variables regarding career pursuit found to be related with calling over time.

Table 7.
Finding in literature about the relationship between calling and behavioral and effective involvement in the calling domain.

Predictors of calling	*Outcomes of calling*	*Reciprocal effects*
Behavioral involvement (Dobrow, 2013)	Intentions to pursue a career (Dobrow & Tosti-Kharas, 2011)	Career commitment (Duffy, Allan et al., 2014)
	College degree earned (Dobrow & Heller, 2014)	
	Professional involvement (Dobrow & Heller, 2014)	
	Work effort (Praskova, Hood et al., 2014)	

Involvement in activities related to the calling domain was in fact found to be predicted by calling (Professional involvement; Dobrow & Heller, 2014) but also to enhance the experience of having a calling (Behavioral involvement; Dobrow, 2013). People with a calling have more intention to pursue their calling in a profession and tend to choose educational paths in line with their vocation (Intentions to pursue a career; Dobrow & Tosti-Kharas, 2011; College degree earned; Dobrow & Heller, 2014). In addition, they invest more time in professional activities connected with their calling (Professional involvement; Dobrow & Heller, 2014).

However, the level of calling was found to be predicted by involvement in activities related to the calling domain (Dobrow, 2013) suggesting that behavioral involvement temporally precedes the development of a calling.

Professional experience and engagement in activities related to a domain might be a way to test different career alternatives, to explore professional roles, and might enable an individual to find and develop a calling. If behavioral involvement is found to predict calling, the hypothesis of *a posteriori* calling development is supported. In this case, calling is more likely to be the result of positive experience in the calling domain.

However, the opposite effect is reasonable too and supports the most common assumption about calling. Indeed, most scholars have theorized calling as antecedents of positive career-related outcomes, such as commitment, intention to continue a work, willingness to make sacrifices, and work effort, for example.

The interest of this research is in studying whether having a calling has a positive effect on people's career or whether positive experience predicts the development of a calling. Therefore, analyzing the relationship between calling and engagement is crucial when it comes to understanding the temporal precedence between positive attitude to a domain and calling.

The third research question that will guide this study pertains to the relationship between calling and vocational clarity. Previous results from longitudinal studies do not answer the question of whether calling promotes a better understanding of career goals, or whether a clear definition of what a person wants to be facilitates the development of a calling. Calling is related over time with decidedness, self-efficacy, career development and vocational clarity. See Table 8 for a summary of these findings.

Table 8.
Findings in literature about the relationship between calling and vocational clarity.

Predictors of calling	*Outcomes of calling*	*Reciprocal effects*
Decidedness (Hirschi & Hermann, 2013)	Career self-efficacy (Dobrow & Tosti-Kharas, 2011)	Career planning (Hirschi & Hermann, 2013)
Vocational development (Duffy, Manuel et al., 2011)	Self-efficacy (Hirschi & Hermann, 2013)	
Vocational clarity (Duffy, Douglass et al., 2014)	Career insight (Dobrow & Tosti-Kharas, 2011)	
	Clarity of professional identity (Dobrow & Tosti-Kharas, 2011)	
	Vocational identity - career decidedness and exploration - (Hirschi & Herrmann, 2012)	

There is evidence that calling fosters the use of more career strategies, improves career adaptability, career self-efficacy, and promotes a more active engagement in personal growth (Duffy, Douglass et al., 2014; Hirschi & Hermann, 2013; Praskova, Hood et al., 2014; Dobrow & Heller, 2014; Dobrow & Tosti-Kharas, 2011; Hirschi & Hermann, 2012; 2013). But longitudinal research did not provide a clear picture of how calling is related with career decidedness, vocational development and vocational clarity. Indeed, calling was found to be predicted by these three variables (Duffy, Manuel et al., 2011; Hirschi & Hermann, 2013; Duffy, Douglass et al., 2014), but other studies have found career insight and clarity of vocational identity to be predicted by calling (Hirschi & Hermann, 2013; Duffy, Manuel et al., 2011; Duffy, Douglass et al., 2014).

The level of readiness, maturity and decidedness about future professional identity might be consequences of having a calling as well as predictors of calling development. Clear evidence of the relationship between calling and clarity about professional future will be useful to understand the role of calling in people's lives. It is important to understand whether the experience of having a calling is crucial to positive career development, or whether readiness, maturity and decidedness about future professional identity are conditions for the development of a calling.

The aim of this study is to provide some insights about possible predictors and outcomes of calling. This goal has been achieved by analyzing variables that have already been proven to be connected with calling, and others that are relatively new in literature on calling.

We have identified three open questions in literature:

- whether calling has an inner development or whether others might play a role in its development.
- whether calling has a positive effect on people's engagement in a domain or whether positive experience of engagement in a domain predicts the development of a calling.
- whether calling promotes a better understanding of career goals, or whether a clear definition of what a person want to be facilitates the development of a calling.

This work will answer these questions testing the hypotheses presented in the second chapter.

CHAPTER 2. HYPOTHESES

The study of calling has been intense in the last years. The experience of a calling is a quiet ancient notion, but the empirical research in this field is still young. If questions such as how a calling develops or where it comes from existed in literature, answers are yet to be provided. As a consequence, further longitudinal studies are needed in order to better understand how a calling changes, which are its antecedents and consequences.

The longitudinal studies presented in the first chapter have some limitations.

1. Most of the longitudinal studies have from three (Duffy, Douglass et al., 2014) to six months intervals (Hirschi & Hermann, 2013; Duffy, Allan et al., 2014; Praskova, Hood et al., 2014; Hirschi & Herrmann, 2012) from one data collection to the others. These time period might be too short to detect longer effects. As suggested from other scholars, future research should examine the development of calling over a longer period of time and possibly during important phases of career development.
2. Most of the studies involved participants from specific domains such as the musical or medical ones, other studies collected people from different fields, but there aren't analysis concerning possible differences due to the calling domain.
3. Some studies collected data from more than one data point, but not all variables have been administered at each wave. For example, Dobrow and Tosti-Kharas (2011), Dobrow and Heller (2014), Dobrow (2013), Hirschi and Hermann (2012). In these studies it is not possible to analyze changes and the relationship among variables over time.
4. Different measures of calling exist and the longitudinal studies usually adopt one of them. It is possible that different measures of calling, since focused on various dimensions and definitions of the construct, might be in a different relationship with antecedents and outcome. It is hard to think that the dimension of transcendent summons is a consequence of positive experience at work, instead calling seen as a passion and purposeful work might be easier hypothesized as a consequence of a positive experience in a profession. Results regarding the antecedents and outcomes of calling have been inconsistent throughout studies with constructs that have been found to be both predictor and consequence. Thus, it is important to focus on identifying what might explain this inconsistency. The measure of calling adopted might be one of the possible reasons for which different studies have found different results. Also the measure of antecedents and outcome, even if similar in definitions, were measured with different scales. In addition, the domain of calling, the age

of participants, the time interval between waves can be other possible reasons for the inconsistency found.

In this study, we tried to go beyond some of the limitations of other longitudinal research on the same topic. We involved college students from 24 different study domains and four Universities and employed a multi-method approach to the measurement of calling. Data analyses were performed considering the different facets of calling and allowed us to test if different relationships exist between other variables and each single dimension of calling. All variables were administered at each point in time and the time interval from the first data collection to the second one is one year.

Drawing from the literature, we identified four factors that might play a role in the development of calling and its consequences.

The first two variables that will be investigated regard the role of others in calling development. There are only two studies that focused, indirectly, on the role of others in calling development (Dobrow & Tosti-Kharas, 2012; Dobrow, 2013) and research on career development have demonstrated that the relationship with family, peers and mentors influences people's attitude, experience and commitment to work. Thus we decided to focus on (1) the social support provided by important others and (2) the relationship with a trusted mentor.

The third concept that we will investigate regards involvement in the calling domain, and will allow us to better understand if positive experiences and engagement in activities promotes calling development or whether the opposite is true. Calling was found to be highly related with engagement in two studies, but its relation was not analyzed in a longitudinal design (Phillips, 2011; Dobrow & Tosti-Kharas, 2011) so the direction of this relationship is not empirically supported yet. Engagement in learning (3) measures student's positive attitude towards studying and active involvement in the learning process (Schreiner & Louis, 2006).

The fourth variable that we included in our investigation is clarity of professional identity (4). In order to reach a professional goal, like fulfilling the desired work, a person needs to have a clear idea of their ideal professional identity. Consequently, the clarity of professional identity might be a necessary condition to realize a career plan. Therefore, a better understanding of the relationship between calling and clarity of professional identity might clarify the role of calling in career development.

Research questions and hypotheses[12]

1. Does social support influence calling development?

The first research question investigated in this study concerns the role of a positive and supportive social environment in the development of a calling. Some researchers have analyzed the role of general social comfort (Dobrow, 2013; 2006), and the role of career advice given by parents and teachers (Dobrow & Tosti-Kharas, 2012; Dobrow, 2013). These studies have highlighted that people with a higher level of calling are more willing to ignore discouraging career advice (Dobrow & Tosti-Kharas, 2012), and that higher social comfort and parental involvement in the same calling domain are associated with stronger initial calling (Dobrow, 2013; 2006). Individuals who experience pleasure in the company of other people, involved in the same calling domain, present stronger levels of calling early on, but their calling also tends to decline over time (Dobrow, 2006; Dobrow, 2013). Having parents involved in the same calling domain is associated with a higher level of calling in children (Dobrow, 2006).

These studies found a relationship between calling, social comfort, involvement of parents in the same calling domains, and career advice, but the results and the direction of influence of other variables on calling development are not clear.

The measure used by Dobrow (2013) focuses on the level of comfort and satisfaction derived from socializing with other musicians. This aspect might be important in some specific domains, but it is less important for college students who interact not only with their colleagues, but also with friends and family out of the academic context. We decided to analyze the role of the social context on calling development, focusing on a more general dimension of social interaction: the social support provided by family, friends and important others. Social support tends to be constant throughout life, it regards not only friendship, but also family that, in the early stages of a career, might be a reliable source of information and resources.

We think that calling development might be supported by the presence of a person willing to help and encourage students during their career. Feeling supported might help students to explore their possibilities and it makes them feel more comfortable in expressing their interests and their vocation. Following a vocation might be hard and challenging: social support can help students to face obstacles in their career.

[12] Inspired by an Open Science Approach to research, these hypotheses and the analytical procedure were pre-registered and posted at https://osf.io/9zpnf/, https://osf.io/2wcky/register/565fb3678c5e4a66b5582f67 before we gained access to the data.

Hypothesis 1a. Social support provided by parents, friends and important others at Time 1 is related to an increased level of calling at Time 2.

2. Does a mentor influence a student's calling and its development?

Mentoring was found to play a part in how people experience a work role. Research comparing people with and without a mentor showed that the presence of a reference and a trusted person leads to greater career and job satisfaction, career commitment and involvement, positive job attitude and motivation (Ragins et al., 2000; Payne & Huffmann, 2005; Chao, 1997; Eby et al., 2008). A mentor might help to find meaning in work (Rosso, Dekas, & Wrzesniewski, 2010) and might support the development of workplace spirituality (Weinberg & Locander, 2014). Weinberg and Locander (2014) suggest that a mentor provides not only psychological and vocational support, but can also provide spiritual support, encouraging the development of protégé workplace spirituality. Specifically, a mentor helps a person to find meaning in work activities, encourages a protégé to associate work with what they think is important in life, and might promote a "protégé's sense of transcendence throughout the work process by appealing to his or her sense of calling" (Weinberg & Locander, 2014, p. 395). A mentor with high levels of calling might help a person to find meaning in an activity, to understand the deeper aspects of work and, consequently, provide the opportunity to develop a sense of calling.

In addition, one of the major functions of a mentor is the transmission of values and attitudes (Kaufmann, Harrel, Milam, Woolverton, & Miller, 1986). A relationship with a mentor might enhance individual development, personal growth (Kram & Isabella, 1985) and a protégé's spiritual development (Buzzanell, 2009; Reave, 2005). Mentors support their protégés in developing a sense of professional identity, competence, and confidence (Kram, 1985). Consequently, we expect mentors to facilitate the development of a calling. A mentor can also be perceived as a role model. This implies that the subject could carry on imitating and assimilating values and attitudes of their role models (Bell, 1970). Therefore, we believe that mentors' approach to work influences their protégés' orientation toward work.

Concerning the second research question, we decided to focus on two factors: (1) the effect of the mere presence of a mentor on calling and its development, and (2) the effect of a mentor's attitude toward work on their protégé's attitude toward work and calling. First, we expect, at Time 1 and Time 2, protégés to have a higher level of calling than students who don't have a mentor.

Hypothesis 2a. Students with a mentor show higher levels of calling than students without a mentor.

We predict that protégés with a mentor both in T1 and T2 have the highest level of calling in T1 and T2; students without a mentor both in T1 and T2 have the lowest level of calling in T1 and T2. Second, we predict that the presence of a mentor at T1 is related to increased levels of calling from T1 to T2.

Hypothesis 2b. The mere presence of a mentor is related to increased levels of calling from T1 to T2.

We expect the level of calling of students with a mentor in Time 1 to increase from Time 1 to Time 2. We expect the level of calling of students without a mentor to remain stable or to decrease from Time 1 to Time 2. Regarding students who lost or found their mentor between Time 1 and Time 2, we predict that their differences in calling in Time 1 are going to decrease in Time 2.

We expect the presence of a mentor also to affect the search for a transcendent summons. Searching for a transcendent summons represents a lack of clear calling. It means that a person wants to find a calling in life but has not found one yet. We hypothesized the relationship with a mentor to be related to a higher presence of a calling and supports the development of the experience of having a calling. Consequently, mentorship is expected to reduce the search for a calling over time and increase the presence of a calling.

Hypothesis 2c. We expect students with a mentor to have lower level of and a reduction in the search for transcendent summons throughout time.

The first three hypotheses concern the effect of the mere presence of a mentor. For students with a mentor, we decided to analyze the effect of a mentor's orientation toward work on students' attitude toward work and calling. As a result, the attention shifted from the mere presence or absence of a mentor to the role modeling function provided by a mentor. We analyzed whether a protégé's orientation toward work in T2 is influenced by a mentor's orientation toward work in T1.

The building up of an informal mentoring relationship considers the identification and mutual perception of similarity in values and attitudes between a mentor and a protégé (Lee, Dougherty, & Turban, 2000). In fact, the attraction paradigm states that people tend to be attracted to others who have similar personalities, values and attitudes (Byrne, 1971). Mentors choose protégés who reflect a younger version of themselves; the protégé chooses a mentor to be a role model. Consequently, we expect to find a similarity between mentor's and protégé's attitudes and orientation toward work, and thus a similarity in calling. Festinger (1956) theorized that people assess their source of

information and attitudes in terms of their relevance, using people evaluated as similar to themselves as a benchmark. The more a person is perceived as similar, the greater their impact and relevance on the person's world view (Whittemore, 1925; Deutsch & Gerard, 1955; Lockwood & Kunda, 1997).

Hypothesis 2d. Mentor's orientation toward work in Time 1 influences protégé's orientation toward work in Time 2, making them more similar.

We predict a statistically significant path from mentors' orientation toward work in T1 and their protégé's orientation in T2. To establish the direction of causality, we also predict that this path is stronger than the inverse association from the protégé's orientation toward work in T1 to the mentor's orientation in T2.

Finally, how much a person considers the mentor as a role model or the level of psychological and vocational support provided by the mentor, could explain the association between mentor's and protégé's orientation toward work. Consequently, we hypothesize that:

Hypothesis 2e. The association between mentor's and student's orientation is mediated by the quality of the mentoring relationship.

3. What is the relationship between calling and engaged learning over time?

Work engagement is "a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Bakker, & Salanova, 2006, p. 702). Engaged learning is "a positive energy invested in one's own learning, evidenced by meaningful processing, attention to what is happening in the moment, and involvement in learning activities" (Schreiner & Louis, 2006, p. 6). This study investigates the role of engagement in calling development.

There are only two studies on the relationship between calling and engagement, these studies are correlational and their findings are showed in Table 9.

Calling positively correlates with engagement and the correlation is moderate with engagement in learning, r = .39, 95% CI [.28, .29], and high with work engagement, r = .63, 95% CI [.59, .66]. People with a calling are also passionate, focused on results and more involved in study or work activities.

Table 9.
Zero order correlations between calling and engagement

Measure of calling	*N*	*r*	Engagement Measure	Study
ICS	F: 178 M: 92 240	F: .42* M: .33* .58***	Engaged Learning (Schreiner & Louis, 2006)	Phillips (2011)
NCS	239	.63***	Work Engagement (UWES-9; Schaufeli et al., 2006)	Dobrow and Tosti-Kharas (2011)
BCS presence	240	.61***		
WLP calling	240	.68***		
WLP career[a]	240	.49***		

Meta-analysis: r = .58, 95% CI [.54,.62], $Q_{(5)}$ = 25.72, I^2 = 80.56

Note. Adapted from Dalla Rosa, Galliani, & Vianello, (in press).
[a] excluded from meta-analysis; * $p < .05$ ** $p < .01$ *** $p < .001$.
ICS - Integrated Calling Scale; Dobrow, 2006; Dobrow and Tosti-Kharas, 2011.
NCS - Neoclassical Calling Scale; Bunderson and Thompson, 2009.
BCS - Brief Calling Scale; Duffy and Sedlacek, 2007; Dik et al., 2012.
WLP - Work-Life Paragraphs; Wrzesniewski et al., 1997.

Considering the significant correlations among calling dimensions and engagement both in learning and work, we expect there also to be a significant longitudinal relationship between calling and engaged learning.

Hypothesis 3a. Calling and engaged learning are significantly related across time.

If Hypothesis 3a is supported, we will examine the causal direction of this relationship. Since there is no evidence regarding the longitudinal relationship between calling and engagement in learning, we have identified some constructs similar to engagement in learning in order to develop our hypothesis. Engagement in learning is related to commitment, the degree to which people are committed to their profession, and work meaning (Duffy, Allan et al., 2014), how much workers find their work to be purposeful, important, significant, and/or to serve some greater social good (work meaning; Steger, Dik, & Duffy, 2012). Duffy, Allan and colleagues (2014) found career commitment and work meaning at Time 1 to predict living out a calling, and a reciprocal effect among living out a calling, career commitment and work meaning between Time 2 and Time 3. Their results suggest that living out a calling is better positioned as an outcome (versus predictor) variable when its relationship with commitment and work meaning is under investigation. Therefore, engagement in learning, as well as commitment and work meaning, might be a predictor of calling over time.

Engagement in learning is also similar to professional involvement, which was found to be a consequence of having a calling (Dobrow & Heller, 2014). Engagement in learning has a behavioral dimension; students engaged in learning tend to actively participate during classes, discussing with their friends what they are learning, they are interested in what they are doing, they pay attention and tend to apply the course material to other aspects of their life (Schreiner & Louis, 2006). Dobrow and Heller (2014) measured professional involvement as the amount of time and salary earned from activities related to a calling. Even if we can identify some similarities between engagement in learning and professional involvement, the first is a measure of positive attitude and behaviors and the second is more related to the successfully realization of one's calling.

Consequently, we identified three types of causal relationships that might connect calling to engaged learning, which we are going to analyze.

Firstly, whether or not calling influences engaged learning. In this interpretation, calling is trait-like, people are aware of their calling, they are trying to find a way to answer it and, since they are passionate about their calling, are also more willing to join activities related to it.

Secondly, whether or not engaged learning influences calling. In this case, being involved in learning, finding that the study domain is meaningful, creates the foundation for individuals to develop a calling over time. A calling might represent "the achievement or a committed, meaningful, and satisfying career versus the beginning of one" (Duffy, Allan et al., 2014).

Thirdly, whether or not calling and engaged learning reciprocally influence each other. In this interpretation, calling and engaged learning impact each other, so being engaged in learning fosters the feeling of being called to the study domain, and the feeling of having a calling increases engagement.

Our expectation is that the level of engagement and pleasure in learning activities promotes the development of a calling. Therefore, we expect the relationship between calling and engaged learning to be more similar to the relationship between calling, career commitment and work meaning (Duffy, Allan et al., 2014). The more a person feels engaged, satisfied and excited about what they are learning, the more they feel that they are called, destined, meant to study and follow a particular career. Consequently, we hypothesize that:

Hypothesis 3b. Students' engagement in learning at Time 1 influences their level of calling at Time 2.

A confirmation of this hypothesis might support the idea – contrarily to the dominant position in literature - that calling is not a predictor of positive outcomes such as personal engagement in the

calling domain, but rather calling itself is the result of feeling engaged in the calling domain: positive experiences, satisfaction, and involvement in the calling domain would therefore be key ingredients in the development of a calling.

4. Which causal relationships exist between calling and clarity of professional identity?

Dobrow and Tosti-Kharas (2011) observed a positive correlation between clarity of professional identity and calling. Clarity of professional identity is "a cognitive awareness of what one's core professional identity is, regardless of whether the individual knows how to translate this identity into action or not" (Dobrow & Higgins, 2005, p. 570). When individuals have a clear idea of their professional identity, they are sure of the "enduring constellation of attributes, beliefs, values, motives and experiences in terms of which [they] define themselves in a professional role" (Ibarra, 1999; Schein, 1978).

Some studies have found indicators of vocational development and career preparation to predict calling (Duffy, Manuel et al., 2011; Hirschi & Hermann, 2013; Duffy, Douglass et al., 2014), other researchers, however, have found vocational development and career preparation to be predicted by calling (Dobrow & Tosti-Kharas, 2011; Hirschi & Herrmann, 2012; Duffy, Douglass et al., 2014; Praskova, Hood et al., 2014). Therefore, it is still not clear whether calling is a consequence or an antecedent of the level of readiness, maturity, decidedness and clarity of professional identity.

Different vocational constructs were used in these studies so it is not prudent to compare them. The measures that are probably more similar are vocational clarity[13] (Duffy, Douglass et al., 2014), Career insight[14] and Clarity of professional identity[15] (Dobrow & Tosti-Kharas, 2011). Although their study does not focus on longitudinal relationships, Dobrow and Tosti-Kharas (2011) suggest that calling is a predictor of career insight and clarity of professional identity. Results from Duffy, Douglass et al. (2014) suggest that vocational self-clarity is best positioned as a predictor variable: the more students feel sure of the occupational world ahead of them, the more likely it is

[13] Vocational clarity, from My vocational situation scale (Holland et al., 1993), was measured with items like: "I am uncertain about the occupations I could perform well", "No single occupation appeals strongly to me", and "I am uncertain which occupation I would enjoy" (Duffy, Douglass et al., 2014, p. 312). Low scores indicate confusion about a respondent's identity and a lack of self-satisfaction.

[14] Career insight was measured with three items: "I have a strategy for achieving my career goals," "I know what I need to do to reach my career goals," and "I have a plan for my career" (Dobrow & Tosti-Kharas, 2011, p. 1034).

[15] Clarity of Professional Identity was measured with items like "I have developed a clear career and professional identity" and "I am still searching for my career and professional identity" (Dobrow & Tosti-Kharas, 2011, p. 1034).

that they will develop a calling over time. This sense of general clarity might serve as an important foundation to develop a calling in a specific career.

We think that, in order to answer their calling, people tend to invest more time and energy in planning and exploring the path that might allow them to live it out. Through this process of exploration, they develop a clearer sense of themselves and their career goals, and they finally develop a strategy to pursue the desired career path. We expect people with a stronger calling to have a better understanding of how to realize their calling or how to relate it to the sense of their life and their identity. Dobrow (2009) has suggested, with her definition of calling, that the domain for which a person feels that they are destined or called is probably part of their identity, and it defines who a person is or wants to be. A person with a calling has probably a better understanding of the kind of domain in life that would meet their interests (Duffy & Sedlacek, 2007). As supported by different studies, students who have a calling are likely to be more mature in their career development process (Duffy & Sedlacek, 2007), they are more comfortable and feel more capable of making career decisions (Duffy, Allan et al., 2011; Phillips, 2011; Douglass & Duffy, 2015; Dobrow & Tosti-Kharas, 2011). When successful professional identity exploration and adaptation occur, individuals should develop a clearer sense of their professional identity.

Consequently, we expect people with a stronger calling to experience a greater sense of clarity about their professional identity.

Calling is not necessarily related to a profession. People might experience a calling for different domains that cannot be directly translated into a professional role, so they might have a calling but need career exploration and reflection in order to identify the professional role that might answer it. After thorough analysis of the different opportunities, people might develop a clearer professional identity. For example, a person can have a calling to assist children in their growth, but there are several jobs that might allow a person to answer this calling. A person can have a calling for music and, after experience and career exploration, discover that the professional role that better fits their calling is becoming a teacher rather than a professional musician. In these two examples, a person finds a calling and, only later, develops a clear professional identity.

Examining how the change in calling relates to the clarity of professional identity will provide some insight into the professional identity exploration process. We expect calling to increase when people understand what they want to do in life, which activities are in line with their preferences, and this probably happens after a period of career exploration. As a result of this process, we expect an increased sense of clarity with respect to professional identity. In line with this expectation, clarity of professional identity follows the development of a clearer calling. If the presence of a

calling decreases, this probably reflects a greater engagement in the exploration process, and this would lead to a decreased clarity of professional identity. Therefore, we hypothesize that:

Hypothesis 4a. Calling and clarity of professional identity are significantly related across time.

Hypothesis 4b. Students' calling at Time 1 positively influences clarity of professional identity at Time 2.

Hypothesis 4c. The search for a calling at Time 1 is related to a decrease in clarity of professional identity at Time 2.

There are three types of causal relationships that might connect calling to clarity of professional identity.

First, calling predicts clarity of professional identity. In this interpretation, calling is a general interest and passion for a professional domain. People are aware of their calling and are trying to find a career path to realize their calling in a professional role. The clarity of professional identity results after the awareness of calling and exploration of opportunity to answer it.

Second, clarity of professional identity predicts calling. In this case, when a person has a clear idea of their ideal future profession, they are in a better position to develop the feeling that this profession is a calling. In this case, calling is more a way people think about their profession, a job that they have chosen for other reasons.

Third, calling and clarity of professional identity reciprocally influence each other. In this interpretation, the clear definition of professional identity increases the feeling of having a calling, and having a calling confirms the clarity of professional identity.

CHAPTER 3. RESEARCH DESIGN

The purpose of this study is to identify possible predictors and outcomes of calling over time. We analyzed the relationships involved with calling, (a) social support, (b) mentorship, (c) engaged learning and (d) clarity of professional identity, in a sample of Italian college students assessed at two times points (T1 and T2). The two data collections were administered in two consecutive academic years across four different institutions: University of Padua, University of Florence, University of Siena, and University of Naples "Parthenope". The information was collected online using Moodle (https://moodle.com/), an open source platform adopted by Italian Universities to manage and develop traditional and online courses. The two surveys were computerized so that they could be filled out online. The data were collected and then downloaded at the end of the collection process. Participants were recruited from the list of active bachelor and master students. The link to the survey was sent by e-mail to the student's institutional mail (https://elearning.unipd.it/empeco/). During the first data collection, one University decided to adopt LimeSurvey instead of Moodle as the tool for data collection. During the second data collection, all four Universities used Moodle.

The first data collection started on November 21st 2014, the links to the surveys were disable when the second wave started on the 2nd of December 2015. Only people who had registered for the first wave were invited to the second wave. The time interval between the first and the second data collection ranges within 8.05 and 15.70 month, with an average of 12.29 months-interval (*SD* = 2.09). During the first data collection, two reminders were sent by email to non-respondents. During the second data collection, only one reminder was sent. At the end of the first data collection and in correspondence with the second one, students received a report containing information on the research and some first results (retrieved at http://empecoprin.it/wp-content/uploads/2015/11/Report-Prima-Fase.pdf). In order to increase the response rate, respondents were given an incentive to win a 25 euro (around $18) gift card to use in a famous Italian bookstore. At the end of the data collection fifty participants were randomly selected and rewarded.

Participants

The dataset is composed of 5886 subjects who were involved in the first data collection and 1700 who took part in the second data collection. A sample of 375 subjects participated only in the second data collection, and 1325 subjects participated at both data collections (21.16% of the initial

sample). Students were enrolled in different programs, across a total of 24 different domains. Table 10 reports the number of students in each domain.

Table 10.
Sample composition by Major

	Time 1			Time 2		
	n	% total	%	*n*	% total	%
Communication	47	.75	.81	24	.38	1.41
Economics	516	8.24	8.90	118	1.88	6.95
Pharmacy	59	.94	1.02	32	.51	1.88
Philosophy	73	1.17	1.26	18	.29	1.06
Physics	94	1.50	1.62	28	.45	1.65
Informatics	105	1.68	1.81	31	.50	1.82
Engineering	716	11.44	12.35	234	3.74	13.77
Modern Languages	223	3.56	3.85	59	.94	3.47
Mathematics	69	1.10	1.19	25	.40	1.47
Pedagogy	420	6.71	7.24	99	1.58	5.83
Psychology	648	10.35	11.18	305	4.87	17.95
Agricultural and veterinary science	251	4.01	4.33	91	1.45	5.36
Biology	235	3.75	4.05	59	.94	3.47
Chemistry	206	3.29	3.55	32	.51	1.88
Earth Science	40	.64	.69	10	.16	.59
Antiquities, literary studies, art history, History	349	5.57	6.02	91	1.45	5.36
Nursing Sciences and Medical Techniques	188	3.00	3.24	41	.65	2.41
Law	264	4.22	4.55	48	.77	2.83
Medicine	632	10.09	10.90	171	2.73	10.06
Political Science	223	3.56	3.85	51	.81	3.00
Social Science	184	2.94	3.17	29	.46	1.71
Statistics	78	1.25	1.35	41	.65	2.41
Others	137	2.19	2.36	62	.99	3.65
Methods and teaching of motor and sport activities	41	.65	.71	0	.00	.00
Total *N*	5798	92.61	100	1699	27.14	100
Missing	463	7.39		4562	72.86	
Total sample	6261	100		6261	100	

Students reported their age, gender and academic area at Time 1 and 2, and GPA at Time 2. Other demographic information concerning academic status and career was provided by Universities. Year of enrollment, GPA and career status (such as graduated, enrolled, suspended, enrolled/registered for supplementary year) were acquired through the administrative database of each University. Unfortunately, some of the data were not updated or not provided at the time of data collection. Table 11 reports the sample size for each University involved in the study. Both at Time 1 and 2, most participants were students at the University of Padua. At Time 2, due to an organizational and technical mistake, the invitation to complete the survey was not sent to students enrolled at the University of Florence. This is the reason for the very slight number of participants from this College at Time 2 (n = 17). The invitation to take part in the study will be sent to these

students 18 months after the first data collection. This will be helpful to analyze the development of calling over a longer time frame.

Table 11.
Sample distribution by College

	Time 1			Time 2		
	n	%	% total	*n*	%	% total
Naples	261	4.2	4.4	53	.8	3.1
Padua	2991	47.8	50.8	1525	24.4	89.7
Florence	1581	25.3	26.9	17*	.3	1.0
Siena	1053	16.8	17.9	105	1.7	6.2
Total *N*	5886	94.0	100.0	1700	27.2	100.0
Non-respondent	375	6.0		4561	72.8	
Total sample	6261	100.0		6261	100.0	

Note. * Data collection running at the time of writing.

At Time 1 there were 36.2% males (1954 out of 5391) and 63.8% females (3437 out of 5391). At Time 2 there were 34.2% males (576 out of 1686) and 65.8% females (1110 out of 1686).

The average age at Time 1 was 23.37 (*SD* = 5.39), with 23.47 (*SD* = 4.82) at Time 2. The age ranged between 18 and 69 at Time 1 and 19 to 65 at Time 2.

Method

Data were collected by means of a non-experimental online survey. This section describes the statistical properties of the measures employed. We analyzed the latent factor structure and the internal consistency of the scales on the data collected at Time 1.

For the analysis of the factor structure, we randomly split the sample in two halves: the first 50% of the total sample was used for the exploratory factor analysis (*n* = 2935) and the second half for the confirmatory factor analysis (*n* = 2951). First, we performed an exploratory factor analysis (EFA) using principal axis factoring and oblique Promax rotation (Russell, 2002; Kahn, 2006). We used eigenvalues greater than or equal to one and the scree test to determine the number of factors. Secondly, we performed a confirmatory factor analysis (CFA), testing a model that was specified drawing from both the exploratory factor analysis and the theory. The models were estimated using MPlus 6.0 (Muthén & Muthén, 1998-2012). Each item-pair measure had a non-zero loading on the factor that it was designed to measure and a zero loading on all other factors. If multiple factors were present in the model, they were correlated. Indices of correct fit and model modification

indices were used to evaluate and, where appropriate, modify the models. Details of each analysis are given in the following paragraphs.

Measures of calling

The experience of having a calling has been defined differently in literature, and most longitudinal studies conducted up to now have adopted just one measure of calling. In this study, three measures of calling were selected, in order to test the hypotheses considering different dimensions of calling. In addition, we assessed living out a calling and the need for a calling. We measured the experience of having a calling with:

a. *Integrated Calling Scale* (ICS; Dobrow, 2006; Dobrow & Tosti-Kharas, 2011).
b. *Calling and Vocation Questionnaire* (CVQ; Dik et al., 2012).
c. *Work-Life Questionnaire* (WLQ ; Wrzesniewski et al., 1997).

Integrated Calling Scale (ICS; Dobrow, 2006; Dobrow & Tosti-Kharas, 2011)

This scale measures calling as "a consuming, meaningful passion people experience toward a domain" (Dobrow & Tosti-Kharas, 2011, p. 1005). It consists of 12 items on a scale of 1-7, 1 being '*strongly disagree*', 7 being '*strongly agree*'. The original scale demonstrated high internal consistency, with *Cronbach's Alpha* (Cronbach, 1951) always greater than .88. The test-retest results indicated a moderate stability in the short and long term (at 2 months, 3.5 years, and 7 years). Exploratory and confirmatory factor analyses supported a one-dimensional structure that explains 42% to 62% (mean 50%) of the overall variance in the four samples.

The scale is domain-specific, but it can be adapted to different contexts, so we asked students to evaluate their calling to actual study. In addition, we added a thirteenth item ("I can deal with many sacrifices in order to study this discipline") in order to balance the number of items regarding the dimensions of calling covered by the ICS scale. At the beginning of our survey and before rating this scale, students were asked to indicate their field of study from a list of alternatives and to refer to this when filling out the questionnaire. Examples of items include: "I would sacrifice everything to continue studying this discipline", "What I study will always be part of my life", "What I study is part of my destiny", "I am passionate about what I am studying".

We performed an exploratory factor analysis (EFA) using principal axis factoring and oblique Promax rotation (Russell, 2002; Kahn, 2006). The number of factors extracted with eigenvalues greater than or equal to one indicated two factors, but the scree plot suggests a one factor solution, as in the original study. The single factor solution explains 53.12% of the total variance in the

measure. All items had factor loadings higher than .54. The internal reliability coefficient is .93 (Cronbach's alpha).

We then tested a SEM in which all items load onto a single latent factor. The intercept and residual variance of the factor indicators were estimated and maximum likelihood was used as the estimator method. The metric for the factor was established by setting the first item factor loading to 1. The initial model showed a poor fit, χ^2 (df = 65) = 3886.86, p < .001, TLI = .78, CFI = .81, RMSEA = .14. The inadequate fit of the hypothesized model to the sample data is due to errors in covariance specified as zero, so we decided to move into exploratory mode and attempt to modify this model in a sound and responsible manner. The model re-specification is justified by theory, as salient errors in covariance arise from items regarding similar dimensions of calling, specifically the pervasiveness in mind (item 9 with item 10), the passion (items 1 and 2) and the willingness to sacrifice (items 6 and 4). Freeing the correlations between the residuals increased the model fit, χ^2 (df = 62) = 1683.026, p < .001, TLI = .92, CFI = .90, RMSEA = .09. See Figure 17 in the Appendix 3 for a graphic depiction of the final CFA model.

In according to the original scale and the analysis we computed one composite score for the measure of calling as meaningful passion (hereafter referred to as "ICS").

Calling and Vocation Questionnaire (CVQ; Dik et al., 2012)

This scale measures 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" (Dik & Duffy, 2009, p. 427). The CVQ measures both presence of a calling and search for a calling. The original scale consists of 24 items and six subscales: Transcendent Summons search and presence, Purposeful work search and presence, Prosocial Orientation search and presence. The sub-scales showed good internal consistency, with *Cronbach's Alphas* (Cronbach, 1951) greater than .85.

Six items, one from each subscale, with the lower factor loading were deleted. Therefore, the scale adopted in this study consists of 18 items rated on a scale of 1-4, with 1 being '*Not at all true of me*', and 4 being '*Totally true of me*'. The scale was adapted from the original for students, so we asked them to evaluate their calling towards actual study (presence of a calling) and future professional career (search for a calling). Examples of items include: "I am pursuing my current career because I believe I have been called to do so" (presence of transcendent summons), "I am looking for work that will help me to live out my life's purpose" (search for purposeful work), and

"Making a difference for others is the primary motivation in my academic and professional career" (presence of prosocial orientation).

The dimensionality of the scale was examined performing an exploratory factor analysis using principal axis factoring and Promax rotation. The eigenvalues and the scree plot indicate four factors which accounted for 55.96% of total variance. Factor 1 groups six items representing the "presence and search for prosocial orientation", which account for 30.53% of variance (α = .88). Factor 2 groups six items regarding presence and searching for purposeful work, and accounts for 11.77% of variance (α = .82). The third and fourth factors group three items each and represent the presence of transcendent summons (accounting for 8.57% of variance) and the search for transcendent summons (accounting for 6.07% of variance). The internal consistencies of the last two factors are α = .85 and α =.75 respectively. All items have factor loadings higher than .54 on their own scale.

Structural equation modeling was used to test the four-factor model. The four factors were allowed to covary. The initial model presented a poor fit to data. The original scale presents a similar problem due to the amount of variance shared by the presence and search for Purposeful Work subscales and the presence and search for Prosocial Orientation subscales. In our analysis salient errors in covariance arose from items that are very similarly worded. We estimated covariance between residuals of items 9 with item 7, which both use the word "work"; between item 6 and item 4, which both use the same expression "life's purpose"; between item 13 with item 3, and between item 13 and 15, which share the expression "my academic and professional career". After these modifications, the model presented an acceptable fit, χ^2 (df = 125) = 2115.085, p < .001, TLI = .90, CFI = .91, RMSEA = .075. See Figure 18 in the Appendix 4 for a graphic depiction of the final CFA model.

We computed four composite scores: presence of transcendent summons (three items: CVQ 18, CVQ 10, CVQ 1), search for transcendent summons (three items: CVQ 14, CVQ 2, CVQ 12), presence of and search for purposeful work (six items: CVQ 15, CVQ 13, CVQ 3, CVQ 4, CVQ 6, CVQ 16) and presence of and search for prosocial orientation (six items: CVQ 9, CVQ 7, CVQ 5, CVQ 8, CVQ 17, CVQ 11).

Work-Life Questionnaire (WLQ ; Wrzesniewski et al., 1997).

This questionnaire comprised two measures of orientation to one's profession: a single item measure with three paragraphs (hereafter referred to as "WLP") and a true/false survey. The two instruments can be used together or separately. In this study, we used the WLP only. The WLP

describes three workers with types of attitude and working behaviors characteristic of people who see their work as a job (*Mr. A*), a career (*Mr. B),* and a calling (*Mr. C)*.

People who consider their work as a job are interested mainly in monetary compensation; they are motivated by extrinsic incentives such as salary. Work is a means to an end; it provides the resources they need to enjoy their life outside the workplace (Bellah et al., 2007).

People who perceive their work as a career, on the other hand, invest much more in their occupational role, their priority and main source of satisfaction lie in advancing their career within the organizational structure. These individuals are interested in power and achievement (Bellah et al., 2007).

People who experience their work as a calling cannot imagine their life without it. They work not to advance their careers or for monetary compensation, but for the sense of personal satisfaction and enrichment that their profession seems to afford them (Bellah et al., 2007).

Respondents were asked to read the three paragraphs and rate to what degree they identified with each of the profiles described (the question was: 'How much are you like Mr. A-B-C'). The scale was from 1, being '*Not at all similar*', to 4, being '*Totally similar*'.

Job orientation (referred to hereafter in text and tables as "Job O.") correlates negatively with Calling orientation (referred to hereafter in text and tables as "Calling O."), r (n = 135) = -.52, p <.01; and neither Job, r (n = 135) = -.01, nor Calling, r (n = 135) = -.14, correlate with Career orientation (referred to hereafter in text and Tables as "Career O."), which is therefore independent. Table 12 reports means, standard deviations and the correlations between the measure of job, career and calling orientation at Times 1 and 2.

Table 12.
Correlations between orientations toward work.

	M	*SD*	Job O. T1	Career O. T1	Calling O. T1	Job O. T2	Career O. T2
Job O. T1	1.53	.80	1				
Career O. T1	2.39	1.00	.05**	1			
Calling O. T1	2.90	.98	-.35**	-.28**	1		
Job O. T2	1.57	.83	.49**	.08**	-.33**	1	
Career O. T2	2.42	.95	.03	.34**	-.16**	.04	1
Calling O. T2	2.94	.96	-.31**	-.19**	.41**	-.38**	-.29**

Note. ** p < .001; N = 5496 at Time 1; N = 1302 between T1 and T2; N = 1700 at Time 2; Job O. = students' job orientation toward work; Career O. = students' career orientation toward work; Calling O. = students' calling orientation toward work.

Job and career orientation negatively correlate with calling orientation. Job and career orientation are independent. Test-retest reliability is moderate, (r_{job} = .49; $r_{careeer}$ = .34, $r_{calling}$ = .41).

The time interval between the first and second data collection might explain the low correlations between the same measures.

Living out a calling scale (LCS; Duffy, Allan & Bott, 2012).

This scale is intended to measure the degree to which participants currently live out and experience their calling. It consists of six items, but has been reduced for this study to one item only: "Are you able to live out your calling in the study?". This item was assessed in the second data collection only. The scale goes from 1 ('*Not at all*') to 4 ('*Very much*').

Need for calling

This scale was created in order to measure the need and motivation to live out one's calling at work. It consists of six items, covering the need for passion, meaning and prosocial orientation, need to feel meant and called to do a job. The items are: "I need to find a job that has a great meaning for me", "I need to do a job for which I feel I am meant". The scale goes from 1 ('*strongly disagree*') to 7 ('*strongly agree*').

Exploratory factor analysis using principal axis identifies one factor accounting for 39.87% of total variance, with factor loadings higher than .53. Internal reliability is .79. The one-factor model presents a good fit, χ^2 (df = 8) = 117.031, p < .001, TLI = .95, CFI = .98, RMSEA = .07.

Social support

The Italian translation (Prezza & Principato, 2002) of the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) was administered. This scale specifically addresses the subjective assessment of social support adequacy provided by three specific sources: family, friends and a significant other. Examples of items are: "I get the emotional help and support I need from my family", "I have friends with whom I can share my joy and sorrows", and "There is a significant other around when I am in need". The scale proved to have good internal and test-retest consistency both in the Italian and English versions, as well as moderate construct validity. The original scale consists of twelve items, four for each subscale. To reduce the length of the survey, we delated three items with the lowest factor loading in their factors. The final scale consists of nine items with a seven-point rating scale from 1 ('*Strongly disagree*') to 7 ('*Strongly agree*').

Exploratory factor analysis (EFA) with principal axis factoring and oblique Promax rotation (Russell, 2002; Kahn, 2006) was performed. Consistent with the theoretical model of the MSPSS, the scree-test suggests a three-factor structure with family, friends, and significant others as sources

of support. The three factors explain the 82.77% variance. Cronbach's alpha is .95 for the Friends subscale, .92 for Family, and .93 for the Significant Other.

Confirmatory factor analyses were performed, revealing a good fit, χ^2 (df = 24) = 390.02, p < .001, TLI = .98, CFI = .99, RMSEA = .06.

We did not ask students to indicate which person they had identified as their "significant other", but literature suggests that the majority of people think about their friends, partners, and family members (Prezza & Principato, 2002).

Presence of a mentor

Participants were asked to indicate if they have a mentor, a person with experience and competence, a person supporting them in their academic or career path, who is a wise guide, a reference model and a trusted advisor (Noe, 1988; Ragins et al., 2000). Participants were asked to choose from a list the person they recognize as a mentor: a high school professor, internship advisor, faculty member, a workshop/seminar/class tutor, co-worker, superior, relative, friend or others. Table 13 reports how many participants recognize their mentors in one of the people presented in the list.

Table 13.
Number of subjects with a mentor and kind of mentor

	Time 1			Time 2		
	n	% on total	%	*n*	% on total	%
Relative/friend	1031	16.50	34.08	210	15.85	31.63
Faculty member	536	8.56	17.72	136	10.26	20.48
High School professor	670	10.70	22.15	122	9.21	18.37
Internship advisor	217	3.47	7.17	81	6.11	12.20
Workshop/seminar/class tutor	68	1.09	2.25	21	1.58	3.16
Co-worker	91	1.45	3.01	19	1.43	2.86
Superior	80	1.28	2.64	20	1.51	3.01
Other	332	5.30	10.98	55	4.15	8.28
Participants with a mentor	3025	48.31		664	50.11	
Participants without a mentor	2503	39.98		661	49.89	
Total *N*	5528	88.29		1325	100	
Missing	733	11.71				
Total sample	6261	100				

Most participants, both at Times 1 and 2, have a mentor (48% at Time 1 and 50% at Time 2). In our sample, a mentor is often a professor at high school (22% at Time 1 and 18% at Time 2) or at College (18% at Time 1 and 20% at Time 2), a friend or a relative.

Mentor's orientation toward work

Mentor's orientation toward work was measured by the WLP from the *Work-Life Questionnaire* (Wrzesniewski et al., 1997). The measure of a mentor's orientation was provided by the student. Participants rated themselves and their mentor's orientation on the same scale: they were asked to indicate to what degree they felt their mentor identified with job, career and calling orientation toward work ["How much is your mentor like Mr. A (*Job orientation*) - Mr. B (*Career orientation*) – Mr. C (*Calling orientation*)?"].

Table 14 shows means, standard deviations and correlations between the three types of orientation toward work for a mentor at Times 1 and 2.

Table 14.
Correlation between Mentor's job, career and calling orientation

	M	*SD*	Mentor Job O. T1	Mentor Career O. T1	Mentor Calling O. T1	Mentor Job O. T2	Mentor Career O. T2
Mentor Job O. T1	1.31	.69	1				
Mentor Career O. T1	1.98	.99	.13**	1			
Mentor Calling O. T1	3.24	.95	-.42**	-.35**	1		
Mentor Job O. T2	1.30	.68	.23**	.08	-.12**	1	
Mentor Career O. T2	1.97	.98	.08	.38**	-.24**	.11**	1
Mentor Calling O. T2	3.23	.96	-.10*	-.18**	.27**	-.40**	-.32**

Note. ** $p < .01$ * $p < .05$; $N = 2946$ at Time 1; $N = 516$ between Time 1 and Time 2; $N = 928$ between Time 2; Mentor Job O. = mentor's job orientation toward work; Mentor Career O. = mentor's career orientation toward work; Mentor Calling O. = mentor's calling orientation toward work.

Just like for the subject's orientation, a mentor's calling orientation negatively correlates with both career and job orientation. Unlike students' self-report correlations, job and career orientations are positively associated, even if the correlation is small ($r_{T1} = .13$: $r_{T2} = .11$).

Mentorship

Students rated how much their mentor offered role modeling and provided them with vocational and psychological support (Ragins & Cotton, 1999; Pellegrini & Scandura, 2005). According to Kram's mentor role theory (1985), mentors generally help their protégé by carrying out two main functions: career or vocational support and psychological aid, contributing to the

protégé's personal and professional growth. Vocational support means that a mentor provides coaching, exposure, visibility and protection to the protégé, helping their career advancement. Psychosocial functions include acceptance and confirmation, counselling, role modeling and friendship (Kram 1983; Scandura, 1992; Pellegrini & Scandura, 2005).

We selected three mentor functions that are interesting for this study: vocational support, friendship and role modeling. Role modeling is one of the psychological function provided: It refers to the processes where the protégé respects and emulates the mentor, who serves as an object of admiration and sets a desirable example. The more functions are provided by the mentor, the more beneficial the relationship will be to the protégé (Kram, 1983).

The scale adapted for this study consists of 9 items taken from two scales. Three items were adapted from the Vocational Support Subscale of the Mentoring Functions Questionnaire (MFQ-9; Pellegrini & Scandura, 2005); the other six items were adapted from the role model and friendship subscales of the Mentor Role Instrument (Ragins & Cotton, 1999; Ragins & McFarlin, 1990). Examples of items are: "My mentor helps me coordinate professional goals" (Pellegrini & Scandura, 2005), "My mentor is someone I identify with", "My mentor provides support and encouragement" (Ragins & Cotton, 1999). The scale was designed to tap vocational support, psychological support and role modeling. The scale goes from 1 ('*strongly disagree*') to 7 ('*strongly agree*').

Exploratory factor analysis extracted two factors which account for 72.70% of total variance; items concerning psychological and vocational support saturate the first factor, while the second factor represents the role model function. The coefficient alpha for the psychological and vocational support scale is .92, while for the role model subscale it is .77.

Confirmatory factor analysis showed a moderate model fit, χ^2 (df = 22) = 244.20, $p < .001$, TLI = .95, CFI = .97, RMSEA = .09.

Engaged learning

Engaged learning measures "a positive energy invested in one's own learning, evidenced by meaningful processing, attention to what is happening in the moment, and involvement in learning activities" (Schreiner & Louis, 2006, p. 6). The scale used in this study is the translation and adaptation of the Engaged Learning Index (ELI; Schreiner & Louis, 2011). The Engaged Learning Index is a 10-item instrument that measures affective, behavioral, and cognitive components of a student's level of engagement in the learning process. Each item is expressed as a positive or negative statement to which the student responds on a seven-point Likert-type scale ranging from 1 '*strongly disagree*' to 7 '*strongly agree*'.

The scale has three components: focused attention, active participation, and meaningful processing.

The *meaningful processing* factor measures the energy invested in learning, the satisfaction associated with the academic experience and the perception of meaningfulness and relevance of study outside the academic context. An example is "I feel as though I am learning things in my classes that are worthwhile to me as a person". Meaningful processing is the affective dimension of engaged learning.

The *active participation* factor describes behavioral engagement and includes behaviors such as discussing what is being learned outside of academic context, participating and asking questions during class. It describes the interest towards the learning activities, with items like: "I ask my professors questions during class if I do not understand".

The *focused attention* factor is the cognitive component of engagement and includes being interested and paying attention, applying the course material to other aspects of one's life, connecting the material to previous learning. It measures cognitive involvement in the learning process with items like: "Often I find my mind wandering during class" (reverse code item).

An exploratory factor analysis (EFA) using principal axis factoring and oblique Promax rotation (Russell, 2002; Kahn, 2006) was performed. The EFA found three components with eigenvalues over 1.0 which accounted for 55% of the total variance. The three factors are in line with the authors' findings in 2011: meaningful processing with four items accounts for 31.58% of variance, the second "focused attention" factor, with three items, accounts for 16.78% of variance, and the last factor, "active participation", also with three items, accounts for 6.71% of variance. Reliability, as measured by Cronbach's alpha, has been estimated as .83 for Meaningful Processing, .82 for focused attention and .67 for active participation.

Confirmatory factor analysis showed a good model fit, χ^2 (df = 32) = 465.83, $p < .001$, TLI = .93, CFI = .95, RMSEA = .07.

Clarity of professional identity

Clarity of professional identity is "a cognitive awareness of what one's core professional identity is, regardless of whether the individual knows how to translate this identity into action or not" (Dobrow & Higgins, 2005, p. 570). The measure of Clarity of professional identity was adapted from Dobrow and Higgins (2005) and Day and Allen's measure of Career Insight (2004).

The scale consists of four items: "I have clear career goals"; "I know what my professional identity is"; "I know what my future career is"; and "I have a clear idea of my future career". These

items were rated on a seven-point agreement scale, where 1 = *strongly disagree*, and 7 = *strongly agree*.

An exploratory factor analysis (EFA) using principal axis factoring identified one factor accounting for 81.03 of variance. The internal consistency reliabilities (Cronbach's alpha) for the four items was .94. Confirmatory factor analyses were performed, revealing a moderate good fit confirming the one factor solution, χ^2 (*df* = 2) = 7.11, *p* =.03, TLI = .99, CFI = .99, RMSEA = .03.

Table 15 shows all the measures adopted in this study, the number of items utilized to compute the composite scores, the number of respondents, means and standard deviation at Time 1 and Time 2.

Table 15.
Descriptive statistics of variables measured in the study.

	Item	Min	Max	Time 1			Time 2		
				n	*M*	*SD*	*n*	*M*	*SD*
Calling as meaningful passion (ICS)	13	1	7	5676	4.80	1.20	1694	4.97	1.21
Prosocial Orientation (CVQ)	6	1	4	5621	2.87	.75	1697	2.92	.73
Purposeful work (CVQ)	6	1	4	5618	3.09	.63	1699	3.14	.62
Transcendent Summons Presence (CVQ)	3	1	4	5483	2.13	.90	1633	2.02	.92
Transcendent Summons Search (CVQ)	3	1	4	5601	2.67	.86	1673	2.76	.98
Need for Calling	6	1	7	5447	5.46	1.07	1691	5.41	1.06
Engaged learning Meaningful processing	4	1	7	5411	4.92	1.36	1683	5.06	1.34
Engaged learning Focused attention	3	1	7	5371	4.60	1.57	1668	4.78	1.50
Engaged learning Active participation	3	1	7	5413	4.53	1.42	1672	4.99	1.37
Clarity of professional identity	4	1	7	5348	4.15	1.78	1688	4.02	1.79
Social Support by Friend	3	1	7	5353	5.28	1.61	1685	5.30	1.58
Social Support by Special person	3	1	7	5347	5.50	1.69	1681	5.33	1.74
Social Support by Family	3	1	7	5364	5.49	1.62	1687	5.40	1.65
Mentorship – Vocational and Psychological support	6	1	7	2940	4.85	1.70	826	4.53	1.80
Mentorship – Role Model function	3	1	7	2956	5.25	1.44	834	5.34	1.36
Mentor O. Job	1	1	4	2946	1.31	.69	928	1.30	.67
Mentor O. Career	1	1	4	2948	1.98	.99	928	1.97	.98
Mentor O. Calling	1	1	4	2958	3.24	.95	928	3.23	.96
O. Job	1	1	4	5496	1.53	.80	1700	1.57	.83
O. Career	1	1	4	5497	2.39	1.00	1700	2.42	.95
O. Calling	1	1	4	5496	2.90	.98	1700	2.94	.96
Live Calling	1	1	4				1322	2.79	.77

Note. Item = number of item; Min = minimum value; Max = maximum value. Live calling was measured only at Time 2.

The issue of missing data

Before proceeding with hypotheses testing, we analyzed the non-random sampling effect of subject attrition. Goodman and Blum's (1996) strategies for understanding missing data were followed.

The first step was to assess whether attrition affected the probability of being included in the sample based on measures of calling, engaged learning, clarity of professional identity, social support, age, gender and College membership.

Table 16.
Logistic Regression Analysis

	B	*S.E.*	*Sign.*	*Exp(B)*
ICS	.10	.05	.05	1.10
Prosocial orientation	.18	.06	.00	1.20
Purposeful work	-.16	.08	.03	.85
Transcendence Presence	-.11	.05	.03	.89
Transcendence Search	.01	.06	.82	1.01
Need for calling	-.05	.05	.27	.95
EL Meaningful	.06	.04	.12	1.07
EL Attention	.02	.03	.36	1.02
EL Participation	-.03	.03	.28	.97
Clarity of PI	-.02	.02	.42	.98
SS Friend	-.02	.03	.43	.98
SS Special	.00	.03	.91	1.00
SS Family	.01	.03	.59	1.01
Age	-.03	.01	.00	.97
Gender (Male)	-.20	.08	.01	.81
College			.00	
Siena (dummy coded)	-1.12	.18	.00	.33
Florence (dummy coded)	-4.55	.32	.00	.01
Naples (dummy coded)	-1.53	.14	.00	.22
Constant	.29	.34	.39	1.34
-2 log likelihood	4433.79			
Model chi-square	1112.34 $p < .001$			

Note. N = 5010, logistic regression for differences between those who answered or not to the Time 2 survey. Leavers = 1, Stayers = 2. Statistically significant logistic regression coefficients indicate non-random sampling on particular variables; PI = Professional identity; SS = social support.

A logistic regression model was estimated. The dependent variable is dichotomous and distinguishes between participants who responded at Times 1 and 2 (stayers) and who responded at Time 1 only (leavers). The variables ICS, prosocial orientation, purposeful work, search and presence of transcendent summons, social support, clarity of professional identity, engaged learning and age at Time 1 were added as independent variables. We also added two categorical variables:

gender (0 for female and 1 for male) and college affiliation (Padua as reference group). Table 16 shows the results of logistic regression analysis.

The probability of being included in the sample in subsequent data collections depends on prosocial orientation, purposeful work, presence of transcendent summons, age, gender and College affiliation. Respondents who have higher prosocial orientation, lower purposeful work, lower presence of transcendent summons, younger participants and females are more likely to remain in the study.

After the identification of the variables affected by non-random sampling, the effects of sampling on means were estimated. T tests for independent samples were performed, comparing stayers versus leavers on prosocial orientation, purposeful work, presence of transcendent summons and age. Table 17 shows the results.

Table 17.
T test results comparing stayers and leavers

	Means (*SD*)				
	Leavers	Stayers	*t*	*df*	*d*
Prosocial orientation	2.87 (.75)	2.88 (.74)	-.37	5619	.01
Purposeful work	3.10 (.63)	3.05 (.63)	2.16*	5616	-.08
Transcendence Presence	2.12 (.91)	2.15 (.86)	-.89	5481	.03
Age	23.62 (5.5)	22.55 (4.91)	6.22**	5399	-. 21

Note. Standardized mean difference: $d = (M_{stayers} - M_{leavers})$/pooled *SD*. * $p < .05$. ** $p < .001$.

Mean differences are found between stayers and leavers in purposeful work and age, so that leavers are older and tend to have higher purposeful work than stayers. However, the effects of the differences are small (Cohen, 1988). The larger difference between leavers and stayers regards mean age. The group of leavers is older than the stayers and the difference is probably due to the presence of graduate students who do not have access to or do not usually check their institutional mailbox after graduation.

Frequencies of leavers and stayers for each College are reported in Table 18. Students from the University of Padua are more likely to remain than students from other Universities. Students from the University of Padua are probably used to the Moodle Platform and receive more institutional mail for everyday communication than students from other Universities. In addition, due to a logistic mistake, students from the University of Florence were not invited to the second data collection. Therefore, they were unable to take part in the second data collection.

Table 18.
Frequencies of leavers and stayers by College

		Leavers	Stayers	Total
Naples	*n*	219	42	261
	% in Naples	83.9%	16.1%	100%
Padua	*n*	1823	1168	2991
	% in Padua	60.9%	39.1%	100%
Florence	*n*	1571	10	1581
	% in Florence	99.4%	.6%	100%
Siena	*n*	948	105	1053
	% in Siena	90.0%	10.0%	100%
Total	*n*	4561	1325	5886
	% in College	77.5%	22.5%	100%

Results suggest that non-random sampling influences some variables, and that our data are not completely missing at random. However, the differences between stayers and leavers are small (*d* smaller than .20), and we can be rather confident that subject attrition might affect our results to a very limited extent. Missing data will be handled with the direct approach of Full Information Maximum Likelihood estimation (Little & Schenker, 1995; Muthen, Kaplan, & Hollis, 1987).

Statistical approach

Hypotheses concerning the longitudinal relationship between variables and the direction of the relationship were tested using Structural Equation Models (SEMs), specifically the path model approach[16], for longitudinal data. Although we are aware that, strictly speaking, it is not possible to infer causality from non-experimental or quasi-experimental designs, we also think that cross-lagged analysis can provide information about the strength of the temporal relationship among the variables, which is necessary in establishing causality (Bullock, Harlow, & Mulaik, 1994; Martens & Haase, 2006). In this way, the researcher can determine the variable that is a more likely cause of the other. This approach is particularly useful when variables cannot be experimentally manipulated or when experimental designs would be impractical.

The panel models approach (Selig & Little, 2012) is useful when the aim of a study is to identify relations between variables across time. They are useful for initial research into the effect of one variable on another and when the researcher wants to study mediation and moderator effects (Selig & Little, 2012; Little, Preacher, Selig, & Card, 2007).

[16] Path Analysis is an application of Structural Equation Modeling without latent variables.

The relationships between the variables of interest were tested at subsequent time points. Competing causal models were estimated and then compared. The estimated models represent the possible relationship between calling and other variables supposed to be its antecedent or outcomes (social support, mentor's orientation, engagement in learning and clarity of professional identity) through different paths.

The *autoregressive paths,* the effect of a construct on itself measured at a later date, provide information on the stability of the construct between Time 1 and Time 2, with higher values indicating greater stability.

The *cross-lagged paths* measured across variables (e.g., the path between calling measured at Time 1 and engaged learning at Time 2) provide information on the degree to which one variable is a stronger temporal predictor of the other (e.g., Does a stronger relationship exist between baseline calling and later engagement, or vice versa?). Examining cross-lagged relationships it is possible to determine the variable that is a stronger temporal predictor of the other, which constitutes evidence that one variable is a more likely cause of the other (Martens & Haase, 2006). The models used in this study to test the direction of a longitudinal relationship are described below and presented in Figure 1.

a) *Model 1 – Autoregressive Model*: This model is the reference or baseline model. It estimates the temporal stability effects (the autoregressive effects) and the within-wave effects of variables.
b) *Model 2 – Calling as predictor*: The second model resembles Model 1 because it estimates autoregressive effects, but includes additional cross-lagged structural paths from calling dimensions at Time 1 to other variables measured at Time 2 (variable Y in Figure 1).
c) *Model 3 – Calling as outcome*: The third model resembles Model 1, estimating the autoregressive effects (like Model 1), and includes additional cross-lagged structural paths from variables at Time 1 to calling dimensions at Time 2.
d) *Model 4 – Reciprocal Causation Model*: This model resembles Model 1, but includes all the cross-lagged structural paths from Model 2 and Model 3. It is a fully cross-lagged model with the autoregressive effects and the path from all the variables al Time 1 predicting each other's variables measured at Time 2.

The fit of the competing models was assessed to determine which model fitted the data best. Because the autoregressive model was nested within Models 2, 3 and 4, the chi-square difference test was used to assess change in fit upon release of constraints (Kline, 2011). If paths are added (Model 2, 3 and 4) and the fit remains statistically equivalent to the more parsimonious baseline model (Model 1), the latter has to be chosen, as the addition of cross lagged paths does not improve

the model over and above the stability paths. A significant chi-square difference test suggests that the less constrained model (Model 2 vs 1, Model 3 vs 1, Model 4 vs 1) provides a significantly better fit to the data than the more parsimonious model (Model 1). Consequently, when a less constrained model fits the data better than the more constrained model, there is empirical evidence of the usefulness of the extra parameters that have been freed in the more complex model, which are then kept in the final - best-fitting- model.

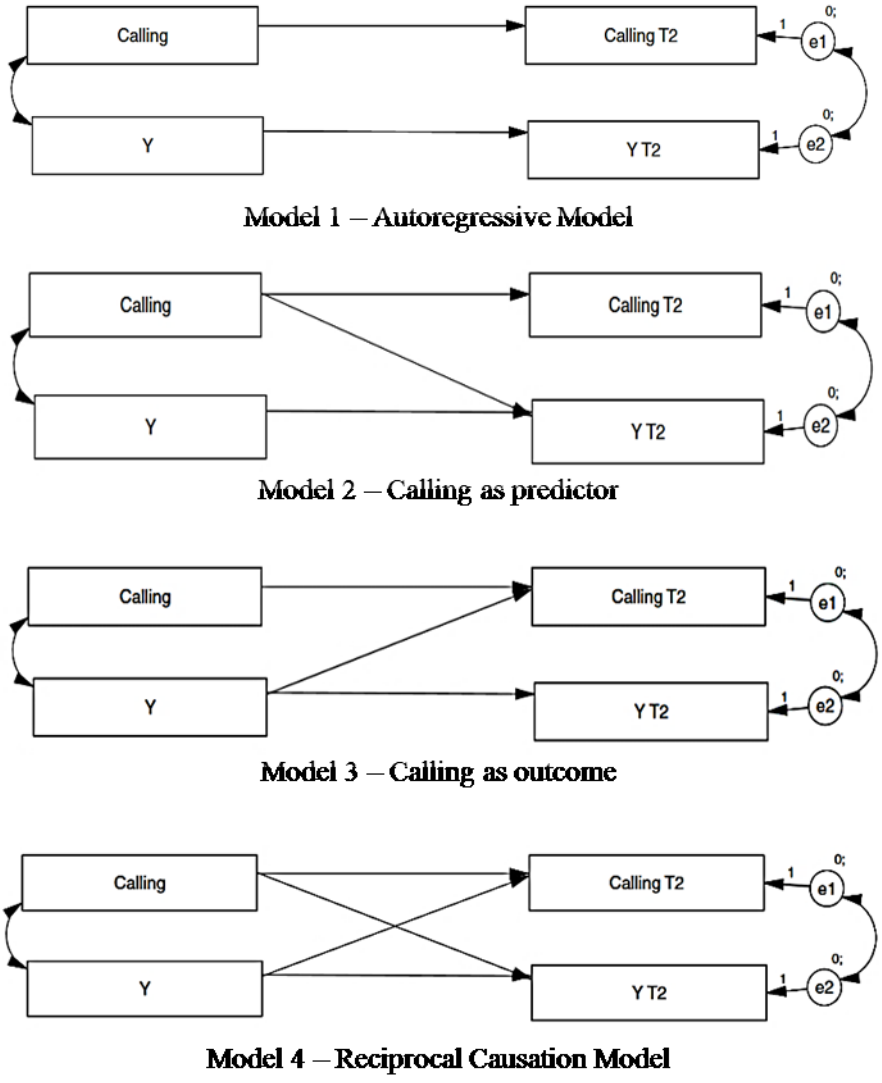

Figure 1. Models 1 to 4 of the cross-lagged analysis of calling and an exemplificative measure Y over two time points. e1 and e2 = disturbance terms associated with the variables at T2. Only observed variables were used to test the hypothesis.

The chi-square correctness of fit statistic assesses the discrepancy between the sample and fitted covariance matrices. A non-significant or small chi-square value indicates that the model fits

the data well. In large samples, however, even small unimportant differences between the estimated model and the 'true' underlying model will result in rejection of the model that is tested (Bentler & Chou, 1987). Given that the chi-square is dependent on sample size (Tabachnick & Fidell, 2007), the following fit indices were adopted to assess the differences among the competing nested models and their fit:

- the CMIN/DF (χ^2/df) is the χ^2 degrees of freedom ratio, it adjusts the minimum discrepancy (CMIN is the minimum value of the discrepancy function between the sample covariance matrix and the estimated covariance matrix) for model complexity (degree of freedom). Values lower than 2 represent an adequate fit.
- the Comparative Fit Index (CFI; Bentler, 1990) and the Tucker-Lewis Index (TLI) are incremental fit indices which measure the improvement in fit by comparing a model with a more restricted nested model.

  The *Tucker–Lewis Index* (TLI; Bentler & Bonett, 1980) compensates for the effect of model complexity. Values close to or lower than .95 indicate good fit.

  The *Comparative Fit Index* (CFI) compares the proposed model to an independent model that considers all study variables to be uncorrelated. The index adjusts for model parsimony and model complexity. Values greater than .90 represent adequate fitting models and values greater than .95 represent good fitting models (Hu & Bentler, 1999).
- The *Root Mean Square Error of Approximation* (RMSEA; Jöreskog & Sorbom, 1993) and the *Akaike Information Criterion* (AIC; Akaike, 1987) are absolute fit indices that assess how well the model reproduces the sample data without a reference model.

  The *RMSEA* takes into account degrees of freedom and, as such, is sensitive to model complexity. A perfectly fitting model will obtain an RMSEA of zero. Values equal to or less than .06 suggest good fit (Hu & Bentler, 1999), and values less than .10 signify adequate fitting models (Browne & Cudeck, 1993). In addition, Amos 23 (Arbuckle, 1995) provides the lower limit and upper limit of a 90% confidence interval on the population value of RMSEA.

  The *AIC* considers the fit and the number of parameter. The model with the smallest AIC value (Kline, 2011) is preferred. It is more useful to compare not nested models.

The differences in CFI and RMSEA between competing models were computed, subtracting the value of the less restricted model (the models with more free parameters: Models 2, 3 and 4) from the more restricted model (Model 1, or autoregressive model). Greater CFI indicates better fit, so if the CFI difference is negative, the less restricted model presents a better fit than the more restricted model (Models 2, 3 or 4 have a greater CFI than Model 1). Regarding RMSEA, negative

difference suggests a better fit for the more restricted model (Model 1). If the delta is negative, Models 2, 3 or 4 have a greater RMSEA than Model 1. Differences in CFI greater than .01 (Chen, 2007; Cheung & Rensvold, 1999) and greater than .015 in RMSEA (Chen, 2007), suggest a significant change in fit from the baseline model (Model 1), to the most complex and less restricted models (Models 2, 3 and 4).

CHAPTER 4. LONGITUDINAL RELATIONSHIPS BETWEEN HAVING A CALLING, SOCIAL SUPPORT AND MENTORSHIP

This chapter presents the analyses performed to test the first two research questions. The first research question concerns the role of social support in the development of calling. The second research question focuses on the role of the presence of a mentor and their orientation toward work on students' calling development and attitude toward work.

Introduction

Drawing from Dobrow (2006, 2013), two possible antecedents of the presence of a calling and of its development were identified. First, the support provided by family, friends and a special person was expected to increase the level of a calling over time (Hp 1a). Second, the presence of a mentor and their orientation toward work were analyzed in order to test their effects on the presence of a calling and its development over time. The presence of a mentor was expected to have a positive effect on the level of calling (Hp 2a) and its development over time (Hp 2b, Hp 2c). Mentor orientation toward work was expected to influence the protégé's orientation and calling toward work (Hp 2d).

We used Structural Equation Modeling to test the presence of a longitudinal relationship and the direction of the influence among calling, social support and mentor orientation toward work, using GLM for repeated measures to test the effect of a mentor on calling.

The direction of the longitudinal relationship between social support and calling.

Perceived social support has low to medium positive correlations (*r* ranges from .03 to .29) with different measures of calling. The presence of a supportive environment is positively related within time with calling, even if the sizes of the associations are small. The larger correlation is between the need for calling and support provided by a special person at Time 2 ($r = .29$). The correlations with the intention to continue studying are positive but slight in intensity, with *r* ranging from .07 between friends' support and intention to continue studying at Time 2, to $r = .16$ between family's support and intention to continue studying at Time 1. Table 19 reports the correlation matrix, means and standard deviations.

Table 19.
Correlations between measures of calling and social support (SS)

	M (*DS*)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. ICS T1	4.80 (1.20)	1																				
2. ICS T2	4.97 (1.21)	.65**	1																			
3. Prosocial orientation T1	2.87 (.75)	.30**	.21**	1																		
4. Prosocial orientation T2	2.92 (.73)	.21**	.25**	.68**	1																	
5. Purposeful work T1	3.09 (.63)	.45**	.28**	.38**	.23**	1																
6. Purposeful work T2	3.14 (.62)	.39**	.44**	.27**	.32**	.56**	1															
7. Transcendent Summons P. T1	2.13 (.90)	.40**	.28**	.36**	.24**	.38**	.22**	1														
8. Transcendent Summons P. T2	2.02 (.92)	.29**	.33**	.25**	.30**	.23**	.36**	.55**	1													
9. Transcendent Summons S. T1	2.67 (.86)	-.02	-.07*	.15**	.10**	.30**	.19**	.15**	.07**	1												
10. Transcendent Summons S. T2	2.76 (.98)	-.14**	-.14**	.03	.06**	.12**	.15**	.01	.06*	.51**	1											
11. Calling Orientation T1	2.90 (.98)	.42**	.33**	.28**	.25**	.32**	.27**	.23**	.19**	-.02	-.06*	1										
12. Calling Orientation T2	2.94 (.96)	.37**	.38**	.26**	.28**	.25**	.32**	.18**	.20**	-.03	-.07**	.41**	1									
13. Need for Calling T1	5.46 (1.07)	.35**	.25**	.50**	.38**	.48**	.37**	.42**	.28**	.33**	.21**	.33**	.22**	1								
14. Need for Calling T2	5.41 (1.06)	.27**	.30**	.43**	.51**	.32**	.41**	.38**	.49**	.17**	.15**	.23**	.32**	.54**	1							
15. SS Friends T1	5.28 (1.61)	.15**	.11**	.16**	.16**	.11**	.09**	.07**	.10**	.03*	-.01	.14**	.12**	.17**	.18**	1						
16. SS Friends T2	5.30 (1.58)	.10**	.13**	.11**	.17**	.05	.08**	.07*	.09**	.03	.01	.08**	.09**	.18**	.21**	.67**	1					
17. SS Special T1	5.50 (1.69)	.19**	.20**	.18**	.13**	.14**	.12**	.12**	.12**	.02	-.07*	.12**	.13**	.21**	.22**	.42**	.30**	1				
18. SS Special T2	5.33 (1.74)	.16**	.26**	.12**	.18**	.10**	.17**	.14**	.16**	.01	-.02	.11**	.14**	.18**	.29**	.30**	.42**	.62**	1			
19. SS Family T1	5.49 (1.62)	.16**	.13**	.11**	.08**	.11**	.05	.08**	.09**	.01	-.004	.12**	.08**	.15**	.11**	.42**	.28**	.43**	.35**	1		
20. SS Family T2	5.40 (1.65)	.08**	.18**	.07*	.12**	.04	.10**	.07*	.09**	.02	.02	.06*	.06*	.11**	.17**	.25**	.40**	.32**	.43**	.75**	1	
21. Intention T1	3.84 (.45)	.29**	.19**	.06**	-.001	.11**	.06*	.08**	.05	-.07**	-.07*	.13**	.08**	.03*	-.01	.15**	.08**	.11**	.07**	.16**	.05	1
22. Intention T2	3.90 (.37)	.15**	.23**	.05	.08**	.08**	.13**	.03	.04	-.08**	-.06*	.11**	.13**	.02	.07**	.06*	.07**	.09**	.11**	.10**	.14**	.31**

Note. *N* from 5621 to 1237; T1 = measured at Time 1; T2 = measured at Time 2; ICS = Calling measured with ICS (Dobrow & Tosti-Kaharas, 2011); SS = Social Support provided by Friends, Special Person and Family; Intention = Intention to continue studying. ** $p < .01$. * $p < .05$.

Data analysis

Structural Equation Modeling was utilized to test the presence of a relationship between social support and calling over time and the direction of the effect. Calling at Time 2 was expected to be positively predicted by social support at Time 1. Social support at Time 2 was expected not to be predicted by calling at Time 1. We expect the presence of positive paths from social support by friends, family and a special person to calling measured with: ICS, CVQ (four factors: presence of and search for transcendent summons, prosocial orientation, and purposeful work), calling orientation[17] (WLP; Wrzesniewski et al., 1997), need for calling, and living out a calling[18]. We also analyzed the paths between social support and intention to continue studying.

Four path models were estimated and compared:

- Model 1 - Autoregressive model. A baseline model estimating the path between the same variables measured at Times 1 and 2. The autoregressive paths are estimated between: calling measured with ICS, search for transcendent summons, presence of transcendent summons, prosocial orientation, purposeful work, calling orientation, need for calling, intention to continue studying, social support from family, friends and a special person.
- Model 2 - Social Support predicts calling. A model estimating the effects of stability on autoregressive paths and the effect of the three sources of social support at Time 1 on all the other variables at Time 2 with cross-lagged paths. The errors in variable were allowed to covary within Time 1 and Time 2, reflecting the fact that there are simultaneous relationships among variables, but the directions of these relationships are not known (MacKinnon, 2008).
- Model 3 – Calling predicts social support. A model estimating the effects of stability on autoregressive paths and the effect of the measures of calling at Time 1 on the three sources of social support at Time 2 with cross-lagged paths. The errors in variable were allowed to covary within Time 1 and Time 2, reflecting the fact that there are simultaneous relationships among variables, but the directions of these relationships are not known (MacKinnon, 2008).
- Model 4 - Complete cross-lagged model. This model includes the autoregressive paths and the effects of calling, need for calling, intention to continue studying at Time 1 on social

[17] Calling orientation was measured as the perceived similarity with the attitudes and behaviors of a person living work as a calling (Mr. C). The rating was collected with one item from the WLP by Wrzesniewski et al. (1997).

[18] Living out a calling was measured only at Time 2. All the other measures were collected at both points in time.

support at Time 2 and the opposite effects from social support at Time 1 on calling, need for calling, living out calling and intention to continue studying at Time 2.

We expect the second model to be the best fitting model.

Results

All models have a moderate fit to the data, CFI is higher than .95 and RMSEA is lower than .05 (Bentler, 1992; Hu & Bentler, 1999; Byrne, 2006): Autoregressive model, $\chi^2 = 809.61$, $df = 123$, $p < .001$, CFI = .97, RMSEA = .03; Model 2: $\chi^2 = 692.44$, $df = 96$, $p < .001$, CFI = 97, RMSEA= .03; Model 3: $\chi^2 = 777.42$, $df = 99$, $p < .001$, CFI = 97, RMSEA= .03; Cross-lagged model: $\chi^2 = 664.25$, $df = 72$, $p < .001$, CFI =.97, RMSEA = .04. A summary of results is shown in Table 20.

Table 20.
Fit indices for the Competing Models: autoregressive model, causal structural models and fully cross-lagged model.

	χ^2	*df*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
							LL	*UL*	
Model 1 - Autoregressive	809.612	123	6.582	.930	.969	.03	.028	.032	1161.612
Model 2 - Social Support predicts Calling	692.436	96	7.213	.922	.973	.032	.029	.034	1098.436
Model 3 – Calling predicts Social Support	777.42	99	7.85	.914	.969	.033	.031	.035	1177.42
Model 4 Cross-lagged	664.248	72	9.226	.897	.973	.036	.034	.039	1118.248

Note. All chi-squared values are significant at $p < .001$. Models 2, 3 and 4 have more parameters, less restrictive models than Model 1. Models 2, 3 and 4 are nested within Model 1.

We compared Model 2, Model 3 and Model 4 to the most parsimonious model (Model 1) to test whether a model which postulates a longitudinal relationship between social support, calling and intention to continue studying better describes the data than a model with no cross-lagged effects over time. Table 21 shows the results.

The chi-square difference test is significant for the comparison between Model 1 with Model 2 and Model 4. The CFIs of Model 2 and 4 are bigger than the CFI of Model 1. Model 2 and Model 4, which estimate a cross-lagged effect between calling and social support over time, present a better fit to the data than the Autoregressive model. The test of the difference in chi-square and the difference in CFI indices suggest that the cross paths increase the model fit from the baseline

model. Models estimating a relationship over time between social support, calling and intention to continue studying have a better fit than the autoregressive model. Model 3 does not have a better fit to the data than Model 1, the chi-square difference test is not statistically significant. Model 3 estimates the cross-lagged effect from calling at Time 1 to Social Support at Time 2. Therefore, this analysis suggests that calling at Time 1 does not influence the perception of social support at Time 2.

Table 21.
Results of Nested-Models comparisons

	ΔCFI	ΔRMSEA	Δχ2	Δ*df*
Model 1 versus Model 2 Baseline model versus Social Support influences Calling	-.004	-.002	117.176*	27
Model 1 versus Model 3 Baseline model versus Calling influences Social Support	.00	.003	32.20[a]	24
Model 1 versus Model 4 Baseline Model versus Reciprocal Causation Model	-.004	-.006	145.364*	51

Note. [a] $p = .12$; * chi-squared values are significant at $p < .001$.

We then compared Model 2 and Model 4, to test which direction of influence, from social support to calling or reciprocal, better described the data. Although TLI and RMSEA would suggest that model 2 fits the data better than the reciprocal causation model, the chi-square difference test between Model 2 and 4 is not statistically significant ($\Delta\chi^2 = 28.19$, $\Delta df = 24$, $p = .25$). Consequently, adding the path from calling (T1) to social support (T2) does not significantly increase the model fit. We can therefore conclude that the longitudinal relationship between social support and calling goes in one direction only, specifically from the former to the latter. Figure 2 depicts significant paths.

An examination of parameters reveals that the support provided by a special person positively predicts an increase in calling as meaningful passion[19] ($\gamma = .11$), calling orientation ($\gamma = .06$), need for calling ($\gamma = .13$) and living out a calling ($\gamma = .20$). Support provided by a special person decrease the search for transcendent summons ($\gamma = -.07$). Friend support increases prosocial orientation ($\gamma = .07$), family support increases the intention to continue studying ($\gamma = .06$).

[19] Calling measured with ICS (Dobrow & Tosti-Kharas, 2011).

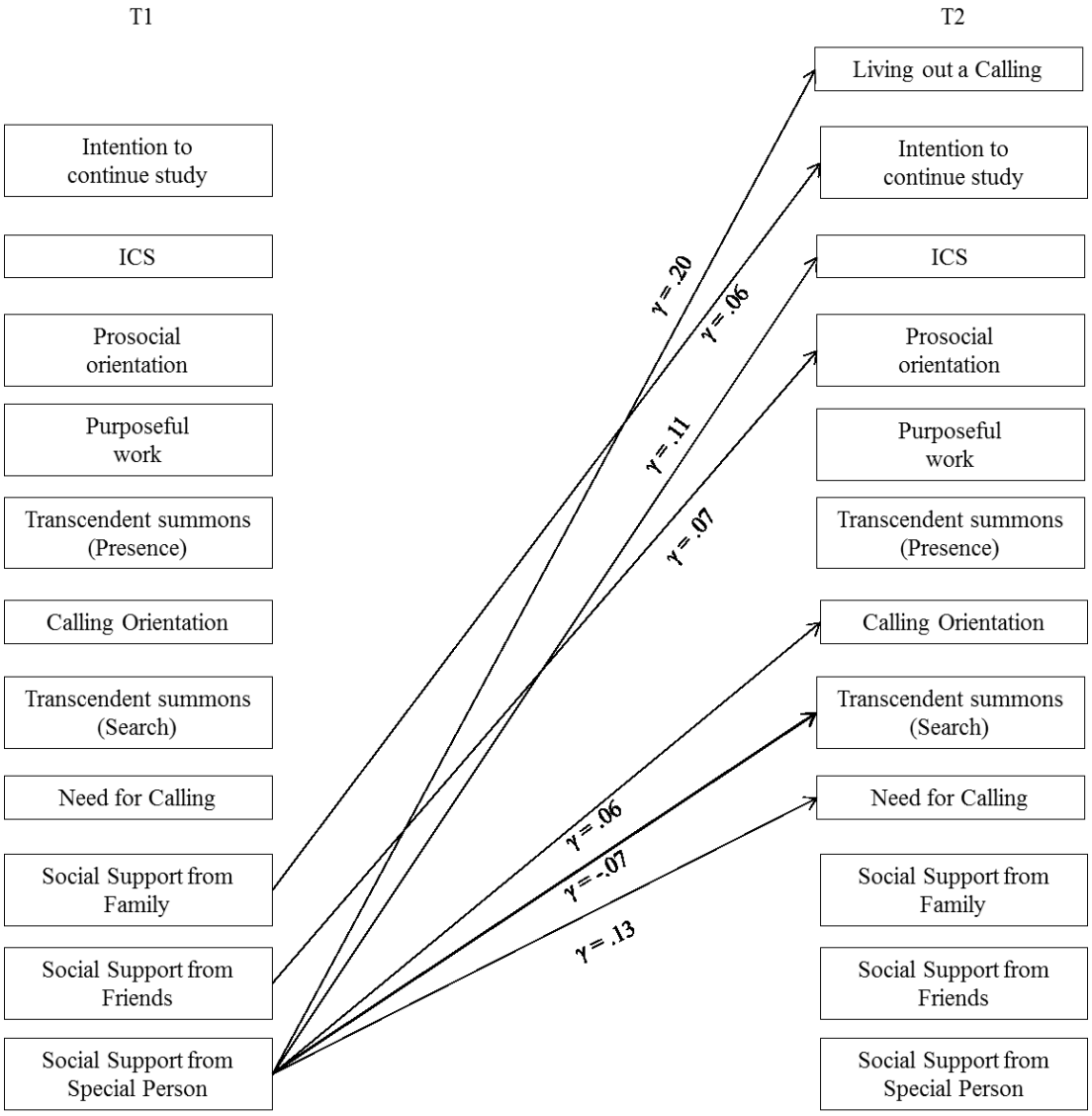

Figure 2. One-way relationships between calling and social support based on a time lag of 1 year. Only significant standardized cross lagged effects are presented (after controlling for covariates within time); stability effects and correlation not shown.

Calling is influenced by the degree to which a special person is a source of help and support. The support provided by a special person has a greater effect on whether and how people live out their calling, but unfortunately we did not measure this construct in the first data collection, so the actual effect is probably smaller since we cannot control for the auto-correlation of this measure between time points. The support provided by friends has a small effect on prosocial orientation, and the support provided by family has no effect on calling. These results confirm our hypothesis: a supportive social environment fosters the development of a calling and the possibility to live it out. Even if the effects observed are small, they confirm the hypothesis that the social environment is important in the development of calling.

The mere presence of a mentor: effects on calling and its development.

The second research questions concern the role of a mentor and their orientation toward work in students' experience of having a calling. In this section, first of all we present the results of the GLM, testing the effect of a mentor on level and development of calling and orientation toward work (job, career and calling). Then we analyze the longitudinal relationship between mentor orientation toward work and protégé orientation toward work and calling.

At Time 1, 55% of participants (n = 3025 of the 5528 respondents) declared that they had a mentor. At Time 2, 49% (n = 840 of the 1700 respondents) declared that they had a mentor. The sample was divided into subjects with a mentor both at Times 1 and 2, subjects without a mentor in either data collection, students with a mentor only at Time 1 ("Lost a mentor" group) and students with a mentor only at Time 2 ("Found a mentor" group). Frequencies of students in each group are reported in Table 22. Among the 485 subjects with a mentor both at Times 1 and 2, 337 indicated that their mentors belonged to the same category at both data collections (e.g. professor, friend, colleague), the remaining 148 indicated a mentor at Time 2 belonging to a different category than at Time 1 (e.g. at Time 1 the mentor is a professor and at Time 2 a friend). Since the focus of this analysis is the presence of a mentor in the student's life, the group of students with a mentor both at Times 1 and 2 was analyzed together, regardless of the category to which the mentor belonged.

Table 22.

Frequencies of students by condition.

	n	% of total
Group 00: No mentor both at T1 and T2	429	32%
Group 01: Found a mentor (No mentor at T1, presence of a mentor at T2)	171	13%
Group 10: Lost a mentor (Presence of a mentor at T1, no mentor at T2 at T2)	226	17%
Group 11: Presence of a mentor both at T1 and T2	485	37%
Total *N*	1325	

The mere presence of a mentor influences student calling and development.

Data analysis

In order to test whether the mere presence of a mentor has an effect on calling and its development, we estimated generalized linear models for repeated measures. The dependent variables were the protégé's calling as meaningful passion (ICS), prosocial orientation, purposeful

work, transcendent summons (presence and search), need for calling, clarity of professional identity, engaged learning, job, career and calling orientations measured at Time 1 and Time 2 (within subject variables). The independent variables were the presence of a mentor at Time 1 and Time 2 (between-subject variables with 2 levels: with vs without a mentor). GLM procedure in SPSS 23 was utilized. A full factorial design was estimated with the main effects of both the within (time) and between subjects (presence of a mentor at Time 1 and Time 2) factors, the interaction terms between presence of mentor at T1 and time, the interaction term between presence of mentor at T2 and time, and the interaction term between presence of mentor at T1, presence of mentor at T2 and time.

The mere presence of a mentor was expected to be related to higher levels and to an increment over time of the student's calling (ICS), presence of transcendent summons, prosocial orientation, purposeful work, calling orientation toward studying, clarity of professional identity and engagement in learning. The key confirmatory result for the hypotheses concerning the beneficial effect of a mentor on the level of the dependent variables is a significant main effect of the presence of a mentor at Times 1 and 2. As the presence of a mentor is supposed to influence the longitudinal development of the dependent variables, the second key confirmation results for hypotheses regarding the effect of a mentor on the development of dependent variables is a significant interaction effect between the presence of a mentor and time.

A different effect of the presence of a mentor on searching for transcendent summons is hypothesized (Hp 2c). Specifically, a mentor is supposed to help students discover and persevere their calling. Consequently, we expected to find that students with a mentor have a lower level of and a decrease in searching for transcendent summons across time (significant main effect of the presence of a mentor and significant interaction effect between mentor and time).

We performed *t*-tests and post-hoc analysis in order to test whether the dependent variables significantly increase from Time 1 to Time 2 within each group or not, and if the differences in the level of dependent variables are statistically significant within time and groups.

Results

Results of GLM analysis are reported for each dependent variable in the following section of the chapter and are summarized in Appendix 1, Table 1.

Calling - meaningful passion

Calling (ICS, Dobrow & Tosti-Kharas, 2011) increased from T1 to T2, $F(1,1298) = 48.97$, $\mu^2 = .04$. There were no significant interactions between time and the presence of a mentor; there were

significant main effects of the presence of a mentor at T1 and T2 on ICS. Having a mentor at T1, $F(1,1298) = 25.91$, $\mu^2 = .02$, and having a mentor at T2, $F(1, 1298) = 13.55$, $\mu^2 = .01$, positively influenced the level of ICS.

Table 23.
Descriptive Statistic of ICS by group of students and observations.

	Total (n = 1302)		Group 00 (n = 425)		Group 01 (n = 170)		Group 10 (n = 225)		Group 11 (n = 482)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
Time 1	4.78	1.17	4.50	1.15	4.66	1.17	4.85	1.15	5.05	1.13
Time 2	4.99	1.20	4.70	1.25	4.97	1.20	4.96	1.16	5.28	1.11

Note. Group 00: No mentor both at T1 and T2; Group 01: Found a mentor; Group 10: Lost a mentor; Group 11: Presence of a mentor both at T1 and T2.

Figure 3 represents graphically the level of calling and the change from T1 to T2 for the four groups of students. Students with a mentor have the highest level of calling; students without a mentor (the solid line) have the lowest level of calling. These differences between students with and without a mentor remain stable over time so that, even if both groups increase over time, those with a mentor still present a higher level of calling after one year. The presence of a mentor both at Times 1 and 2 fosters the level of calling as meaningful passion.

All groups of students seem to increase in calling over time, in fact no significant interaction effects between mentor and time were found. However, the group of students who lost a mentor from Time 1 to Time 2, in contrast to the other students, did not significantly increase in calling; paired t-test: $t(224) = -1.43$, $p = .15$. Therefore, students tend to increase in calling over time independently of the presence of a mentor, but losing a mentor slows down the development of calling.

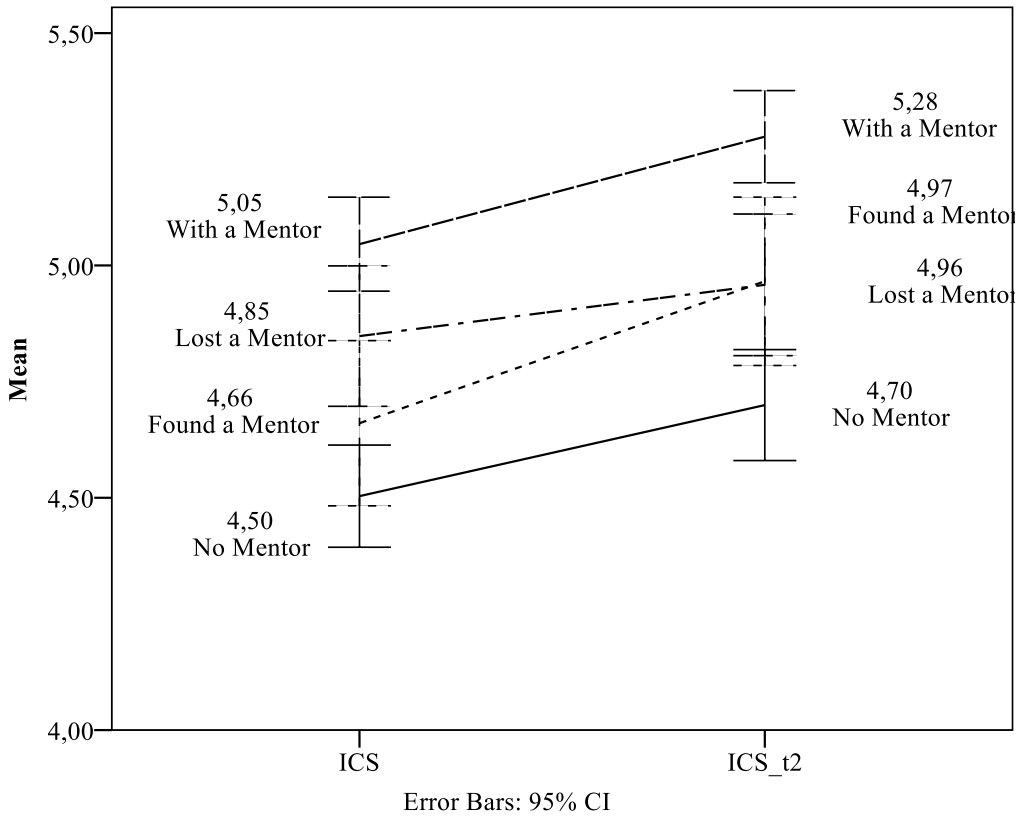

Figure 3. Interaction effect. Profile plot of ICS measure by observation (X axis) and presence of a mentor (different lines). Only students who lost a mentor did not significantly increase in calling over time. Students with a mentor had a higher level of calling than students without a mentor and the difference was stable over time.

Calling - transcendent summons presence

Two measures of transcendence summons were adopted: presence of and searching for transcendent summons (CVQ; Dik et al., 2012). The effect of presence of a mentor on the presence of transcendent summons is similar to the effect of a mentor on calling as meaningful passion measured with ICS (Dobrow & Tosti-Kharas, 2011).

There is a significant main effect of the presence of a mentor at T1, $F(1, 1232) = 18.61$, $\mu^2 = .02$, and T2, $F(1, 1232) = 35.70$, $\mu^2 = .03$, therefore students with a mentor have a higher presence of transcendent summons than students without a mentor. This difference remains stable over time so that students with a mentor have higher transcendent summons than students without a mentor, both at Time 1 and Time 2. In addition, students without a mentor have the lowest level of presence of transcendent summons at Time 1. Differently from other measures of calling, the presence of transcendent summons decreased from T1 to T2, $F(1, 1232) = 21.98$, $\mu^2 = .02$. The two groups of students that significantly decreased in the presence of transcendent summons are those with a

mentor [$t(460) = 2.29$, $p = .02$] and who lost a mentor [$t(213) = 3.59$, $p < .001$]. See Figure 4 for a graphical representation.

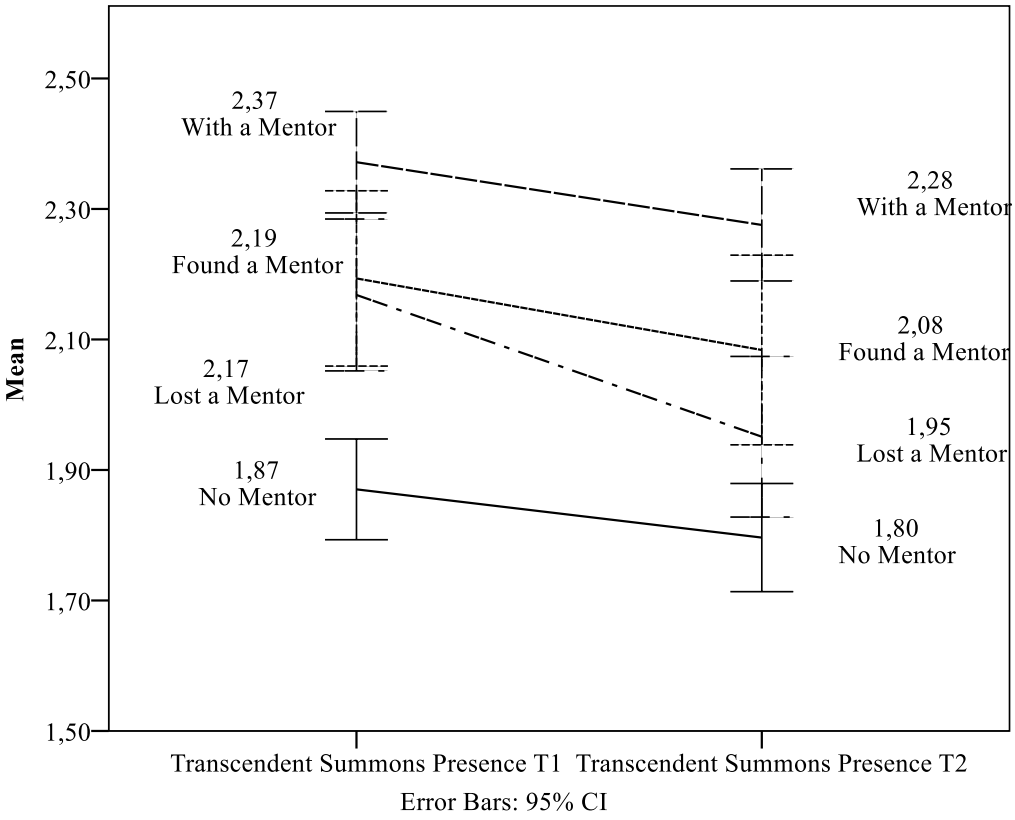

Figure 4. Interaction effect. Profile plot of Presence of Transcendent Summons measure by observation (X axis) and presence of a mentor (different lines). Students with a mentor have a higher level of presence of transcendent summons than students without a mentor and the difference is stable over time. The presence of a mentor and their loss have a negative effect on transcendent summons that significantly decreases.

Table 24 summarizes mean and standard deviation for four groups.

Table 24.
Descriptive Statistic of Presence of Transcendent Summons by Group of students and observations

	total (N = 1236)		Group 00 (n = 406)		Group 01 (n = 155)		Group 10 (n = 214)		Group 11 (n = 461)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
Time 1	2.15	.86	1.87	.79	2.19	.85	2.17	.86	2.37	.85
Time 2	2.04	.92	1.80	.85	2.08	.92	1.95	.91	2.28	.94

Note. Group 00: No mentor both at T1 and T2; Group 01: Found a mentor; Group 10: Lost a mentor; Group 11: Presence of a mentor both at T1 and T2.

Table 25 shows mean and standard deviation of Transcendent summons for students with and without a mentor at Times 1 and 2.

Table 25.
Descriptive Statistic of Presence of Transcendent Summons by Presence of a Mentor and observations.

	With a Mentor at T1 (n = 561)		Without a Mentor at T1 (n = 675)		With a Mentor at T2 (n = 618)		Without a Mentor at T2 (n = 622)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
Time 1	2.31	.86	1.96	1.96	2.33	.85	1.97	.83
Time 2	2.17	.94	1.88	1.88	2.23	.94	1.85	.87

Calling - transcendent summons search

We expect students with a mentor to have a lower level of searching for transcendent summons and to decrease in searching for transcendent summons throughout time. Findings are in line with this hypothesis, in fact students without a mentor at T1 present a higher level of searching for transcendent summons at T2 than students with a mentor and students without a mentor at Time 1 present the greater increment in searching for transcendent summons.

There is a significant main effect of a mentor at T1, $F(1, 1280) = 6.09$, $\mu^2 = .01$ and a three way significant interaction between presence of mentor at T1, at T2 and time, $F(1, 1280) = 4.89$, $\mu^2 = .004$. At Time 1 there are no differences in the level of transcendent summons between students, but at Time 2, students without a mentor (Group 00) are searching more for their transcendent summons than the two groups of students with a mentor at Time 1 (Group 11 and Group 10).

Table 26.
Descriptive Statistics of Searching for Transcendent Summons by Group of students and observation

	Total (n = 1284)		Group 00 (n = 418)		Group 01 (n = 168)		Group 10 (n = 220)		Group 11 (n = 478)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
Time 1	2.68	.80	2.64	.78	2.79	.85	2.68	.84	2.66	.78
Time 2	2.79	.97	2.89	.92	2.88	.96	2.66	1.01	2.73	.98

Note. Group 00: No mentor both at T1 and T2; Group 01: Found a mentor; Group 10: Lost a mentor; Group 11: Presence of a mentor both at T1 and T2.

In the total sample, the transcendent summons search increases from T1 to T2, $F(1, 1280) = 12.30$, $\mu 2 = .01$, and there is a significant interaction between time and the presence of a mentor at T1, $F(1, 1280) = 7.56$, $\mu^2 = .01$. The significant interaction of time and presence of a mentor means that the groups' level of searching for a transcendent summons changes over time and in different ways between the four groups. Indeed, only students without a mentor (the solid line) significantly

increase their search for transcendent summons between Time 1 and Time 2, while the other groups remain stable (see Figure 5). The effect[20] of the change in transcendent summons of students without a mentor is $d = .28$, paired t-test: $t(417) = -6.17$, $p < .001$.

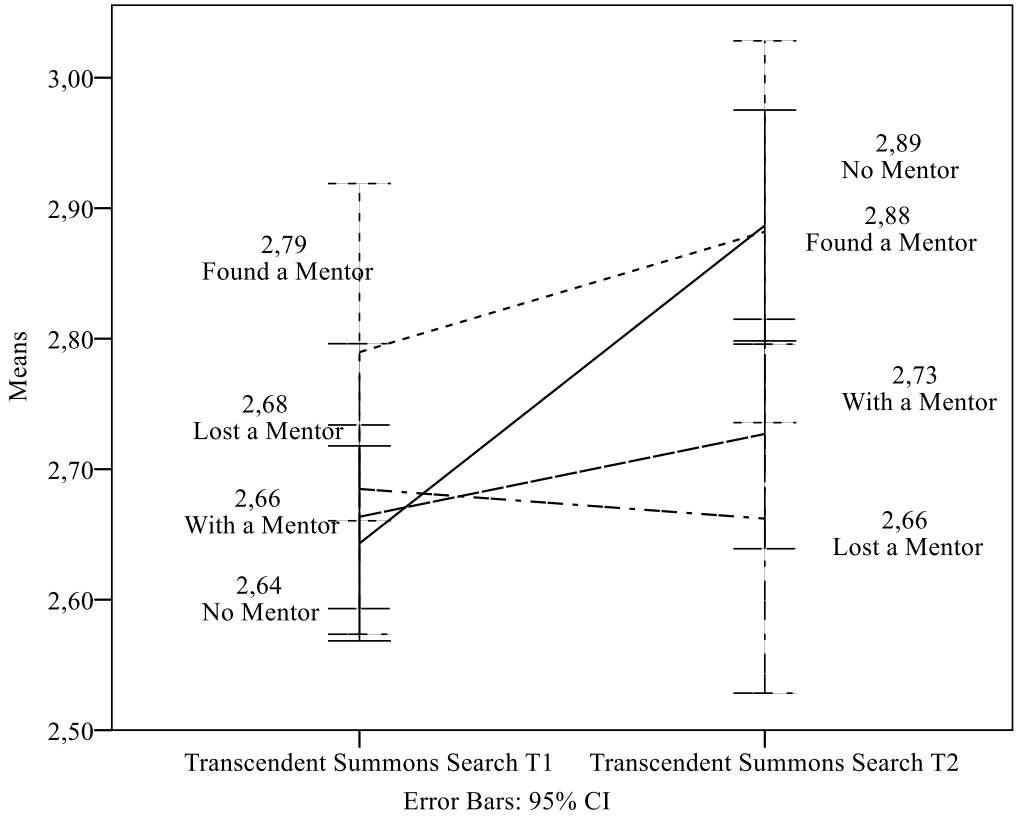

Figure 5. Interaction effect. Profile plot of Searching for Transcendent Summons measure by observation (X axis) and presence of a mentor (different lines). Students without a mentor (solid line) significantly increase their search for transcendent summons and have a higher mean at Time 2 than students with a mentor and who have lost a mentor (the two groups with a mentor at Time 1).

Students without a mentor at Time 1 increase their search for a transcendent summons more, and score higher at Time 2 than students with a mentor at Time 1 (in figure 5, the "No mentor" groups score higher than students with a mentor and students that have lost a mentor). Consequently, students without a mentor on the starting point are still looking for their summons after one year and their search for a summons increases over time.

Students with a mentor at Time 1 who lost it at Time 2 seem to slightly decrease their search for transcendent summons and students with a mentor at both Time 1 and 2 seems to slightly increase their search for transcendent summons. However, the mean differences are not statistically significant.

[20] Standardized mean difference for repeated measures.

Calling - prosocial orientation

Prosocial orientation (CVQ; Dik et al., 2012) increases from T1 to T2, $F(1,1299) = 7.96$, $\mu^2 = .005$. Specifically, students with a mentor and without a mentor both at Times 1 and 2 significantly increase their prosocial orientation.

There are a significant main effects of the presence of a mentor at T1, $F(1, 1299) = 7.20$, $\mu^2 = .01$, and T2 on prosocial orientation, $F(1, 1299) = 13.38$, $\mu^2 = .01$.

Students with a mentor present a higher level of prosocial orientation than students without a mentor (see Figure 6 and 7).

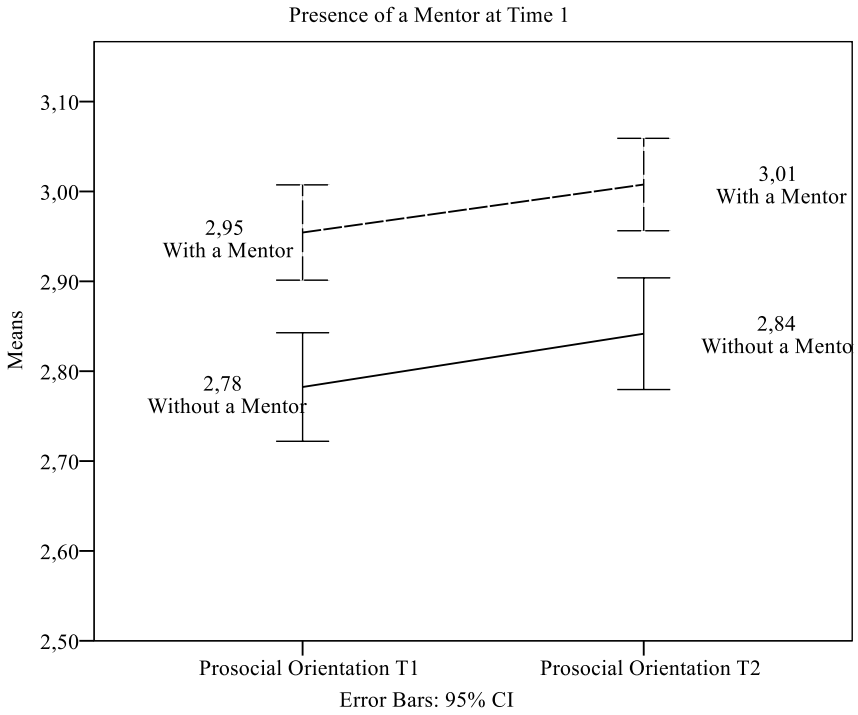

Figure 6. Interaction effect. Profile plot of Prosocial Orientation measure by observation (X axis) and presence of a mentor at Time 1 (different lines).

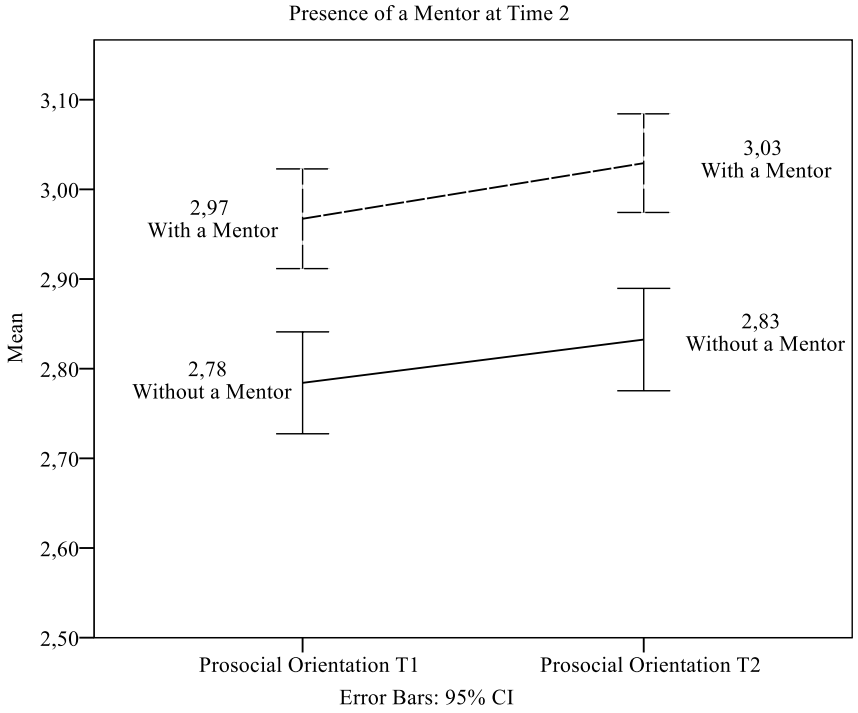

Figure 7. Interaction effect. Profile plot of Prosocial Orientation measure by observation (X axis) and presence of a mentor at Time 2 (different lines).

Table 27.
Descriptive Statistics of Prosocial Orientation by Group of students and observations

	Total (n = 1303)		Group 00 (n = 424)		Group 01 (n = 169)		Group 10 (n = 225)		Group 11 (n = 485)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
Time 1	2.88	.74	2.73	.73	2.91	.77	2.89	.74	2.98	.71
Time 2	2.93	.74	2.79	.76	2.96	.79	2.91	.70	3.05	.69

Note. Group 00: No mentor both at T1 and T2; Group 01: Found a mentor; Group 10: Lost a mentor; Group 11: Presence of a mentor both at T1 and T2.

Calling - purposeful work

The level of purposeful work (CVQ; Dik et al., 2012) significantly increases over time, $F(1, 1301) = 32.56$, $\mu^2 = .02$. There is a significant effect of interaction between time and the presence of a mentor at Time 2, $F(1, 1301) = 4.20$, $\mu^2 = .003$. Indeed, while all groups of students tend to increase in purposeful work, only students that have lost their mentor remain stable from Time 1 to Time 2. Losing a mentor has a negative effect of the sense of meaning and absence in one's career. The same effect of losing a mentor was observed on calling as meaningful passion. This suggests that the continuity of the relationship with a mentor is beneficial in order to find and experience meaning in work and study.

Table 28.
Descriptive Statistics of Purposeful Work by Group of students and observations

	Total		Group 00 (n = 425)		Group 01 (n = 169)		Group 10 (n = 226)		Group 11 (n = 485)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
T1	3.05	.63	2.97	.62	3.02	.67	3.04	.62	3.15	.63
T2	3.15	.61	3.04	.63	3.20	.59	3.09	.61	3.25	.59

Note. Group 00: No mentor both at T1 and T2; Group 01: Found a mentor; Group 10: Lost a mentor; Group 11: Presence of a mentor both at T1 and T2.

There are significant and positive main effects of the presence of a mentor at T1, $F(1, 1301) = 4.93$, $\mu^2 = .004$, and T2, $F(1, 1301) = 12.41$, $\mu^2 = .01$, on purposeful work. Also in this case, students with a mentor have a higher level of purposeful work than students without a mentor.

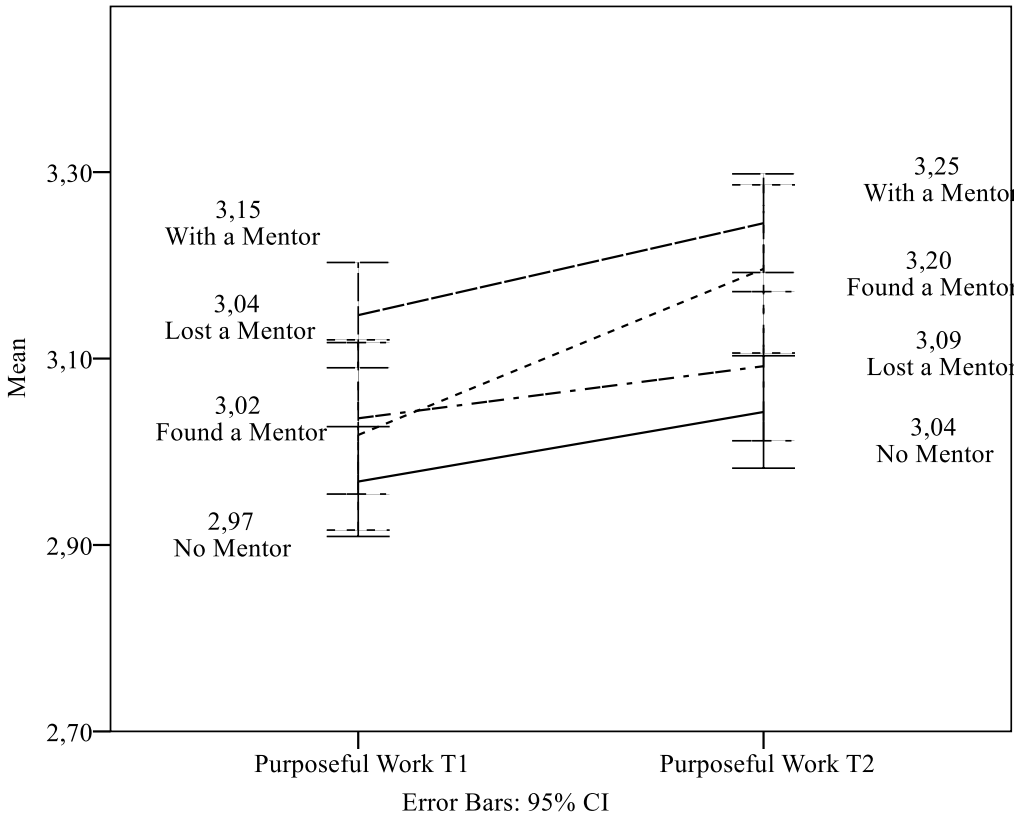

Figure 8. Interaction effect. Profile plot of Purposeful Work measure by observation (X axis) and presence of a mentor at Time 2 (different lines).

Need for calling

Need for calling does not change across time. There is a significant interaction between time and presence of a mentor at Time 2, $F(1, 1287) = 7.49$, $\mu^2 = .006$, such that students that have lost their mentor [t (221) = 2.21, $p = .03$] and students who do not have a mentor [t (421) = 2.20, $p =$

.03] significantly decrease in need for calling between T1 and T2 (see figure 9). As previously observed, losing a mentor has a negative effect also on need for a calling. The absence of a mentor and the loss of a mentor decrease people's need to experience a calling, and the importance that students attribute to having a calling. It is possible that students with a mentor will be generally less interested in their career and, as a consequence, their calling. However, we have also observed that students without a mentor tend to search more for their transcendent summons than the other students.

There are significant main effects of the presence of a mentor at T1 [$F(1, 1287) = 13.69$, $\mu^2 = .01$] and T2 [$F(1, 1287) = 22.73$, $\mu^2 = .02$] on the need for calling. An example is that students with a mentor have a higher level of need for calling than students without a mentor.

Table 29.
Descriptive Statistics of Presence of Need for Calling by Group of students and observations.

	Total (n = 1291)		Group 00 (n = 422)		Group 01 (n = 168)		Group 10 (n = 222)		Group 11 (n = 479)	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
T1	5.47	1.05	5.24	1.08	5.48	1.16	5.53	1.05	5.65	.96
T2	5.43	1.06	5.14	1.04	5.55	1.06	5.38	1.08	5.67	.99

Note. Group 00: No mentor both at T1 and T2; Group 01: Found a mentor; Group 10: Lost a mentor; Group 11: Presence of a mentor both at T1 and T2.

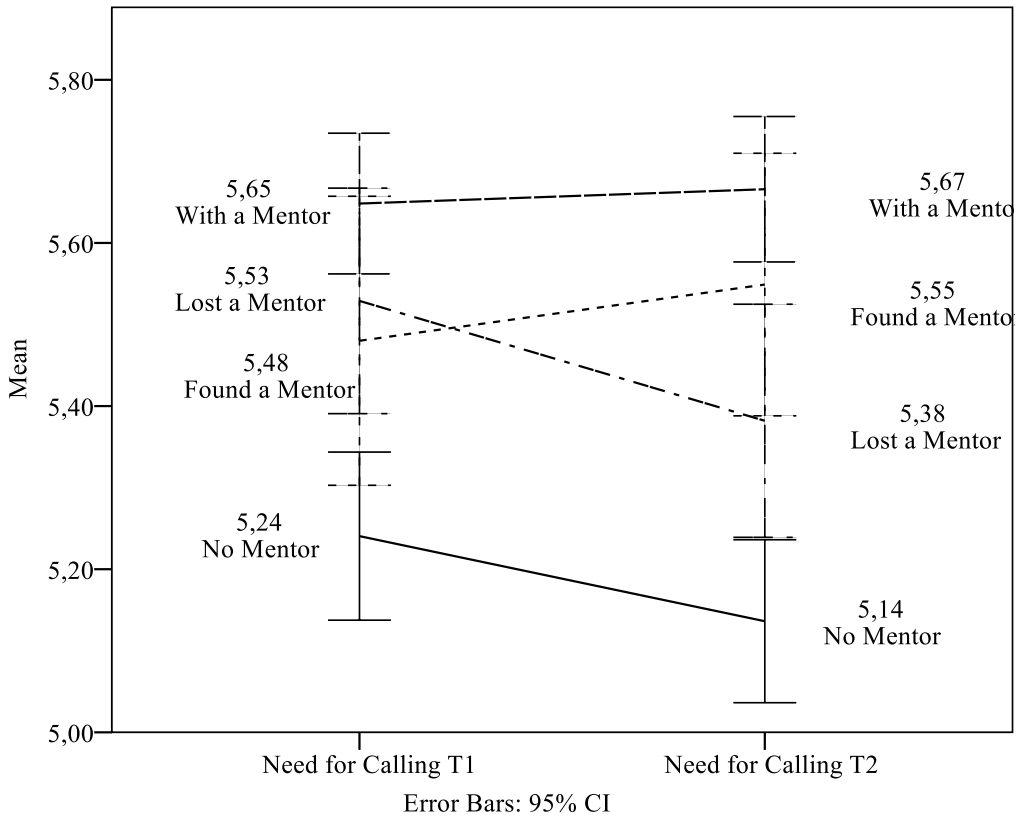

Figure 9. Interaction effect. Profile plot of Need for Calling measure by observation (X axis) and presence of a mentor at Time 2 (different lines). Students without a mentor have the lowest level of need for a calling. Students without a mentor or who have lost a mentor significantly decrease their need for a calling.

Job, career and calling orientation

In addition to the measure of calling orientation we decided to analyze the effect of a mentor on the other two types of orientation toward work: career and job (Wrzesniewski et al., 1997). We think that the presence of a mentor affects protégé attitude toward work so we decided to extend this analysis also to job and career orientations.

Table 30.
Descriptive Statistics of Job, Career and Calling Orientations by Presence of a Mentor and observations

	With a mentor at T1		Without a mentor at T1		With a mentor at T2		Without a mentor at T2	
	M	*DS*	*M*	*DS*	*M*	*DS*	*M*	*DS*
Job O. T1	1.49	.77	1.58	.83	1.46	.73	1.59	.82
Career O. T1	2.34	.99	2.45	1.00	2.30	.98	2.48	.98
Calling O. T1	3.00	.96	2.79	1.00	3.00	.98	2.81	.96
Job O. T2	1.52	.84	1.64	.87	1.50	.80	1.63	.86
Career O. T2	2.32	.93	2.51	.95	2.31	.98	2.52	.92
Calling O. T2	3.02	.92	2.82	.99	3.05	.93	2.83	.97

Note. Students with a mentor at Time 1: n_{T1} = 2983; n_{T2} = 711; Students without a mentor at Time 1: n_{T1} = 2488; n_{T2} = 600; Students with a mentor at Time 2: n_{T1} = 652; n_{T2} = 860;

Students without a mentor at Time 2: $n_{T1} = 650$; $n_{T2} = 840$.

First, job, career and calling orientation do not change over time. There is an effect of presence of a mentor at T1 [$F(1, 1298) = 7.61$, $\mu^2 = .01$] and T2 [$F(1, 1298) = 7.43$, $\mu^2 = .01$] on calling orientation, so that students with a mentor have a higher calling orientation than students without a mentor within Time 1 and Time 2.

There are significant main effects of the presence of a mentor at T1 [$F(1, 1298) = 5.78$, $\mu^2 = .004$] and T2 [$F(1, 1298) = 11.78$, $\mu^2 = .01$] on career orientation. Students with a mentor have a lower level of career orientation than students without a mentor.

Finally, there is a main significant effect of the presence of a mentor at T2, $F(1, 1298) = 7.42$, $\mu^2 = .01$, on job orientation. Students with a mentor have lower level of job orientation than students with a mentor. Table 30 summarizes the descriptive statistic for each group.

The presence of a mentor is associated with an affective attachment to work that is lived out as a calling and less as a job or a career.

Summary of results

Our results support Hypothesis 2a: students with a mentor both at Time 1 and Time 2 have a higher level of calling (ICS), higher level of prosocial orientation, purposeful work, presence of transcendent summons and a higher calling orientation than students without a mentor both at Time 1 and 2. These differences are statistically significant within time, so students that have a mentor show a higher calling than students without a mentor at the same data point.

The presence of a mentor was expected to increase the presence of a calling over time (Hp 2b). The hypothesis is only partially supported and some results need to be clarified, see Table 31 for a summary. ICS and purposeful work remained stable over time only when students lost their mentor, but ICS and purposeful work significantly increased for all the other students. The presence of a transcendent summons significantly decreased; the t-tests for repeated measures reveal that the presence of a transcendent summons remained stable for students without a mentor or who found a mentor. Prosocial orientation significantly increased for students with a mentor and without a mentor both at Times 1 and 2, and remained stable for students who lost or found a mentor. Need for calling significantly decreased from Time 1 to Time 2 for students who lost a mentor or do not have a mentor and remained stable for the other students. Calling orientation remained stable over time, regardless of the presence or absence of a mentor.

Finally, students with a mentor have a lower level of search for transcendent summons than students without a mentor and only students without a mentor significantly increased their search

for transcendent summons between Time 1 and Time 2. The search for transcendent summons remained stable for the other students. These results support Hypothesis 2e.

Table 31.
Changes in calling over time by presence (vs absence) of a mentor

	Group 10: lost a mentor	Group 00: without a mentor	Group 11: with a mentor	Group 01: found a mentor
ICS	=	↑	↑	↑
Presence of Transcendent summons	↓	=	↓	=
Searching for Transcendent summons	=	↑	=	=
Prosocial orientation	=	↑	↑	=
Purposeful work	=	↑	↑	↑
Need for calling	↓	↓	=	=
Calling orientation	=	=	=	=

Note. The table graphically summarizes the change in the dependent variable across groups of students. Results come from *t*-tests for repeated measures indicating if a variable significantly increase (↑), decrease (↓) or remain stable (=) from Time 1 to Time 2 within each group.

In conclusion, as expected, students with a mentor scored significantly higher than students without a mentor in the measure of calling as meaningful passion, in prosocial orientation, purposeful work, presence of transcendent summons, calling orientation and need for calling. The presence of a mentor was expected to increase the presence of a calling. Only partial support for this hypothesis was found, as ICS and purposeful work did not increase over time when students lost their mentors. The main limitations of these results are that the differences between groups are small and the group of students that lost their mentor is the smaller in size so the result might be unreliable.

The longitudinal effect of mentors' orientation toward work on protégés' orientation.

This section of the chapter is dedicated to the association between student orientation and mentor orientation toward work within and across times.

Firstly, we expected to find a significant association between protégé and mentor orientation: a mentor's orientation toward work at Time 1 was assumed to influence the protégé's orientation toward work at Time 2, making them more similar (Hp 2d).

Secondly, the association between mentor and student orientation over time was expected to be mediated by the quality of the mentoring relationship (Hp 2e).

Data analysis

The critical test for the hypothesis of mentor influence over student are statistically significant cross-lagged paths from mentor orientation at Time 1 to subject calling and orientation toward work at Time 2, after checking for autoregressive paths. This hypothesis was tested with four path models.

- The first model is an autoregressive model (no lagged effects), which assumes that the only predictors of the variables at T2 are the same variables at T1.
- The second model estimates the autoregressive paths and the cross-lagged paths from T1 mentor orientation toward work to T2 subject orientation toward work and calling (Model 2).
- The third model estimates the autoregressive path and the cross-lagged path from T1 subject calling and orientation toward work to T2 mentor orientation toward work. This model was tested because it represents the opposite from the hypothesized process. In this model, the attitude toward work and calling of students influence mentor orientation. This might be possible, for example, if students choose as a mentor a person perceived to be similar. In this case, student orientation influences mentor choice and, consequently, the mentor's orientation toward work.
- Finally, the fourth model estimates all the cross-lagged structural patterns (Model 4) from mentor orientation at T1 to protégé orientation at T2, and from protégé orientation at T1 to mentor orientation at T2. The measures of student orientation toward work and calling at T2 and the measures of mentor orientation toward work at T2 (three WLP scores) are regressed on both their own lagged score and the lagged score of the other variables at T1.

Calling was measured using the following scales: ICS, prosocial orientation, purposeful work, need for calling, presence and search for transcendence summons and living out a calling. Student and mentor orientation toward work were measured with job, career and calling orientation (WLP; Wrzesniewski et al., 1997). The variables measured at T1 are specified as exogenous and allowed to covary. The path models were estimated using the data provided by the group of students with a mentor both at Time 1 and Time 2 (n = 485).

Results

Table 32 reports the product moment correlation between the same measure of calling, job and career orientation for students and mentors. Mentor and protégé job, career and calling orientations to work are highly and positively correlated both at Time 1 and Time 2 (*r* ranges from .49 to .57 at T1 and from .44 to .58 at T2). Students with a calling orientation are more likely to have a mentor with a calling orientation toward their work. The same pattern is true for career and job orientation: a student with career or job orientation tends to have a mentor with the same orientation toward work. However, both at Times 1 and 2, having a mentor with job or career orientation is negative in relation to student calling orientation.

Table 33 shows the correlation between mentor orientation toward work and student calling measured with ICS, CVQ, need for calling, and living out a calling scale. The correlations between these measures of calling and mentor orientations are lower than the correlations between mentor orientation and student orientation. The correlation between mentor job and career orientations at Times 1 and 2 with all measures of having a calling are small and negative. Only the search for transcendent summons positively correlates with mentor job orientation at Time 1 ($r = .06$). Mentor calling orientation, on the other hand, is positively related to calling as a passion, prosocial orientation, the presence of a transcendent summons, need for calling, and living out a calling. However, correlations are lower than .21.

Table 33.
Correlations between calling and mentor orientations

Measures of student calling	Mentor orientation at T1			Mentor orientation at T2		
	Job	Career	Calling	Job	Career	Calling
ICS T1	-.08**	-.11**	.21**	-.16**	-.14**	.15**
ICS T2	-.09*	-.06	.11**	-.20**	-.17**	.21**
Prosocial orientation T1	-.03	-.06**	.15**	-.06	-.09*	.16**
Purposeful work T1	-.06**	-.06**	.16**	-.15**	-.04	.12**
Transcendent summons Presence T1	-.02	-.04*	.11**	-.12**	-.10*	.11**
Transcendent summons Search T1	.06**	.03	-.00	-.01	.01	.01
Prosocial orientation T2	-.07	-.14**	.20**	-.10**	-.10**	.14**
Purposeful work T2	-.05	-.09*	.17**	-.13**	-.08*	.14**
Transcendent summons Presence T2	-.05	-.03	.09*	-.13**	-.13**	.14**
Transcendent summons Search T2	.05	-.05	.05	.05	.04	.03
Need for Calling T1	-.08**	-.04*	.18**	-.14**	-.06	.13**
Need for Calling T2	-.08*	-.11**	.15**	-.16**	-.16**	.18**
Living out calling T2	-.11**	-.12**	.14**	-.19**	-.09*	.19**

Note. N from 2955 to 585. * $p < .05$. ** $p < .01$.

Table 32.
Correlations between students' job, career and calling orientation with mentor's job, career and calling orientation.

	M	*SD*	Mentor Job O. T1	Mentor Career O. T1	Mentor Calling O. T1	Subject Job O. T1	Subject Career O. T1	Subject Calling O. T1	Mentor Job O. T2	Mentor Career O. T2	Mentor Calling O. T2	Subject Job O. T2	Subject Career O. T2
Mentor Job O. T1	1.31	.69	1										
Mentor Career O. T1	1.98	.99	.13**	1									
Mentor Calling O. T1	3.24	.95	-.42**	-.35**	1								
Subject Job O. T1	1.53	.80	.49**	.13**	-.21**	1							
Subject Career O. T1	2.39	1.00	.10**	.57**	-.22**	.06**	1						
Subject Calling O. T1	2.90	.98	-.18**	-.25**	.54**	-.35**	-.28**	1					
Mentor Job O. T2	1.30	.68	.23**	.08	-.12**	.19**	.03	-.15**	1				
Mentor Career O. T2	1.97	.98	.08	.38**	-.24**	.11**	.24**	-.15**	.11**	1			
Mentor Calling O. T2	3.23	.96	-.10*	-.18**	.27**	-.11**	-.08*	.19**	-.40**	-.32**	1		
Subject Job O. T2	1.57	.83	.24**	.13**	-.12**	.49**	.08**	-.33**	.44**	.14**	-.21**	1	
Subject Career O. T2	2.42	.95	.08*	.31**	-.12**	.03	.34**	-.16**	.12**	.58**	-.21**	.04	1
Subject Calling O. T2	2.94	.96	-.12**	-.22**	.26**	-.31**	-.19**	.41**	-.22**	-.28**	.53**	-.38**	-.29**

Note. *N* from 2947 to516; O. = Orientation toward work. * $p < .05$. ** $p < .01$.

Students' and mentors' orientations toward work and calling are associated both within and across time, but the stronger relationships are observed between mentor's and protégé's orientation measured with the same instrument (WLP).

To test the direction of influence across time four cross lagged model were estimated in order to identify the structure that better represents the data. Table 34 shows fit indices for the four competing models.

Table 34.
Fit indices for the Competing Models: autoregressive model, causal structural models, and fully cross-lagged model.

	n par	χ^2	*df*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
								LL	*UL*	
Model 1	221	394.23	156	2.527	.886	.949	.056	.049	.063	836.231
Model 2 Mentor to Subject	251	329.57	126	2.616	.879	.957	.058	.05	.065	831.572
Model 3 Subject to Mentor	251	358.60	126	2.846	.861	.95	.062	.054	.069	860.597
Model 4	281	298.08	96	3.105	.843	.957	.066	.058	.078	860.077

Note. All chi-squared values are significant at $p < .001$; n par. = number of distinct parameters to be estimated.

The models have a moderate fit to the data, CFI is around .95, with RMSEA lower than .07. One possible reason for the non-excellent fit is that the paths between different dimensions of calling between T1 and T2 are not estimated. Since the focus of the analysis was the direction of influence it was decided to not modify the models and to focus on comparisons between the nested models.

Table 35 shows model fit comparisons between models 2, 3 and 4 to the baseline autoregressive model (Model 1). The free estimations of paths from mentor orientation to protégé orientation and calling (Model 2) increase the model fit. The chi-square test of difference is statistically significant ($\Delta\chi^2 = 64.66$, $p < .001$), and the CFI of Model 2 is higher than the CFI of Model 1 (.96 versus .95). Also, Model 4 fits the data better than Model 1, the chi-square test of difference is significant ($\Delta\chi^2 = 96.15$, $p = .002$), and CFI is higher (.96 versus .95). Model 3 however, being the model that estimates the effect of protégé orientation and calling on mentor orientation toward work, does not have a better fit to the data than Model 1. Therefore, adding the path from protégé to mentor does not significantly increase the fit of the model.

Models 2 and 4, which have a better fit than the autoregressive model, were compared in order to identify which types of causal relationship, mentor to subject or reciprocal, better describe our data. The chi-square difference test between Models 2 and 4 is not statistically significant ($\Delta\chi^2 = 31.50$, $p = .39$) and there are no differences between CFIs. Adding paths from student orientation

and calling at Time 1 on mentor orientation at Time 2 (Model 4) does not improve the fit of the model.

Table 35.
Results of Nested-Models comparisons

	ΔCFI	$\Delta\chi^2$	Δ*df*	*p*
Model 1 versus Model 2 Baseline model versus Mentor influences Subject	-.008	64.66	30	< .001
Model 1 versus Model 3 Baseline model versus Subject influences Mentor	-.001	35.63	30	.22
Model 1 versus Model 4 Baseline Model versus Reciprocal Causation Model	-.008	96.15	60	.002
Model 2 versus Model 4 Model 4 versus Mentor influences Subject	0	31.50	30	.39

Note. All chi-square differences significant at $p < .0001$.

The second model, a simpler model which estimates the effect on one direction from mentor orientation toward work at Time 1 on student calling and orientation toward work at Time 2, is the best fitting model: $\chi^2 = 329.57$, CFI = .96, RMSEA =.07. We can conclude that the longitudinal relationship between mentor and protégé goes in one direction only, specifically from the former to the latter. Mentor attitude toward work is more likely the cause of student orientation. This result means that our students do not choose a mentor on the basis of their orientation toward work, and that the choice of a mentor is not the reason for the association between mentor orientation and student orientation. The imitation of a mentor's attitude seems to be the reason for the relationship between mentor and protégé orientation toward work.

We then analyzed the paths in order to understand the effect of mentor orientations. Figure 10 shows the model with significant paths. Mentor career orientation at Time 1 positively influences student job ($\gamma = .09$) and career orientation ($\gamma = .28$) at Time 2, but has a negative effect on student calling orientation at Time 2 ($\gamma = -.11$). The effect of mentor attitude on career orientation is three times stronger than the other effects. Having a mentor interested in career and success, promotes in the protégé the same interest in career and success, fosters the interest in material benefit from work and reduces the attitude toward work as a calling.

Mentor calling orientation at Time 1 positively predicts student career orientation at Time 2 ($\gamma = .13$). So, when mentors are passionate, when they live out their work as a vital part of their life, students tend to develop higher career orientation and interest in succeeding.

The stronger effect of mentor orientation regards student career orientation. A mentor with career orientation promotes in the protégé the same orientation toward work. In addition, even if a

mentor manifests a calling orientation, after one year, students tend to develop a career orientation. A mentor engaged in work, passionately, living out their work as a vital part of their life and identity and/or a mentor interested in career advancement within the professional structure, promotes interest in career and success (γ = .28), and partially discourages the calling orientation (γ = -.11). Mentor calling orientation has no significant effect on student calling orientation.

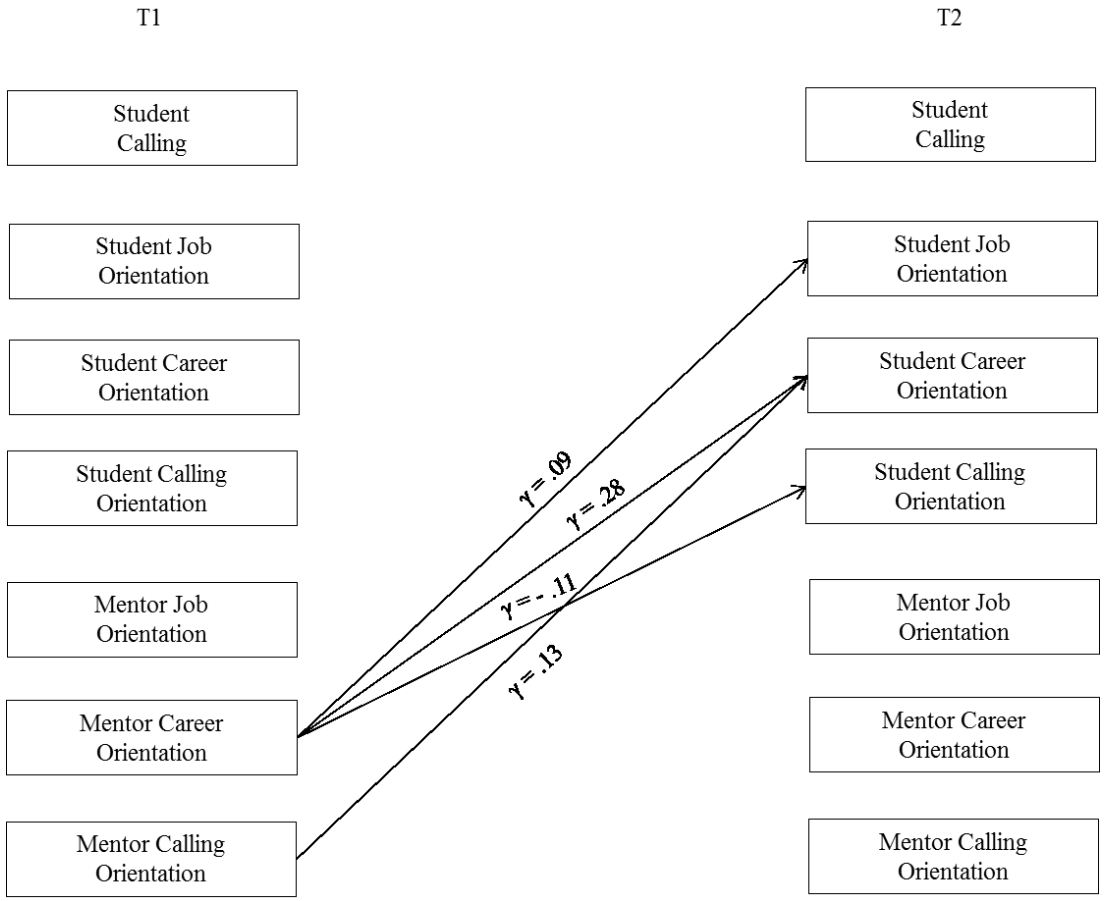

Figure 10. One-way relationships between calling and mentor's orientation toward work based on a time lag of 1 year. Only Significant Standardized cross-lagged effects are presented (after checking for covariates within time); stability effects and covariance not shown.

Career orientation concerns professional growth and competition. It is related to behaviors and strategies that might be easier to impart to the protégé than attitudes and values associated with job and calling orientation. Calling and job orientations regard attitude and values that are harder to influence and transmit from a mentor to a protégé. This might be a reason for the stronger effect of career attitude on the protégé.

Quality of mentorship does not mediate the effects of a mentor on protégés

The effect of mentor orientation toward work on protégé orientation was investigated. Tests were carried out to see whether the functions provided by a mentor, specifically role modeling, and psychological and vocational support, mediate the observed effect.

Data analysis

In order to test the mediation hypothesis, three path models were estimated (Cole & Maxwell, 2003; Baron & Kenny, 1986). All models analyzed the relationship among mentor orientation toward work, protégé calling and orientation toward work at Times 1 and 2, quality of mentorship measured as role modeling, and psychological/vocational support.

- Firstly, an autoregressive model was estimated with each variable at T2 predicted by the same variable at Time 1. In the first and second waves, errors were allowed to covary, reflecting the fact that there are simultaneous relationships among variables, but the direction of the relationships are not known (MacKinnon, 2008).
- A second model was estimated, freeing the path from mentor orientation at T1 on student orientation at T2. No mediation path was added.
- A third model was finally computed with both direct and indirect paths freely estimated. Figure 13 represents the final mediation model with X1 and X2 as mentor orientation toward work at Times 1 and 2 respectively, M1 and M2 as quality of mentorship at T1 and T2, and Y1 and Y2 as protégé orientation toward work at T1 and T2.

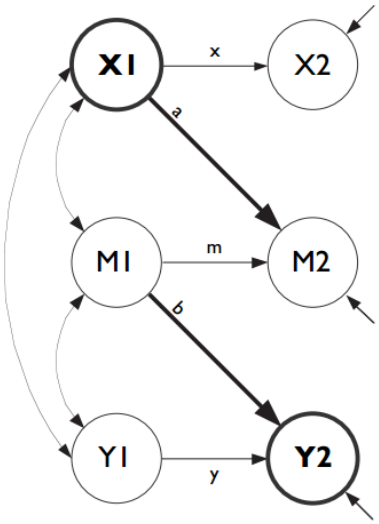

Figure 11. A two-wave panel model for testing mediation hypotheses (Adapted from Little, Preacher, Selig & Card, 2007).

The following effects were then estimated:

1) the total effect of mentor orientation (X1) on student orientation (Y1);
2) the overall indirect effect. This step consists in:
    a. estimating path a in the regression of quality of mentoring at T2 (M2 in the figure) on mentor orientation at T1 (X1), checking for quality of mentoring at T1 (M1).
    b. estimating path b in the regression of student orientation at T2 (Y2) on quality of mentoring at T1 (M1), checking for mentor orientation at T1 (Y1).
    c. computing the product a*b.
3) the overall direct effect, the part of the total effect that is not mediated by M.

In order to test the mediation effect, the mediation model was compared with an autoregressive model where paths a and b were constrained to be equal to zero (Cole & Maxwell, 2003). In addition, we tested the indirect effect using the Sobel test (Sobel, 1982; Holmbeck, 2002). At this aim, the standard error for a*b is equal to:

$$SE_{\text{indirect effect}} = (b^2sa^2 + a^2sb^2 + sa^2sb^2)^{1/2}$$

Where sa and sb are the standard error for parameters a and b.

Results

Correlations among mentor orientation, student orientation, role model, and psychological/vocational support (P/V Support) are reported in Table 36. Role modeling and mentor support are not strongly related to student and mentor orientation. Correlations are slight and lower than .20. The strongest associations are among role modeling, student and mentor calling orientation (*r* ranges from .14 to .18).

Table 36.
Correlations between mentors' functions, their orientation toward work and student's orientation.

	Time 1						Time 2					
	Mentor Orientation			Student Orientation			Mentor Orientation			Student Orientation		
	Job	Career	Calling	Job	Career	Calling	Job	Career	Calling	Job	Career	Calling
P/V Support T1	.06**	.04*	-.01	-.01	-.02	.06**	-.09*	.06	.04	-.05	-.02	.06
Role Model T1	-.10**	-.07**	.18**	-.10**	-.05**	.16**	-.00	-.07	.04	-.05	-.09*	.09*
P/V Support T2	-.02	-.08	.03	.03	-.09*	.04	-.00	.04	.05	-.03	-.05	.08*
Role Model T2	.01	-.03	.03	-.04	-.09*	.12**	-.11**	-.08*	.14**	-.13**	-.11**	.16**

Note. N from 2912 to 477. ** $p < .001$. * $p < .05$.

The mediation analysis was first performed within times, on data collected at Time 1 and Time 2. The Process macro for SPSS was utilized (Hayes, 2012). No significant mediation effect was found; student calling and orientation toward work relate to mentor orientation, regardless of the mentoring functions provided (within Time 1 and Time 2).

The analysis was then performed on data collected at two time points, on a sample of subject with a mentor at both Times 1 and 2. Table 37 reports fit indices for the baseline model, the total effect model and the model with the mediation effect. The three models have a moderate fit, chi-square is statistically significant, CFI is greater than .95 and RMSEA is lower than .07.

Table 37.
Fit indices for the Competing Models: autoregressive model, total effect model and mediation model.

	χ^2	*df*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
							LL	*UL*	
Model 1	151.25	56	2.701	.887	.954	.059	.048	.071	343.25
Model 2 - Total effect	108.039	47	2.299	.914	.97	.052	.039	.065	318.039
Model 3 - Mediation Model	97.865	35	2.796	.88	.97	.06	.05	.08	331.87

Note. All chi-square differences significant at $p < .001$.

Model 2, estimating the total effect, and Model 3, estimating direct and indirect effects, present a better fit to the data than Model 1. The chi-squared differences are statistically significant, and the CFI differences greater than .01. Model 2 and Model 3 were then compared to test whether the mediation effect increases the fit of the model (see Table 38). Adding the free estimation of the paths from mentor orientation at Time 1 to quality of mentorship at Time 2, and the paths from quality of mentorship at Time 1 to student orientation at Time 2, does not increase the model fit. The CFI difference is small (.001), and the chi-square difference is not statistically significant ($\Delta\chi^2 = 10.17$, $\Delta df = 12$, $p = .60$). The model which estimates the mediation effect (model 3) does not present a significantly better fit than the model without the mediation effect (model 2).

In addition, the paths from mentor orientation at Time 1 to quality of mentorship at Time 2, and the paths from quality of mentorship at Time 1 to student orientation at Time 2, are not statistically significant. Following the Sobel approach, standard errors of the indirect effects were used to test the indirect effect, which turned out to be zero ($z < 1.96$).

These results suggest that the effect of mentor career and calling orientation on student orientation toward work have nothing to do with the quality of the mentoring relationship. The mere presence of a mentor is enough to influence the level of calling and its development. In addition, a

mentor influences protégé attitude with their attitude model, regardless of the quality of their relation.

Table 38.
Results of Nested-Models comparisons

	ΔCFI	$\Delta\chi^2$	Δ*df*	*p*
Model 2 versus Model 1 Autoregressive model versus total effect model	-.016	43.21	9	< .001
Model 3 versus Model 1 Autoregressive model versus mediation model	-.015	53.39	21	< .001
Model 2 versus Model 3 Total effect model versus mediation model	-.001	10.17	12	.60

Note. All chi-square differences significant at $p < .0001$.

CHAPTER 5. LONGITUDINAL RELATIONSHIP BETWEEN HAVING A CALLING AND ENGAGEMENT IN LEARNING

In this chapter, we present the analysis regarding the temporal relationship between engagement in learning and calling.

The relationship between calling and engagement in the calling domain is one of the strongest ever observed in literature on calling. Having a calling is positively related with engagement in learning, engagement in work and work effort, behavioral involvement and professional involvement in the calling domain. Behavioral involvement emerged as a predictor of calling development (Dobrow, 2013), professional realization of one's calling and effort in the work domain were found to be outcomes of the experience of having a calling (Dobrow & Heller, 2014; Praskova, Hood et al, 2014). This association is important in defining the role of calling in a person's career, so we decided to analyze the longitudinal relationship between engagement and calling in this study. We expect to find support for the role of engagement in learning as a predictor of calling over time, meaning that student engagement in learning at Time 1 influences their level of calling at Time 2.

Data analysis

The aim of this analysis is to evaluate whether a longitudinal relationship exists between calling and engaged learning (Hp 3a), and whether calling temporally precedes or follows engaged learning (Hp 3b). In order to test these two hypotheses, we estimated and compared four competing models. The estimated models represent the relationship between calling measured with ICS, calling as prosocial orientation, purposeful work, presence of a transcendent summons (CVQ; Dik et al., 2012), and calling orientation (WLP; Wrzesniewski et al., 1997), and the three factors of engaged learning (meaningful processing, active participation and focused attention). We estimated the following models:

- Model 1 – Autoregressive Model.
- Model 2 – Calling predicts Engaged Learning. The second model resembles Model 1 because it estimates the autoregressive effects, but includes additional cross-lagged structural paths from calling dimensions at Time 1 to engaged learning dimensions measured at Time 2.
- Model 3 – Engaged learning predicts calling. The third model resembles Model 1, estimating the autoregressive effects (like Model 1) and includes additional cross-lagged

structural paths from engaged learning at Time 1 to the measures of having a calling at Time 2.

- Model 4 – Reciprocal Causation Model. This model estimated the cross-lagged paths from engagement in learning at Time 1 on calling at Time 2 and from calling at Time 1 to engagement in learning at Time 2.

Since the focus of this analysis is the temporal relationship between calling and engaged learning, no one model estimates the effect of the measures of calling on the other measures of calling.

Results

Table 39 reports means, standard deviations and correlations between calling and engaged learning measured at T1 and T2. The correlations between calling as meaningful passion (ICS) and engaged learning are always positive and from small (r = .17; between calling and focused attention) to large in size (r = .64; between calling and meaningful processing). Calling measured with ICS is more associated with the affective and behavioral components of engaged learning.

The three components of calling measured with CVQ, prosocial orientation, purposeful work and presence of a transcendent summons, positively correlate with meaningful processing and active participation, with the correlations ranging from small (r = .10) to medium in size (r = .33). Therefore, calling measured with CVQ is not related to the cognitive aspects of engagement in learning (focused attention).

Calling orientation (measured with WLP) has a positive correlation with the three aspects of engagement, with r ranging from small (r = .08 with focused attention) to medium (r = .36 with meaningful processing). Calling orientation is also related to the cognitive component of engagement in learning (focused attention), but the association is weak.

In order to test whether calling and engagement in learning change across time, we estimated a generalized linear model (GLM) on the sample of students that answered both surveys. Results are summarized in Table 40.

Table 39.
Descriptive Statistics and Correlations between measures of calling and engagement in learning.

	n	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. ICS T1	5676	4.80	1.20	1														
2. ICS T2	1694	4.97	1.21	.65**	1													
3. Prosocial orientationT1	5621	2.87	.75	.30**	.21**	1												
4. Prosocial orientation T2	1697	2.92	.73	.21**	.25**	.68**	1											
5. Purposeful Work T1	5618	3.09	.63	.46**	.28**	.38**	.23**	1										
6. Purposeful Work T2	1699	3.14	.62	.39**	.44**	.27**	.32**	.56**	1									
7. Transcendent Summons P. T1	5483	2.13	.90	.40**	.28**	.36**	.24**	.38**	.22**	1								
8. Transcendent Summons P. T2	1633	2.02	.92	.29**	.33**	.25**	.30**	.23**	.36**	.55**	1							
9. Calling O. T1	5496	2.90	.98	.42**	.33**	.28**	.25**	.32**	.27**	.23**	.19**	1						
10. Calling O. T2	1700	2.94	.96	.37**	.38**	.26**	.28**	.25**	.32**	.18**	.20**	.41**	1					
11. EL Meaningful processing T1	5411	4.92	1.36	.64**	.54**	.27**	.23**	.33**	.29**	.27**	.19**	.34**	.36**	1				
12. EL Meaningful processing T2	1683	5.06	1.34	.49**	.58**	.27**	.29**	.23**	.32**	.23**	.24**	.27**	.35**	.64**	1			
13. EL Focused attention T1	5371	4.60	1.57	.17**	.17**	-.01	.03	.01	-.004	-.01	.03	.08**	.09**	.16**	.12**	1		
14. EL Focused attention T2	1668	4.78	1.50	.17**	.25**	-.01	-.02	.01	.02	.03	.02	.08**	.13**	.16**	.16**	.43**	1	
15. EL Active participation T1	5413	4.53	1.42	.43**	.38**	.21**	.14**	.22**	.16**	.14**	.11**	.25**	.22**	.50**	.36**	.13**	.15**	1
16. EL Active participation T2	1672	4.99	1.37	.28**	.36**	.13**	.14**	.13**	.18**	.10**	.14**	.19**	.21**	.34**	.39**	.12**	.12**	.53**

Note. *N* from 5676 to 1240; EL = Engagement in learning; O. = Orientation toward work; Transcendent Summons P. = presence of a transcendent summons. ** $p < .01$.

Table 40.
Effect of time on calling and engagement in learning (GLM analysis).

Variables	*M (SD)* T1	*M (SD)* T2	*n*	*F*	*df*	*p*	η2
ICS	4.78 (1.17)	4.99 (1.20)	1308	58.64	1, 1307	<.001	.04
Prosocial orientation	2.88 (.74)	2.93 (.74)	1307	11.51	1, 1306	.001	.009
Purposeful Work	3.05 (.63)	3.15 (.62)	1309	33.15	1, 1308	< .001	.025
Transcendent Summons P.	2.15 (.86)	2.04 (.92)	1240	22.03	1, 1239	<.001	.017
Calling Orientation	2.91 (.97)	2.93 (.96)	1302	.71	1, 1301	.40	.001
EL Meaningful Processing	4.99 (1.34)	5.09 (1.33)	1282	9.99	1, 1281	.002	.008
EL Focused Attention	4.73 (1.51)	4.79 (1.51)	1269	1.51	1, 1268	.22	.001
EL Active Participation	4.40 (1.36)	5.02 (1.36)	1274	287.73	1, 1273	<.001	.18

Note. Means and standard deviations for participants at Time 1 and Time 2.

The effect of time is moderate (η^2 = .18) on engaged learning active participation, which increased from 4.40 to 5.02 after one year. Students at Time 2 declared that they were more active during lessons, more willing to ask questions and to discuss with colleagues the things they learn in class. Regarding the other measures of calling and engaged learning meaningful processing, the effect of time is slight. Calling ICS, prosocial orientation and purposeful work increased after one year, and engaged learning as meaningful processing also increased. Only the transcendent summons component of calling (CVQ) decreased over time. There were no time effects on engaged learning focused attention and calling orientation (WLP). Students seemed to have the same level of calling orientation after one year and they tended to be equally interested and attentive in class.

In order to identify the best fitting model, we estimated the four models and compared their fit indices. Table 41 summarizes the results.

Table 41.
Fit indices for the Competing Models: autoregressive model, causal structural models, and fully cross-lagged model.

	χ^2	*df*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
							LL	*UL*	
Model 1	290.166	56	5.182	.964	.985	.026	.023	.029	482.166
Model 2	245.125	41	5.979	.957	.987	.028	.025	.032	467.125
Model 3	144.992	41	3.536	.978	.993	.02	.017	.024	366.992
Model 4	103.712	26	3.989	.974	.995	.022	.018	.026	355.712

Note. All chi-squared values are significant at $p < .001$. Model 1: Autoregressive Model; Model 2: Calling predicts Engaged Learning; Model 3: Engaged learning predicts Calling; Model 4: Reciprocal Causation Model.

The models present a satisfactory fit to the data, TLI and CFI are all greater than .95 and RMSEA is lower than .05 (Hu & Bentler, 1999; Browne & Cudeck, 1993). To determine which of the other models provided a significantly better fit to the data than the autoregressive model,

Models 2, 3 and 4 were compared to the baseline model (Table 42). The chi-square difference tests showed that models 2, 3 and 4 fit the data significantly better than the Baseline Model (the chi-square differences were statistically significant). The differences in CFI and RMSEA were very slight, but CFI in models 2, 3 and 4 are greater than in the baseline model, and models 3 and 4 have smaller RMSEA than the baseline model. Consequently, adding the path from calling to engagement in learning between Time 1 and Time 2 significantly increased the model fit. We can therefore conclude that there is a longitudinal relationship between engagement in learning and calling (Hypothesis 3a is confirmed).

Table 42.
Results of Nested-Models comparisons

	ΔCFI	$\Delta\chi^2$	ΔRMSEA	Δ*df*
Model 1 versus Model 2 Baseline model versus Calling predicts Engaged Learning Model	-.002	45.041	-.002	15
Model 1 versus Model 3 Baseline model versus Engaged Learning predicts Calling Model	-.008	145.174	.006	15
Model 1 versus Model 4 Baseline Model versus Reciprocal Causation Model	-.01	186.454	.004	30

Note. All chi-square differences significant at $p < .0001$.

To test which type of relationship between calling and engaged learning better describes the data, we compared the models corresponding to the types of longitudinal relationship: calling predicts engaged learning (Model 2); engaged learning predicts calling (Model 3); reciprocal causal relationship (Model 4). Models 2 and 3 were compared to the fit of the reciprocal causation model (Table 43). As regards hypothesis 3b, concerning the direction of the longitudinal relationship, this analysis shows whether a model including all the reciprocal causation relationships between calling and engagement (Model 4) shows a better fit than a model estimating engaged learning as a consequence of calling (Model 2) or not, and whether Model 4 shows a better fit than a model estimating calling as a consequence of engaged learning (Model 3).

Table 43.
Results of Nested-Models comparisons

	ΔCFI	$\Delta\chi^2$	ΔRMSEA	Δ*df*
Model 2 versus Model 4 Model 4 versus Calling predicts Engaged Learning Model	-.008	141.413	.006	15
Model 3 versus Model 4 Model 4 versus Engaged Learning predicts Calling Model	-.002	41.28	-.002	15

Note. All chi-square differences significant at $p < .001$.

Model 4 is the most complex and less parsimonious model. It is the result of relaxing all constraints on cross-lagged effects across calling and engaged learning.

The chi-square differences are statistically significant, suggesting that the reciprocal causation model (Model 4) fits the data better than the two simple causal models (Model 2 and Model 3). We can, therefore, conclude that the longitudinal relationship between engagement in learning and calling is reciprocal.

The results partially confirm our hypothesis. We expected to find support for a longitudinal effect of engagement in learning on calling, instead we found that calling and engaged learning reciprocally influence each other over time. The reciprocal causal model (Model 4) was used as the reference model for an in-depth analysis of the parameters (see figure 15).

Two dimensions of calling at Time 1 predict engagement in learning at Time 2. Calling - meaningful passion (ICS; Dobrow & Tosti-Kharas, 2011) - at Time 1 positively predicts focused attention at Time 2 ($\gamma = .13$, $p < .001$). Therefore, the experience of having a calling for the domain of study increases attention during learning activities. The prosocial orientation component of calling at Time 1 positively predicts meaningful processing in learning at Time 2 ($\gamma = .07$, $p = .001$). Students who experience the desire to help others and to pursue a career that benefits society proved to be more energized by learning and to find more meaning in learning activities after one year. The presence of a transcendent summons, calling orientation and purposeful work measured at Time 1 does not significantly predict engaged learning at Time 2.

The effect of engagement in learning at Time 1 to calling at Time 2 is mainly due to the component of meaningful processing. Meaningful processing at Time 1 positively predicts calling measured as meaningful passion ($\gamma = .16$, $p < .001$), purposeful work ($\gamma = .13$, $p < .001$) and calling orientation ($\gamma = .23$, $p < .001$). Feeling energized by learning, feeling that the learning experience is worthwhile, also outside the academic context (meaningful processing), is associated with an increase in passion (calling measured with ICS), in orientation toward work as a calling, and increments the feeling that study is meaningful (calling as purposeful work). The cognitive and behavioral factors of engagement in learning, focused attention and active participation, positively predict calling as meaningful passion (respectively: $\gamma = .04$, $p = .02$; $\gamma = .06$, $p = .01$), but the effects are slight. Consequently, calling as meaningful passion is predicted by engagement in learning meaningful processing.

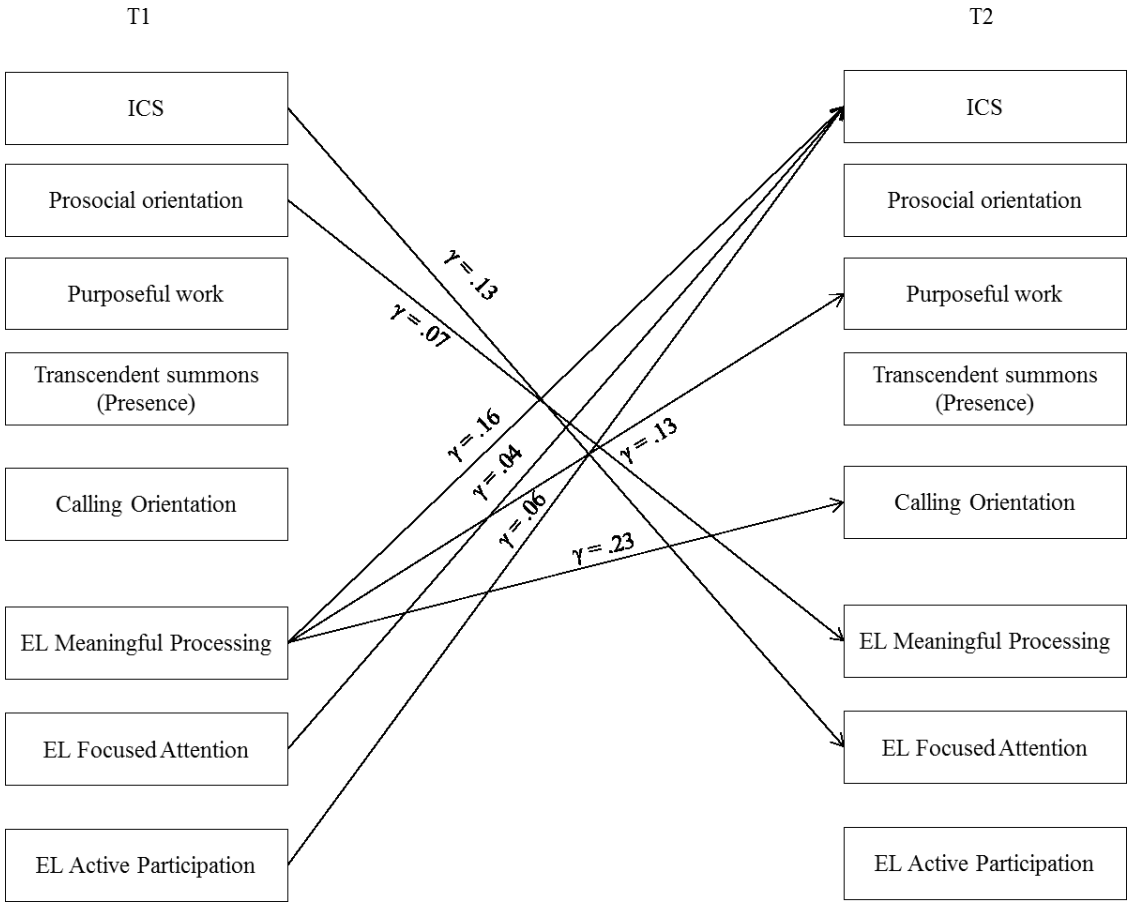

Figure 12. Reciprocal causal relationships between calling and engagement in learning based on a time lag of 1 year. Only significant standardized cross-lagged effects are presented (after checking for covariates within time); stability effects and covariance not shown. ICS = Calling as meaningful passion; EL = engagement in learning.

The presence of a calling, measured with ICS, and focused attention reciprocally influence each other, but the effect of calling at Time 1 on focused attention at Time 2 (γ = .13) is stronger than the reciprocal (γ = .04). Therefore, having a passion for the study domain fosters it and is increased by being interested in what happens during learning activities (reciprocal effect). Nevertheless, it is the presence of a calling that has the stronger effect on cognitive engagement.

The desire to realize other-oriented values in careers (prosocial orientation) promotes the feeling that studying is meaningful (γ = .07), but no dimensions of engagement increase this orientation.

Summarizing, the presence of a calling is predicted by active participation and meaningful engagement in learning. The third dimension of engagement in learning, the attention focused in class, has a slight effect on calling and is more likely to be an outcome of it. Having a calling fosters the perception that the study domain is meaningful and the level of attention focused, but the stronger effect is the latter.

These findings suggest that even if the model which better describes data is the reciprocal model, engagement in learning is more likely to be a predictor of calling and that the only relevant effect of calling on engagement is a reciprocal effect on the level of attention in class.

This analysis suggests that feeling energized by learning, feeling that the learning experience is worthwhile and important in life, is a predictor of passion, willingness to make sacrifice, attitude toward work and study as a calling and the perception of study as meaningful. The presence of a calling promotes students' attention over time and barely meaningful processing. The pleasantness and meaning of the academic experience facilitate the development of a calling to the study domain.

Is the relationship between calling and engagement in learning moderated by year of enrollment and major?

The relationship between calling and engaged learning might be influenced by other variables. Since engagement in learning is related to the academic experience, we decided to analyze if the year of enrollment and major moderate the relationship between calling and involvement in learning activities. In fact, students enrolled in different majors may be characterized by various degrees of calling and engagement. In addition, calling and engagement in learning might be different depending on students' academic experience. This study covers only one year. However, the sample includes students in different phases of their college education, with some students who started University at Time 1, and others who are properly registered in the third, fourth and also last year of their programs. It is reasonable to wonder whether the levels of engagement and calling for senior students are different from the levels of freshman students. Also, major and year of enrollment may moderate the relationship between calling and engaged learning.

An in-depth analysis was conducted to test whether major and year of enrollment moderate the relationship between calling and engagement in learning over time. The two hypothesized moderators are categorical, so multi-group analyses were performed to test the equivalence of the causal model between groups of students enrolled in different majors and between students at different stages of their academic career. This analysis is exploratory and was performed after the investigation of the relationship between calling and engagement in learning.

Data analysis

The aim of this analysis is to test the invariance of common causal paths across study areas and years of enrollment. The invariance analysis involves testing and comparing models that imposes successive restrictions on model parameters. The starting point is an unconstrained model.

To test the multi-group invariance, new constraints were added to the model and tested (Meredith, 1993). If there is no interaction between the factor that delimited the groups (field of study or year of enrollment) and the relationship between the variables under analysis (calling and engagement in learning), parameters are invariant between groups. Each constraint increases the model's parsimony. In the unconstrained model, all parameters and path coefficients are allowed to vary freely across groups. Subsequently, equality constraints are imposed on the parameters. The unconstrained model and the model with equality constraints are nested, so it is possible to compare their fits. If the imposition of equality constraints deteriorates the fit of the model, then parameters across groups are significantly different.

Invariance was tested with the chi-square difference test and with the CFI difference. The difference in chi-square was computed by subtracting the degrees of freedom of the less restrictive model from the degrees of freedom of the more restrictive nested model. If the chi-square difference is statistically significant, the applied constraints decrease the fit of the model. If the chi-square difference is not statistically significant, the equality constraints do not affect the fit of the model, and then the parameters can be considered equal across groups, with the most parsimonious model (the model with the constraints) being preferable. A CFI difference lower than -.01 indicates no significant differences between the nested model fit. CFI values approximating .95 are indicative of good model-data fit (Hu & Bentler, 1999). The TLI, RMSEA and AIC indices were also used for this analysis, to evaluate the model fit. The RMSEA (Browne & Cudeck, 1993) value should be approximately or less than .06 to demonstrate the close fit of the model (Browne & Cudeck, 1993).

We used multiple group analysis and Full-information Maximum Likelihood estimation in MPlus 6 (Muthén & Muthén, 1998 - 2012) to test model invariance. The parameters of interest were the intercepts of variables at T2, the means at T1 and the loadings. Modification indices were used as diagnostic statistics to identify the non-invariant parameters. The parameter with the highest modification index was released and the model re-estimated.

The following invariance levels were tested.

1. Metric invariance - invariant weights: metric invariance is defined as invariance of factor loadings across groups. In order to test this invariance level, the autoregressive loading between the same variables at T1 and T2 and the cross-lagged loadings between measures of calling and measures of engaged learning was constrained equally across groups.
2. Strong Invariance - invariant intercepts: strong invariance is defined as invariance of both loadings and intercepts across groups. It was tested by constraining the intercept of endogenous and exogenous variables equally across groups. The endogenous variables in

our model are the variables measured at Time 2, the exogenous variables, are the variables' means at Time 1.

3. Strict measurement invariance - invariant covariance: weights, intercepts, means and covariance (variance and covariance of exogenous variables) are constrained equally across groups.
4. Strict measurement invariance – invariant residuals: all parameters, including the residual variance and covariance are constrained equally across groups.

Multi-group comparison: the role of major.

The first analyzed moderator is major: people studying in different domains may have different levels of calling and engaged learning. The way in which calling and engaged learning affect each other over time may be different as well.

Participants in this study came from different fields, so we decided to conduct this analysis on respondents of both surveys who did not change major during the interval between the first and second waves of data collection (n = 1164). Three subsamples, each with more than 100 participants, were finally drawn: Psychology (n = 248), Engineering (n = 174), and Medical Sciences (n = 110). Table 44 reports the descriptive statistics for the three samples.

Table 44.
Descriptive statistics by Major

	Psychology				Engineering				Medical Sciences			
	Time 1		Time 2		Time 1		Time 2		Time 1		Time 2	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
ICS	5.10	1.02	5.22	.98	4.36	1.12	4.52	1.16	4.90	1.21	5.05	1.16
Prosocial Orientation	3.14	.62	3.18	.57	2.77	.68	2.82	.71	3.03	.80	3.07	.72
Purposeful Work	3.17	.56	3.26	.56	2.90	.66	3.01	.65	3.04	.73	3.14	.61
Transcendent Summons P.	2.23	.84	2.12	.88	1.84	.75	1.82	.86	1.97	.86	1.87	.96
Calling Orientation	3.02	.88	3.21	.87	2.51	.98	2.63	.91	3.13	.86	3.05	.92
EL Meaningful Processing	5.54	1.13	5.54	1.04	4.35	1.32	4.62	1.29	5.02	1.31	5.17	1.30
EL Focused Attention	5.03	1.37	4.83	1.40	4.58	1.53	4.62	1.53	4.75	1.50	4.25	1.70
EL Active Participation	4.40	1.24	4.91	1.36	4.16	1.33	4.97	1.28	4.63	1.35	5.04	1.39

Note. ICS = Calling measured as meaningful passion; EL = engagement in learning.

As a preliminary step, the multi-group invariance of the base model was tested. The Reciprocal Causation Model[21] was selected as baseline model because it provided a better fit than

[21] The reciprocal causation model estimates the cross-lagged paths from Engagement in Learning at Time 1 on Calling at Time 2 and from Calling at Time 1 to Engagement in Learning at Time 2. Calling is measured with ICS, prosocial orientation, purposeful work, presence of a transcendent summons (CVQ; Dik, et al.,

the other models previously tested. The model was tested separately on each subsample. The indices of fit are reported in Table 45.

Table 45.
Fit indices for the Reciprocal Causation Model for each subgroup.

	χ^2	*p*	χ^2/df	TLI	CFI	RMSEA	95% CI	
							LL	*UL*
Psychology	93.474	.002	1.612	.938	.973	.05	.03	.068
Engineering	66.789	.201	1.152	.979	.991	.03	< .001	.058
Medical Science	94.855	.002	1.635	.895	.955	.08	.047	.103

Note. Number of estimated distinct parameters = 94. Degrees of freedom = 58.

The chosen baseline model fit the data relatively well, with CFI greater than .95 and RMSEA lower than .08. Then constraints were imposed as previously described. Table 46 reports the results of multi-group analyses.

Change in chi-square statistic between the unconstrained model and the model with constrained weights is statistically significant ($\Delta\chi^2 = 106.30$, $\Delta df = 76$, $p = .01$). An examination of modification indices suggests setting free the autoregressive path from Prosocial Orientation at T1 to Prosocial Orientation at T2. The chi-square difference of the new model compared to the unconstrained model is not statistically significant; the hypothesis of metric invariance cannot be rejected. The three groups are equal on regression weights, except for the stability of Prosocial Orientation between T1 and T2.

A model with constraints on regression weights and constraints on intercepts at T2 was then tested (measurement intercepts invariance). The chi-square difference was statistically significant, suggesting non-invariance between groups on the level of variables at Time 2. After examining the modification indices, strict invariance was reached for all variables except for prosocial orientation and engaged learning focused attention at Time 2. Therefore, students enrolled in Psychology, Engineering and Medical Science have different levels of prosocial orientation and engaged learning focused attention at Time 2.

Subsequently, equality constraints were imposed on means at Time 1. All equality constraints imposed on means significantly worsened the model fit. The three groups of students attending different majors presented different level of calling and engagement in learning at Time 1.

2012), and calling orientation (WLP; Wrzesniewski et al., 1997). Engagement in learning is measured with its three factors: meaningful processing, active participation and focused attention.

Table 46.
Invariance test across academic majors.

	Free Parameters	n par	χ^2	*df*	chi/*df*	$\Delta\chi^2$	Δdf	*p*	TLI	CFI	ΔCFI	RMSEA	AIC
Unconstrained model		378	137.62	78	1.76				.90	.97		.07	20674.25
Measurement weights		302	243.92	154	1.58	106.30	76	.01	.92	.96	-.01	.06	20628.55
	Path from Prosocial at Time 1 on Prosocial at Time 2	304	231.68	152	1.52	94.06	74	.06	.93	.96	-.01	.05	20620.31
Measurement intercepts		288	280.99	168	1.67	49.32	16	.00	.91	.95	-.02	.06	20637.63
	Prosocial orientation at T2	290	265.98	166	1.60	34.31	14	.00	.92	.95	-.01	.06	20626.62
	EL Focused attention at T2	292	251.61	164	1.53	19.94	12	.07	.93	.96	.00	.06	20616.25
Structural means		276	390.41	180	2.17	138.80	16	.00	.85	.90	-.06	.08	20723.05
	EL Meaningful Processing at T1	278	343.76	178	1.93	92.15	14	.00	.88	.92	-.04	.07	20680.40
	Calling Orientation at T1	280	329.09	176	1.87	77.48	12	.00	.89	.93	-.03	.07	20669.73
	ICS at T1	282	315.27	174	1.81	63.66	10	.00	.90	.93	-.02	.07	20659.90
	Prosocial orientation at T1	284	301.94	172	1.76	50.33	8	.00	.90	.94	-.02	.07	20650.57
	Transcendent summons at T1	286	288.56	170	1.70	36.95	6	.00	.91	.94	-.02	.06	20641.20
	Purposeful work at T1	288	270.96	168	1.61	19.34	4	.00	.92	.95	-.01	.06	20627.59
	EL Focused Attention at T1	290	260.14	166	1.57	8.53	2	.01	.93	.96	.00	.06	20620.78

Note. All chi-square differences significant at $p < .001$; n par. = number of distinct parameters to be estimated. The unconstrained model is the reciprocal causation model which estimates the cross-lagged paths from engagement in learning at Time 1 on calling at Time 2 and from calling at Time 1 to engagement in learning at Time 2 without equality constrains between groups. In the measurement weight model the autoregressive loading between the same variables at T1 and T2 and the cross-lagged loadings between measures of calling and measures of engaged learning was constrained equally across groups. To test invariance of measurement intercepts and structural means equality constrains were imposed to the intercepts of endogenous and exogenous variables across groups.

In conclusion, the paths of reciprocal influence are invariant across groups. Medical, psychology and engineering students have different levels of prosocial orientation and focused attention at Time 2 and their level of calling and engaged learning are different at Time 1.

Multi-group analysis reveals that the three groups of students have different levels of stability in their prosocial orientation over time. Constraints on the autoregressive path from prosocial orientation at Time 1 to prosocial orientation at Time 2 is not invariant. Groups have different levels of prosocial orientation and focused attention at Time 2. Finally, the invariance of means at Time 1 was not reached: student levels of engaged learning and calling at Time 1 are different depending on their major.

Since the cross-lagged models are not completely invariant across groups, the four causal models, the autoregressive model (Model 1), the model with calling influencing engaged learning (Model 2), the model with engaged learning which predicts calling (Model 3) and the reciprocal causation model (Model 4), were separately estimated in each group. This analysis tests which model has the best fit in each sample. Fit indices and comparison statistics are reported in Tables 47 and 48.

Table 47.
Fit indices for the Competing Models: autoregressive model, causal structural models, and fully cross-lagged model.

	Psychology (n = 248)										
	n par.	χ^2	*df*	*p*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
									LL	*UL*	
Model 1	96	105.76	56	< .001	1.89	.91	.9	.06	.04	.07	297.75
Model 2	111	79.32	41	< .001	1.94	.91	.97	.06	.04	.08	301.32
Model 3	111	68.33	41	< .01	1.67	.93	.98	.05	.03	.07	290.33
Model 4	126	44.09	26	< .001	1.70	.93	.99	.05	.02	.01	296.10
	Engineering (n = 174)										
	n par.	χ^2	*df*	*p*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
									LL	*UL*	
Model 1	96	84.86	56	.008	1.52	.93	.97	.05	.03	.08	276.86
Model 2	111	69.65	41	.003	1.70	.97	.97	.06	.04	.09	291.65
Model 3	111	52.92	41	.101	1.29	.96	.99	.04	0	.07	274.92
Model 4	126	37.69	26	.065	1.45	.94	.99	.05	0	.09	289.69
	Medical Sciences (n = 110)										
	n par.	χ^2	*df*	*p*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
									LL	*UL*	
Model 1	96	93.07	56	.001	1.66	.89	.96	.08	.05	.11	285.07
Model 2	111	81.19	41	0	1.98	.84	.95	.10	.06	.13	304.19
Model 3	111	68.38	41	.005	1.67	.89	.97	.08	.04	.11	290.38
Model 4	126	54.94	26	.001	2.11	.82	.97	.10	.06	.14	306.94

Note. Model 1 = Baseline model; Model 2 = Calling predicts Engaged Learning Model; Model 3 = Engaged Learning predicts Calling Model; Model 4 = Reciprocal Causation Model; n par. = number of distinct parameters to be estimated.

In the psychology sample, models 2, 3 and 4 present a better fit to the data than the autoregressive model (significant χ^2 differences). The third model, which estimates the effect of engagement in learning at Time 1 on presence of a Calling at Time 2, is the best fitting model. Therefore, engagement in learning predicts calling in the sample of psychology students.

In the engineering sample, models 3 and 4 fit the data better than model 1. The χ^2 difference between models 3 and 4 is not statistically significant, so freeing the parameters does not increment the model's fit. Once more, in this sample, the third model is the best fitting model. This means that in the sample of engineering students, as well as for psychology students, the relationship between calling and engagement in learning is not reciprocal but moves in one direction, from engagement in learning at Time 1 to calling at Time 2.

Table 48.
Results of Nested-Models comparisons

Psychology (n = 248)				
	ΔCFI	$\Delta\chi^2$	Δdf	p
Model 1 vs Model 2	-.008	26.434	15	.034
Model 1 vs Model 3	-.017	37.429	15	.001
Model 1 vs Model 4	-.023	61.663	30	.001
Model 2 vs Model 4	-.015	35.229	15	.002
Model 3 vs Model 4	-.006	24.234	15	.061
Engineering (n = 174)				
	ΔCFI	$\Delta\chi^2$	Δdf	p
Model 1 vs Model 2	0	15.213	15	.436
Model 1 vs Model 3	-.017	31.947	15	.007
Model 1 vs Model 4	-.017	47.173	30	.024
Model 2 vs Model 4	-.017	31.96	15	.007
Model 3 vs Model 4	0	15.226	15	.435
Medical Science (n = 110)				
	ΔCFI	$\Delta\chi^2$	Δdf	p
Model 1 vs Model 2	.004	11.878	15	.688
Model 1 vs Model 3	-.012	24.69	15	.054
Model 1 vs Model 4	-.01	38.131	30	.146

Note. Model 1 = Baseline model; Model 2 = Calling predicts Engaged Learning Model; Model 3 = Engaged Learning predicts Calling Model; Model 4 = Reciprocal Causation Model.

Finally, models estimated on students at medical school present a worse fit than those fitted on the psychology and engineering samples. Specifically, TLI is lower than .95, and RMSEA is

greater than .05. In addition, neither model presents a better fit than the autoregressive model (the chi-square differences are not statistically significant).

In the sample of medical students, the cross-lagged model was estimated to identify the reason for poor fit. Modification indices suggest estimating the path from presence of a calling measured with ICS at Time 1 on Purposeful work at Time 2. After this modification, the fit of the model significantly increases, χ^2 (25) = 43.59, p = .01, CFI = .977, RMSEA = .083, the chi-square difference between the cross-lagged model and the modified model is statistically significant ($\Delta\chi^2$ = 11.35, Δdf = 1, p < .001, ΔCFI = -.01). Calling as meaningful passion at Time 1 has a positive effect on purposeful work at Time 2 (β = .18) for students in medical sciences. ICS measures the experience of a calling as passion, sacrifice, dedication, satisfaction in calling domain. This experience for having a calling increases the connection between the sense of one's life and meaning to what one is studying in medical students (that is calling as purposeful work). When medical students have a passion for what they are studying, the feeling that medical science is in line with the sense of their lives increases.

Engagement in learning is better positioned as a predictor of calling in all samples, for students enrolled in medical science there is also a relevant effect of calling on another dimension of calling at Time 2. Therefore, the three groups of students from different majors are similar in the way engagement in learning influences calling, but there are minor differences which suggests considering study field as a possible moderator of calling development over time.

Multi-group comparison: year of enrollment.

The second possible moderator of the relationship between engagement in learning and calling over time is the year of enrollment. Students who took part in this study were in different college years during the first data collection and most of them regularly enrolled for the following year at the time of the second data collection.

Students in different grades might present a different process of influence between calling and engagement in learning. Engaged learning meaningful processing predicts calling over time (ICS, purposeful work and prosocial orientation), and calling (ICS) is a predictor of focused attention. Consequently, there is a vicious circle between engaged learning and calling over time: being engaged increases calling and having a calling increases engagement. Therefore, we might expect to observe a stronger effect of engaged learning on calling for students at the beginning of their college education, and then find out that, for students with more experience, calling and engaged learning influence each other.

This moderation analysis was performed on data collected from students who took part in both data collections (N = 1325). This choice has a negative impact on the sample size, but in this

way, the analyses are based on the answers provided by students with an active academic career and regular curricula, who participated in both data collections. Three groups of students with a sample size higher than 200 were identified:

- Group 1-2: students who made the transition from the first to the second academic year in a bachelor program or in a single cycle degree (n =283). Mean age at Time 1 was 20.92, SD = 4.75.
- Group 2-3: students who made the transition from the first to the third academic year in a bachelor program or in a single cycle degree (n =355). Mean age at Time 1 was 22.20, SD = 5.08.
- Group 4-5: students who made the transition from the fourth to the fifth academic year in a single cycle degree or from the first to the second year in a master program (n =188). Mean age was = 23.97, SD = 3.82.

Table 49 reports means and standard deviations for the variables in the three groups.

Table 49.
Descriptive statistics by year of enrollment

	Group 1-2				Group 2-3				Group 4-5			
	Time 1		Time 2		Time 1		Time 2		Time 1		Time 2	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
ICS	4.74	1.14	5.02	1.15	4.88	1.14	5.08	1.20	4.85	1.19	5.00	1.24
Prosocial Orientation	2.87	.69	2.94	.71	2.86	.75	2.89	.75	2.93	.75	2.99	.75
Purposeful work	3.06	.66	3.18	.62	3.09	.63	3.17	.61	3.04	.64	3.14	.62
Transcendent Summons Presence	2.21	.89	2.07	.92	2.13	.87	2.04	.90	2.02	.84	1.94	.86
Calling Orientation	2.69	.74	2.84	.92	2.63	.84	2.75	1.03	2.63	.80	2.76	.93
EL Meaningful Processing	5.06	1.35	5.30	1.26	5.14	1.28	5.21	1.24	5.14	1.29	5.04	1.37
EL Focused Attention	4.73	1.57	4.71	1.55	4.72	1.54	4.81	1.45	5.07	1.34	4.73	1.56
EL Active Participation	4.26	1.31	5.06	1.27	4.42	1.37	5.11	1.36	4.63	1.29	5.10	1.39

Note. Group 1-2: students who made the transition from the first to the second academic year; Group 2-3: students who made the transition from the first to the third academic year; Group 4-5: students who made the transition from the fourth to the fifth academic year; EL = engagement in learning.

Firstly, the Reciprocal Causation Model[22] was estimated. This model was selected because, in the analysis of the direction of the longitudinal relationship between calling and engaged learning, it emerged as the best fitting model. The results are reported in Table 50.

[22] The reciprocal causation model estimates the cross lagged paths from engagement in learning at Time 1 on calling at Time 2 and from calling at Time 1 to engagement in learning at Time 2. Calling is measured with ICS, prosocial orientation, purposeful work, presence of a transcendent summons (CVQ; Dik, et al., 2012),

Table 50.
Fit indices of the Reciprocal Causation Model

	χ^2	*p*	χ^2/df	TLI	CFI	RMSEA	95% CI	
							LL	*UL*
Group 1-2	37.84	.063	1.456	.965	.993	.040	.000	.066
Group 2-3	36.68	.080	1.410	.970	.990	.034	.000	.058
Group 4-5	35.15	.110	1.350	.960	.990	.040	.000	.080

Note. Number of estimated distinct parameters = 126, *df* = 26.

The model has a good fit to the data in each group. Regardless of the year of enrollment, the model that estimates reciprocal effects over time between calling and engaged learning fits the data well. A model with constraints on regression weights was estimated and compared to the unconstrained model. The chi-square difference was statistically significant, suggesting non-invariance between groups on loadings ($\Delta\chi^2 = 129.516$, $\Delta df = 76$, $p < .0001$). Even after relaxing constraints with higher modification indices, the model with equal constraint presents a significantly worse fit to the data than the unconstrained model. This suggests that the factor loadings are not operating equivalently across the three groups.

The multi-group analysis suggests that the way in which engaged learning influences calling and *vice versa* are different depending on the year of enrollment in which a student is enrolled.

Since it is not possible to assume the invariance of loadings, and the focus of this analysis is the causal relationship between engagement in learning and calling, the cross-lagged model parameters were examined in the three samples.

Results for the sample of students that enrolled for the second academic year show two significant paths (see Figure 13), from calling orientation at T1 (WLP) to engaged learning meaningful processing at T2 ($\gamma = -.11$, $p = .03$), and from engaged learning meaningful processing at T1 to purposeful work ($\gamma = .18$, $p = .009$). The first effect is negative, so having a calling orientation toward work decreases the experience of learning as meaningful and worthwhile. The second effect is positive: the perception of learning as meaningful increases the feeling that one's career is significant and contributes to the sense of life. There are no other longitudinal relationships between calling and engaged learning. It is possible that these two dimensions can be less related at the beginning of the college education. Indeed, students in the first year of college have no experience of classes and learning activities.

and calling orientation (WLP; Wrzesniewski et al., 1997). Engagement in learning is measured with its three factors: meaningful processing, active participation and focused attention.

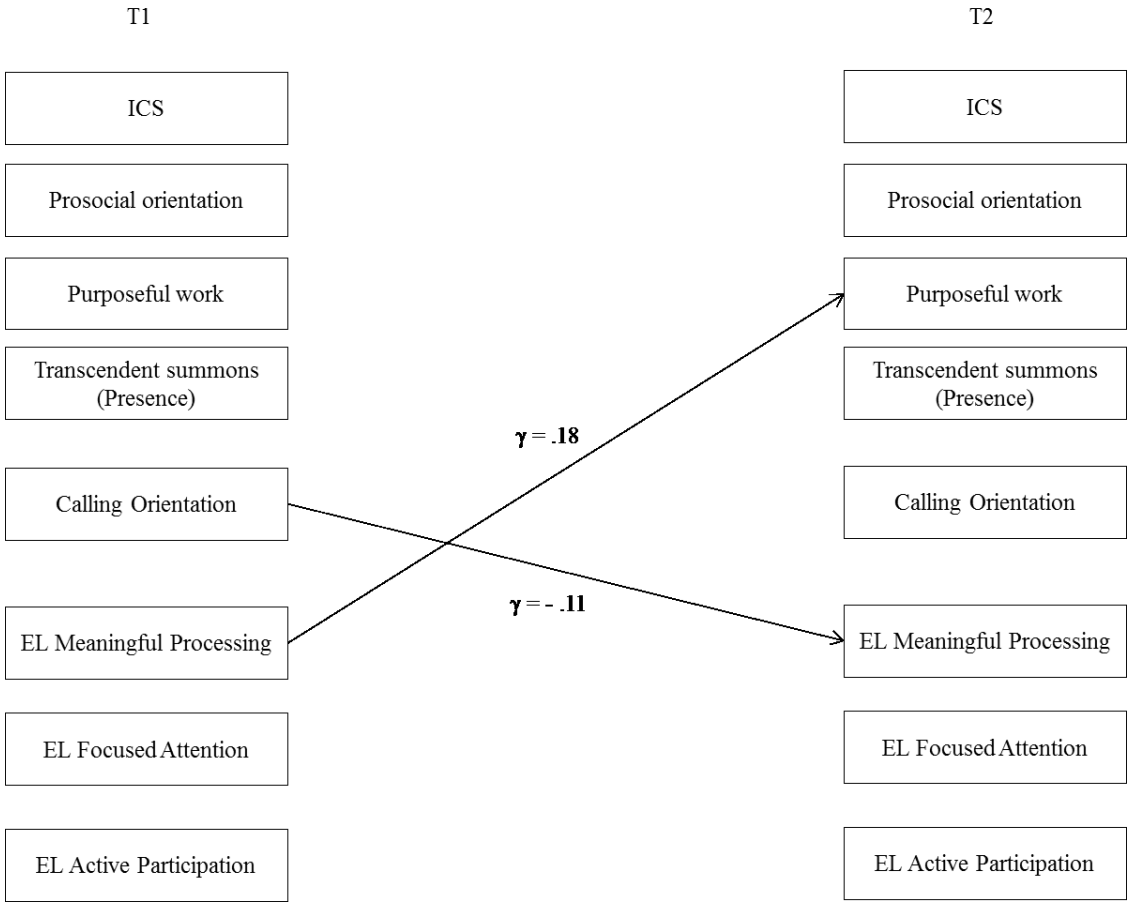

Figure 13. Longitudinal relationship between calling and engagement in learning in the group of students who made the transition from the first to the second academic year. Only significant standardized cross lagged effects are presented; stability effects and covariates not shown.

The path of reciprocal influence between calling and engagement in learning is more complex for second-year students enrolled in the third year at the time of the second data collection (see Figure 14). There are three effects of calling on engagement in learning. As well as those observed in the total sample, calling - meaningful passion (ICS) - positively influences engaged learning focused attention at T2 (γ = .14, p = .01). Therefore, the experience of having a calling fosters attention on class and interest in the learning experience. The other effects of calling are due to prosocial orientation at T1 which negatively predicts engaged learning focused attention at T2 (γ = -.11, p = .03) and active participation (γ = -.10, p = .03). Being interested in a career which benefits others decreases attention in class and active participation. It is possible that students motivated by other-oriented values are more engaged in extra-curricular activities that reduce the time and energy invested in learning activities. Learning activities might be less interesting and motivated because they do not bring any direct benefit to others. Engaged learning - meaningful processing at T1 positively predicts calling - meaningful passion (ICS) at T2 (γ = .15, p = .01), transcendence

summons presence (γ = .13, p = .03) and calling orientation (γ = .30, p <.001). Therefore, as observed in the total sample, feeling energized by learning, feeling that the learning experience is worthwhile, is associated with an increase in the experience of having a calling (ICS), of being called to follow a career path (transcendent summons) and it fosters the attitude toward work as a calling (calling orientation). Unexpectedly, engaged learning focused attention negatively influences calling orientation (γ = -.11, p = .03). Being attentive and interested during class activities decreases the perception of work as a calling.

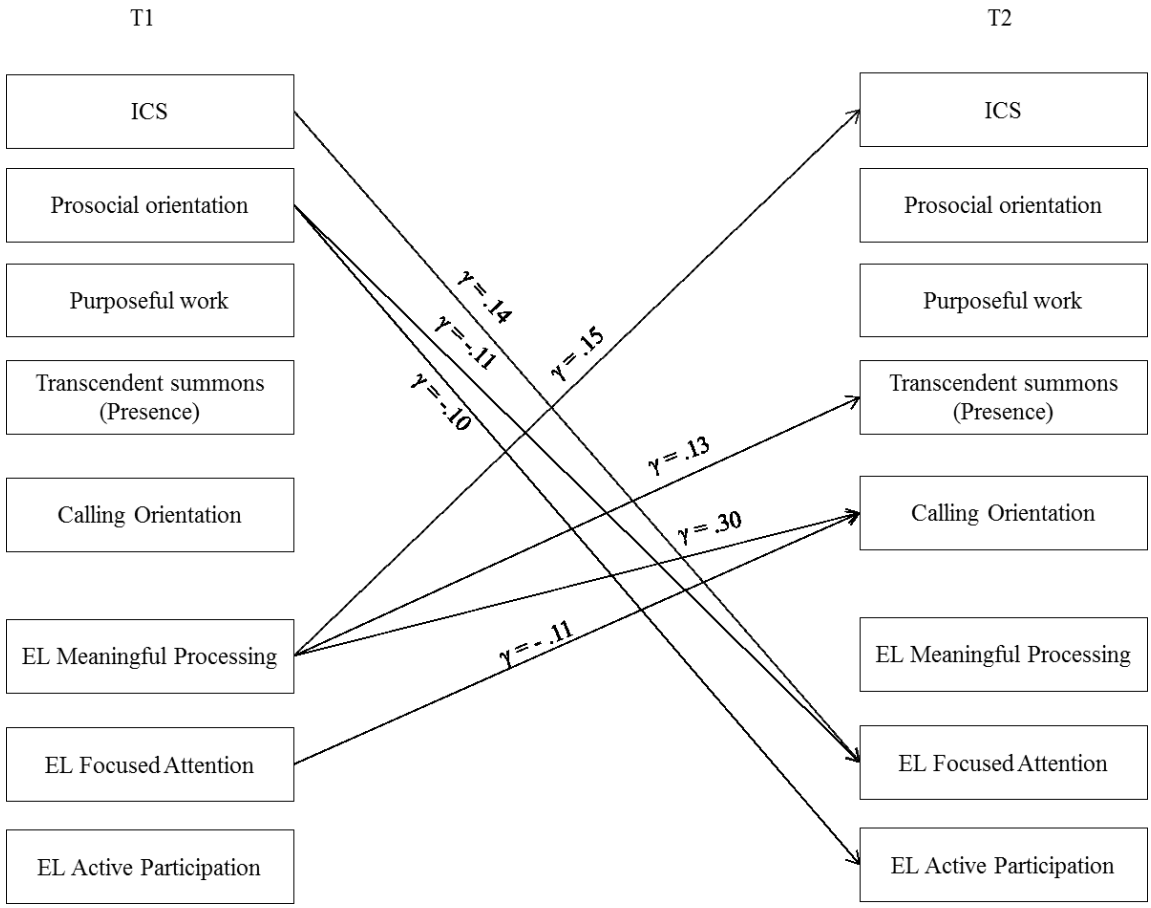

Figure 14. Longitudinal relationship between calling and engagement in learning in the group of students who made the transition from the second to the third academic year. Only significant standardized cross lagged effects are presented; stability effects and covariate not shown.

Finally, we estimated the fully cross-lagged model in the third group, made up of students enrolled at Time 1 in their fourth year, who passed to the fifth year at the time of the second data collection (see Figure 15). The path of influence between calling and engagement in learning is similar to that observed with the groups of second-year/third-year students. Like before, engaged learning meaningful processing has a positive effect on ICS (γ = .25), calling orientation (γ = .37) and transcendent summons presence at T2 (γ = .09, p = .04). In addition, engaged learning was

found to positively predict purposeful work (γ = .27). Being engaged in learning activities, lived out as meaningful, fosters the development of calling as a passion (ICS) and transcendent summons, increasing the orientation toward work as a calling and the perception of purpose in career. Also in this group of students, the effect of calling at Time 1 on engagement in learning at Time 2 is due to two components: calling (meaningful passion, ICS) - and prosocial orientation. ICS at T1 has a positive effect on engaged learning meaningful processing at T2 (γ = .20, p = .006) and on engaged learning focused attention at T2 (γ = .17, p = .032). Prosocial orientation at T1 has a positive effect on engaged learning meaning at T2 (γ = .12, p =.03). In the younger group of students, prosocial orientation was found to have a negative effect on active participation and focused attention. Being motivated by other-oriented value in one's career promotes the feeling that what one is studying is meaningful and worthwhile.

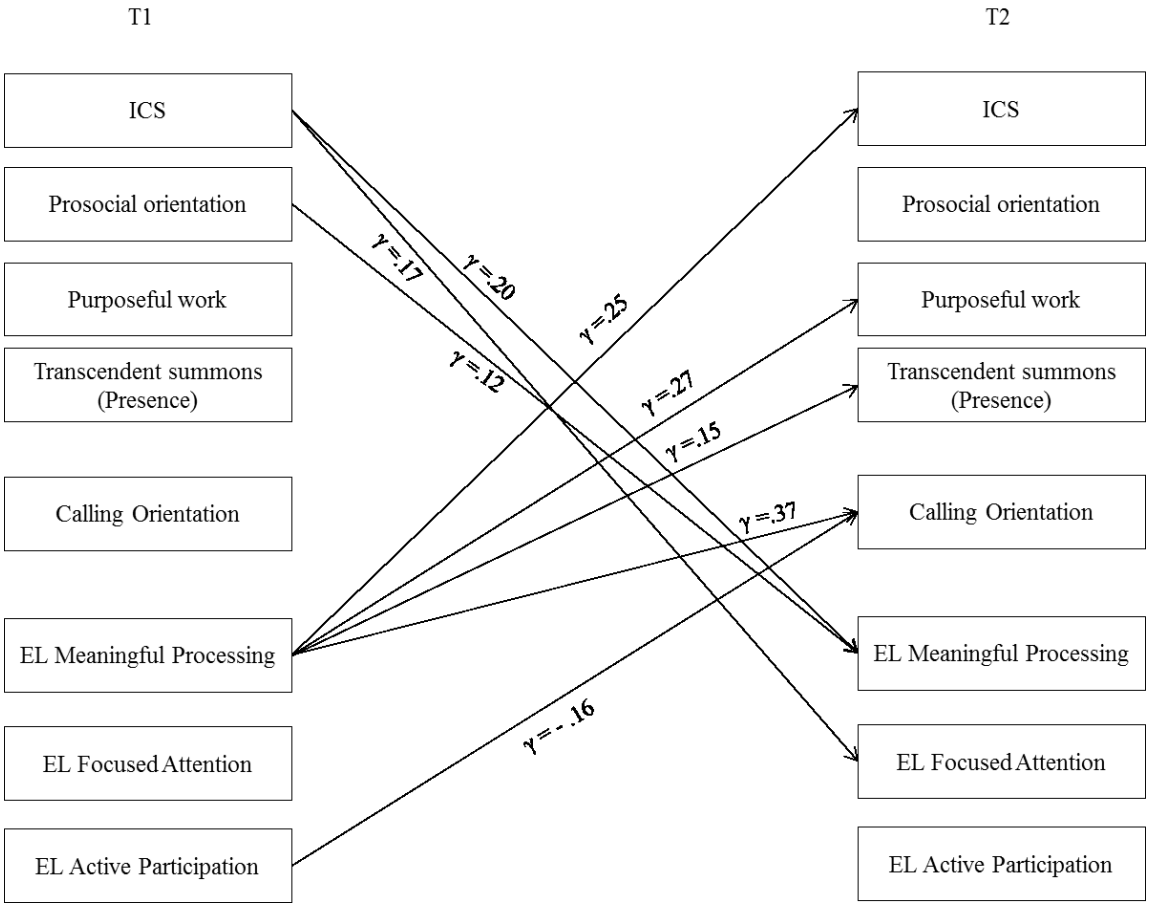

Figure 15. Longitudinal relationship between calling and engagement in learning in the group of students who made the transition from the fourth to the fifth academic year. Only significant standardized cross lagged effects are presented; stability effects and covariate not shown.

In the oldest group of students, there was a positive reciprocal effect between calling - meaningful passion (ICS) - and engagement in learning meaningful processing. The stronger effect

was from the latter to the former (respectively .25 vs .20). In this group, we also observed an effect of engaged learning active participation on calling orientation at T2 (γ = -.16, p =.03). This was similar to the effect of focused attention on calling orientation in the 2nd year -3rd year Group.

In all three groups, there are significant paths from calling at Time 1 to engagement in learning at Time 2, and from engaged learning at Time 1 to calling at Time 2. The multiple group analysis confirms the presence of a reciprocal influence between calling and engagement in learning and the role of the latter, specifically its meaningful processing factor, as the main predictor.

The component of meaningful processing in engagement always positively predicts calling at Time 2, differently from focused attention and active participation, which emerged as predictors of a decrease in calling orientation (WLP) only in the two older groups. Therefore, for these groups of students, being interested and focused, and participating in class, reduced the orientation toward work as a calling.

In order to understand the reason for these differences and negative effects, we analyzed the groups' working experience. There were more students with work experience in the fourth year of college education than in the first and second years[23], but we did not observe differences in the percentages of students with work experience between students in the second, third and fifth years of college education[24]. Students in their second, third and fifth years of college education had different kinds of work experience[25]: students from the two older groups (Group 2-3 and Group 4-5) presented a higher percentage of members who worked or were working at the time of data collection in a professional field in line with their study. Students at the end of their college education (Group 4-5) had more work experience than the other two groups. In addition, the two older groups (Group 4-5 and Group 2-3) had more working experience in line with their study than students at the beginning (Group 1-2).

The higher presence of students with experience in line with their education in the older groups (Group 2-3 and Group 4-5) might explain why their engagement in learning (focused attention and active participation) was significantly related to their orientation toward work (calling orientation). This is an effect that was not observed between students at the beginning of their education (Group 1-2), who had less work experience and less congruence between their study and their work.

[23] Among students in the fourth year, 45% declared that they had work experience, compared to 38% in the first year and 40% in the second year.
[24] In the younger group, 46% of participants declared that they had work experience, while 43% of students in the other two groups had professional experience.
[25] In the younger group, 20% of students are/were engaged in work experience in line with their studies, contrary to 29% in group 2-3 and 30% in group 4-5.

College students usually work in order to earn money (job orientation). It is possible that more engagement and interest in class decreases their interest in working activities and their feeling that profession is a calling.

Prosocial orientation predicted engagement in learning only in the two older groups, with a positive effect on meaningful processing and a negative effect on the other two components, focused attention and active participation. It is possible that students who are more oriented toward helping others are also engaged in extra-curricular activities, might find more meaning in what they are doing, but as a consequence their participation and attention during class is reduced.

Calling and engagement in learning of students at the beginning of their college education are not strictly related. Students with a college orientation toward work have a decreased feeling that what they are studying is meaningful for their life. This might be a sign that college education appears less meaningful and worthwhile for students passing from the first to the second year. The other significant association between engagement in learning and calling in the group of younger students (Group 1-2) regards meaning in work and study. The feeling that what a person is studying is meaningful (engagement in learning meaningful processing) increases the perception that the career has a purpose and is in line with the meaning of life. There is a positive effect so that meaning in learning experience increases the perception of meaning in the general career. The quality of learning experience affects the evaluation of one's career and contributes to the meaning of life. We observed the same effect in the group of students at the end of their education. These two groups of students are in a crucial phase of their careers, facing the passage from high school education to university, and from university to the working world. Therefore, the meaning of what they are doing at school is probably more important and influential after their perception of their future academic and professional career.

In neither group were the measures of purposeful work and transcendent summons found to predict engagement in learning, suggesting that these two components do not affect engagement.

This multiple group analysis suggests that the reciprocal influence between calling and engagement in learning is minimal at the beginning of college education. Engagement in learning and calling at Time 1 have a greater effect on students' experience and attitude toward a career when they have developed more academic and work experience. Engagement in leaning emerges as a predictor of calling over time in all three groups, and there are more significant and greater effects from the three factors of engagement at Time 1 to dimensions of calling at Time 2.

CHAPTER 6. LONGITUDINAL RELATIONSHIP BETWEEN HAVING A CALLING AND CLARITY OF PROFESSIONAL IDENTITY

The longitudinal relationship between calling and clarity of professional identity is not clear. Empirical findings suggest that vocational development and career preparation predict calling (Duffy, Manuel et al., 2011; Hirschi & Hermann, 2013, Duffy, Douglass et al., 2014). Other researchers, however, have found vocational development and career preparation to be predicted by calling (Dobrow & Tosti-Kharas, 2011; Hirschi & Herrmann, 2012; Duffy, Douglass et al., 2014; Praskova, Hood et al., 2014). Duffy, Douglass et al. 2014 found vocational clarity to predict calling after three months, but their measure is not specifically related to clarity of professional identity.

The experience of having a calling is not necessarily related to a specific professional role, so people can experience a calling for a domain and, later, after career exploration and professional experience, develop a clear idea about the career path that might answer their calling. Therefore, we think that calling is a predictor of a clear idea about the desired professional identity.

This chapter analyzes the longitudinal relationship between calling and clarity of professional identity. First, we expected calling to be positively related to clarity of professional identity over time (Hp 4a). Second, we hypothesized that students' calling at Time 1 positively influences clarity of professional identity at Time 2 (Hp 4b). Finally, the search for a transcendent summons represents a lack of a clear calling, and high scores indicate that the respondent is still looking for their calling. As a consequence, this component of calling was expected to negatively predict clarity of professional identity (Hp 4c).

Data analysis

In order to analyze the longitudinal relationship between calling and clarity of professional identity, we estimated and compared four nested path models. The *first model* is a baseline, autoregressive model. The *second model* resembles the first model, but adds the path from calling at Time 1 to clarity of professional identity at Time 2. The *third model* tests the reverse effect from clarity of professional identity at Time 1 to calling at Time 2. Finally, the *fourth model* is a fully cross-lagged model where calling and clarity of professional identity influence each other across time.

We analyzed the relationship between clarity of professional identity and calling measured as: meaningful passion (ICS), presence and search for transcendent summons, prosocial orientation, purposeful work (CVQ), need for calling and calling orientation.

Chi-square difference test and fit indices (CFI, RMSEA) were analyzed in order to identify the best fitting model.

Results

Table 51 summarizes the correlations between clarity of professional identity and measures of calling at Time 1 and Time 2. All measures of calling, except for the search for transcendent summons, are positively related to clarity of professional identity. The correlation ranges from small (r = .10) to medium (r = .41). The search for a transcendent summons is negatively related with clarity of professional identity both at Times 1 (r = -.28) and 2 (r = -.40).

The four models were estimated and their fit indices were compared. Table 52 shows the fit indices for the estimated models. The fits of all models are moderate (TLI and CFI greater than .93 and RMSEA lower than .05). Models 2, 3 and 4 were compared to the baseline model, to test whether including the relationships between calling and clarity of professional identity across time improves the fit to the data. Results are reported in Table 53.

Table 52.
Fit indices for the Competing Models: autoregressive model, causal structural models, and fully cross-lagged model.

	χ^2	*df*	χ^2/df	TLI	CFI	RMSEA	95% CI		AIC
							LL	*UL*	
Model 1 - Autoregressive	499.026	56	8.911	.937	.974	.037	.034	.04	691.026
Model 2 Calling predicts Clarity	464.458	49	9.479	.933	.976	.038	.035	.041	670.458
Model 3 Clarity predicts Calling	323.669	49	6.605	.955	.984	.031	.028	.034	529.669
Model 4 – Reciprocal	295.591	42	7.038	.952	.985	.032	.029	.036	515.591

Note. All chi-squared values are significant at $p < .001$.

Table 51.
Descriptive Statistics and Correlations between measures of calling and clarity of professional identity.

	n	*M*	*DS*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Clarity of Professional Identity T1	5348	4.15	1.78	1														
2. Clarity of Professional Identity T2	1688	4.02	1.79	.71**	1													
3. ICS	5676	4.80	1.20	.41**	.32**	1												
4. ICS T2	1694	4.97	1.21	.36**	.38**	.65**	1											
5. Prosocial Orientation T1	5621	2.87	.75	.20**	.16**	.30**	.21**	1										
6. Prosocial Orientation T2	1697	2.92	.73	.17**	.16**	.21**	.25**	.68**	1									
7. Purposeful work T1	5618	3.09	.63	.26**	.16**	.45**	.28**	.38**	.23**	1								
8. Purposeful work T2	1699	3.14	.62	.22**	.26**	.39**	.44**	.27**	.32**	.56**	1							
9. Transcendence Summons Presence T1	5483	2.13	.90	.27**	.24**	.40**	.28**	.36**	.24**	.38**	.22**	1						
10. Transcendence Summons Presence T2	1633	2.02	.92	.21**	.25**	.29**	.328**	.25**	.30**	.23**	.36**	.55**	1					
11. Transcendence Summons Search T1	5601	2.67	.86	-.28**	-.27**	-.02	-.07*	.15**	.10**	.30**	.19**	.15**	.07**	1				
12. Transcendence Summons Search T2	1673	2.76	.98	-.37**	-.40**	-.14**	-.14**	.03	.06**	.12**	.15**	.01	.06*	.51**	1			
13. Need for Calling T1	5447	5.46	1.07	.18**	.10**	.35**	.25**	.50**	.38**	.48**	.37**	.42**	.28**	.33**	.21**	1		
14. Need for Calling T2	1691	5.41	1.06	.19**	.22**	.27**	.30**	.43**	.51**	.32**	.41**	.38**	.49**	.17**	.15**	.54**	1	
15. Calling Orientation T1	5496	2.90	.98	.30**	.20**	.42**	.33**	.28**	.25**	.32**	.27**	.23**	.19**	-.02	-.06*	.33**	.23**	1
16. Calling Orientation T2	1700	2.94	.96	.25**	.24**	.37**	.38**	.26**	.28**	.25**	.32**	.18**	.20**	-.03	-.07**	.22**	.31**	.41**

Note. PI = professional identity; ICS = calling as meaningful passion. ** $p < .01$. * $p < .05$.

The chi-square differences are statistically significant, suggesting that the models with causal paths (Model 2, 3 and 4) fit the data better than the baseline autoregressive model (Model 1). The RMSEA and the CFI differences suggest that estimating the path between calling and clarity of professional identity over time improve the model fit. There is a longitudinal relationship between calling and clarity of professional identity over time.

Table 53.
Results of Nested-Models comparisons

	ΔCFI	ΔRMSEA	$\Delta\chi^2$	Δ*df*
Model 1 versus Model 2 Baseline model versus Calling predicts Clarity Model	-.002	-.001	34.568	7
Model 1 versus Model 3 Baseline model versus Clarity predicts Calling Model	-.01	.006	175.357	7
Model 1 versus Model 4 Baseline Model versus Reciprocal Causation Model	-.011	.005	203.435	14

Note. All chi-square differences significant at $p < .0001$.

In order to test the direction of causality between calling and clarity of professional identity, the fit of the second model (Calling predicts Clarity) and third model (Clarity predicts Calling) were compared to the fit of the fully cross-lagged model (Model 4). The results are summarized in Table 54.

Table 54.
Results of Nested-Models comparisons

	ΔCFI	$\Delta\chi^2$	Δ*df*	ΔRMSEA
Model 2 versus Model 4: Model 4 versus Calling predicts Clarity of professional Identity Model	-.009	168.867	7	.006
Model 3 versus Model 4: Model 4 versus Clarity of professional Identity predicts Calling Model	-.001	28.078	7	-.001

Note. All chi-square differences significant at $p < .001$.

The chi-square differences are statistically significant, suggesting that the reciprocal causation model fits the data better than the two simple causal models (Model 2 and Model 3). RMSEA and CFI indicate that Model 4 (fully cross-lagged model) provides a better fit to the data than model 2 (Calling predicts clarity of professional identity).

Clarity of professional identity and calling influence each other reciprocally over time. Model 4 was used to estimate the parameters needed to analyze the relationship (see figure 16).

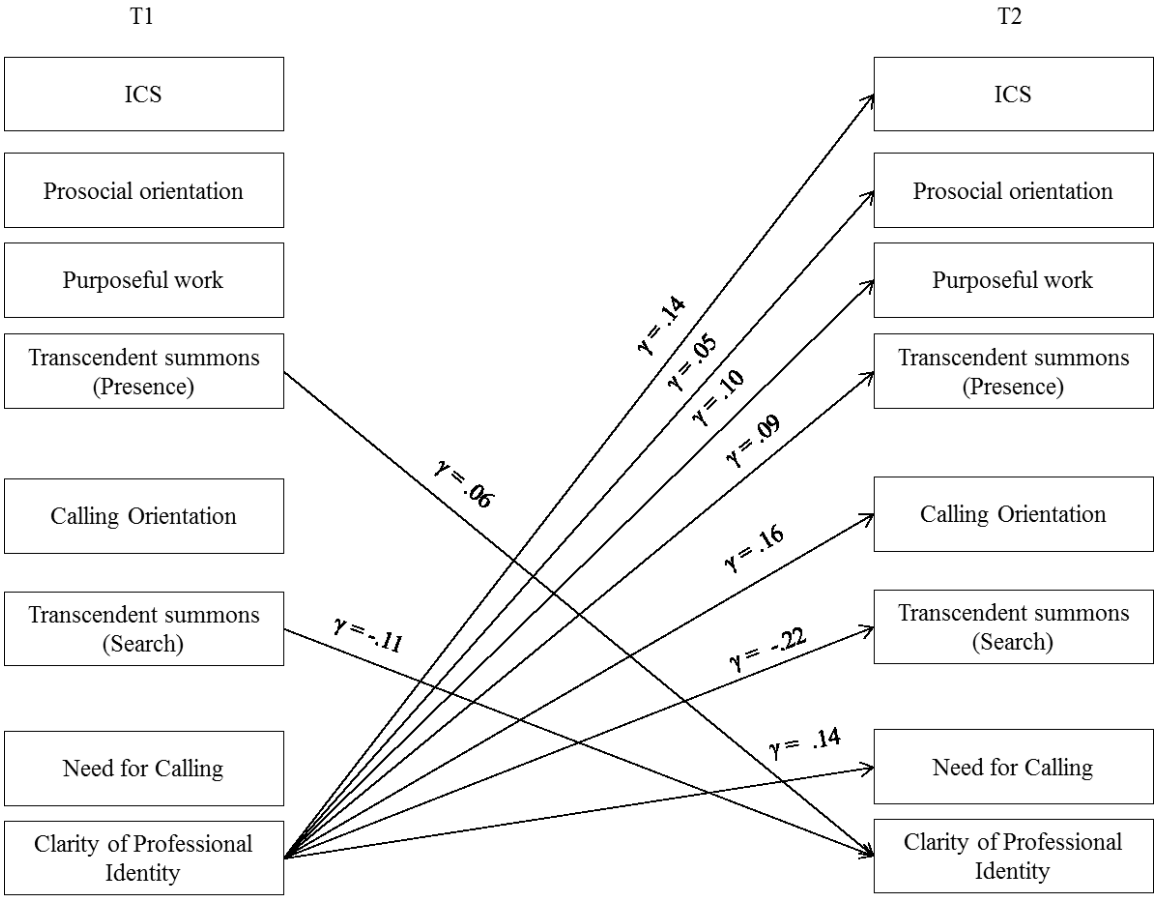

Figure 16. Reciprocal causal relationships between calling and clarity of professional identity based on a time lag of 1 year. Only significant standardized cross lagged effects are presented (after controlling for covariates within time); stability effects and covariance not shown.

Clarity of professional identity predicts all dimensions of calling after one year. Specifically, clarity of professional identity at T1 has a positive, from small to moderate, effect on calling as a passion (ICS; $\gamma = .14$, $p < .001$), prosocial orientation ($\gamma = .05$, $p = .04$), purposeful work ($\gamma = .10$, $p < .001$), calling orientation ($\gamma = .16$, $p < .001$) and need for calling ($\gamma = .14$, $p < .001$). In addition, clarity of professional identity at T1 has a positive effect on the presence of transcendent summons ($\gamma = .09$, $p < .001$) but a negative effect on searching for transcendent summons ($\gamma = -.22$, $p < .001$).

Having a clear idea about the future profession creates a positive context for the experience of having a calling and decreases the search for one's vocation.

Regarding the effect of calling at Time 1 on clarity of professional identity at Time 2, only the transcendent summons dimension of calling emerged as a significant predictor. Calling as a passion,

orientation, prosocial orientation, purposeful work and need for calling do not have a significant effect on clarity of professional identity. The presence of a transcendent summons at T1 is related to an increase in the level of clarity of professional identity at T2 (γ = .06, p = .006). On the other hand, the search for a transcendent summons at T1 has a negative effect on clarity of professional identity at T2 (γ = -.11, p < .001). The relationship between clarity of professional identity and transcendent summons are reciprocal, but the stronger effect is that of clarity of professional identity to transcendent summons.

The analysis of parameters suggests that the longitudinal relationship between calling and clarity of professional identity goes in one direction from the latter to the former. Therefore, contrary to our expectations, clarity of professional identity is a predictor of calling development over time. A clear professional identity promotes a higher level of calling and decreases the search for a transcendent summons. Consequently, students that know their career goals and the profession they are interested in at T1 develop a higher passion for the domain, have stronger feelings that their work is purposeful, have higher levels of transcendent summons, prosocial orientation, need for calling and orientation toward work as a calling.

GENERAL DISCUSSION

The purpose of this study was to gain new knowledge about the development of calling, its antecedents and its consequences. We explored the relationship between having a calling and four related constructs hypothesized to intervene in calling development as antecedents and outcomes. Social support, relationship with a mentor and engagement in learning were studied as possible predictors of developing a sense of calling, while clarity of professional identity was assessed as a possible outcome of having a calling. To accomplish this, we surveyed a sample of Italian college students at two time points over one year. In this chapter, the interpretation of results will be presented, and limitations and future direction will be discussed.

Social Support predicts calling development.

The study of a sense of calling in relation to social factors is largely unexplored in literature. This study reveals that high social support predicts an increase in calling over time.

Firstly, calling and social support provided by family, friends and a special person are positively associated over time. Secondly, social support at Time 1 is associated with an increase in calling at Time 2. Social support provided by a special person is the stronger predictor of calling at Time 2. The presence of a relationship with a reliable and supportive person increases calling as a passion, calling orientation and living out a calling, and decreases the search for a transcendent summons.

We investigated the social support provided by three sources: family, friends and a special person. Support from friends and family has a lesser impact on the development of calling than the support from a special person. In fact, support by friends increases prosocial orientation only, meaning the desire to help others throughout the professional career. Family support does not predict calling, but increases the student's intention to continue studying. Help and comfort from a special person and friends affect how a person views their career and increase the feeling of having a calling. Support from family, on the other hand, affects the intention to pursue studying. Social support does not influence calling as purposeful work and the sense of a transcendent summons. We think that the reason why social support does not predict purposeful work and transcendent summons is that these two dimensions are more personal and intimate and can be scarcely influenced by the social environment.

Social support influences calling because it helps a person to express their calling. Indeed, the stronger effects are on living out a calling, which is how much a person feels that they are able to

fulfill their calling at work or at school. The other strong effects of social support are on calling as a meaningful passion, on need for calling and on calling orientation toward work. These dimensions are more related to how a person lives and expresses their calling in everyday life. Social support, on the other hand, does not affect the more personal and intimate dimensions of calling, such as the presence of a transcendent summons and the meaning in work. We think that a supporting social environment increases the ease with which students express interest and vocation, and helps them to live out their calling and passion. On the contrary, people are more independent in the development of a transcendent summons and purpose in their calling domain.

Other studies in literature indicate that feeling comfortable in interacting with people involved in the same calling domain and sharing interest with relatives, are related to a higher calling and its development (Dobrow, 2013; 2006). This study confirms and extends the empirical evidence toward the notion that a supportive and helpful social environment fosters the development of calling. Following one's calling can be very hard. The feeling that one is called to undertake a particular career could be the result of a series of positive conditions. The presence of people with whom students can talk about their problems, who are willing to comfort and encourage them when facing career problems, fosters the development of a calling.

Relationship with a mentor fosters the presence of a calling and influences students' attitude toward work.

This study is, to our knowledge, the first investigation of the effect of mentoring on the development of calling. We tested (1) whether the mere presence of a mentor influences a student's calling and its development over time (Hp 2a, Hp 2b, Hp 2c) and (2) whether a student's calling is influenced by their mentor's orientation toward work (Hp 2d, Hp 2f).

The results mostly support our hypotheses. Students with a mentor had a higher calling (ICS), a higher sense of transcendent summons, prosocial orientation, purposeful work, a higher need for a calling and calling orientation (WLP) than students without a mentor, both at Times 1 and 2.

The presence of a mentor was expected to increase the level of calling over time. We observed that the group of students with a mentor both at Time 1 and Time 2 significantly increased in calling, meaningful passion (ICS), prosocial orientation and purposeful work. The group of students without a mentor both at Time 1 and Time 2, as well as the group with a mentor, increased in calling, meaningful passion (ICS), prosocial orientation and purposeful work. Students who lost a mentor from Time 1 to Time 2 did not increase in calling over time but significantly decreased in terms of the presence of a transcendent summons and need for a calling. Students who found a

mentor from Time 1 to Time 2 significantly increased in calling, meaningful passion (ICS) and purposeful work.

By contrast to all the other students, those who lost a mentor between Time 1 and Time 2 did not experience an increase in calling (ICS) and in purposeful work over time. Interestingly, students who found a mentor did not decrease in any dimension of calling, either showing an increase or no change in the experience of having a calling.

The effect of the presence or absence of a mentor is not completely in line with our predictions. We expected to find the group of students with a mentor to increase in all dimensions of calling, and the group of students without a mentor to significantly decrease in all dimensions of calling. However, we found little differences in the development of a calling between students with and without a mentor at both data collection times. They were different with regard to presence and search for a transcendent summons because students with a mentor decreased in presence and remained stable in search, while students without a mentor increased the search for a transcendent summons, but did not change in relation to its presence.

The absence of or the finding of a mentor has a greater impact on the development of calling. In fact, as we observed, students who lost a mentor from Time 1 to Time 2 did not have an increased sense of calling at Time 2 and had a lower presence of transcendent summons and need for calling at Time 2. The effect of losing a mentor is in line with the rationale behind the hypothesis: if the presence of a mentor is beneficial for calling development, we might expect losing a mentor to slow down the increase in a sense of calling. Students who lost their mentors did not increase in calling as a meaningful passion, calling orientation, prosocial orientation and purposeful work, and their need for a calling decreased.

Also, the effects of finding a mentor are in line with the hypotheses. This group of students significantly increased in calling as a meaningful passion (ICS) and in purposeful work, and did not decrease in the other dimensions of calling (presence of transcendent summons, prosocial orientation, need for calling and calling orientation) over time.

The groups of students who lost or found a mentor were smaller in sample size than the groups with or without a calling, so further research is needed in order to confirm this result. In addition, the reasons for which the presence of a mentor is reported at Time 1 and not at Time 2 are unknown and the way students lost a mentor could be important to a better understanding of the results.

Differences in the level of the sense of calling were found between students with and without a mentor; however the expected effect of a mentor on calling development was not found. Therefore, it is not clear as to why students with a mentor have a higher level of calling than

students without a mentor. The presence of a mentor was expected to foster calling development and to be the reason for mean differences. An alternative interpretation needs to be evaluated: a different level of calling could be the reason for which some people have a mentor and others do not. Consequently, a higher level of calling could be related to a higher probability of looking for and finding a mentor. This alternative was not analyzed in this study, but would be one of the future steps for this research project.

The hypothesis regarding the search for a transcendent summons was supported by results. We found that students with a mentor searched less for a transcendent summons than students without a mentor. The lower level of searching for a transcendent summons could be a positive outcome, meaning that a student had just found a calling. In fact, students with a mentor had a higher level of presence of a transcendent summons. Regarding the effect over time, students with a mentor did not significantly change in their level of searching for a transcendent summons, while students without a mentor was the only group that significantly increased its search for a transcendent summons between Time 1 and Time 2.

Even if these results are not definitive, they originally contribute to the literature on calling. Our findings highlight that having a mentor plays an important role in a student's sense of calling, in line with other studies on the effect of a mentor on the protégé's attitude (Ragins et al., 2000; Aryee & Chay, 1994; Eby et al., 2008; Allen et al., 2004).

The first set of hypotheses concerned the effect of having or not having a mentor. Hypotheses 2f and 2g, on the other hand, concerned the experience of people with a mentor and focused on the effect that a mentor's orientation has on the protégé's sense of calling and orientation. A mentor's orientation toward work at T1 (WLP; job, career and calling orientation) is supposed to influence the protégé's orientation toward work at T2 (WLP; job, career and calling orientation), making them similar (Hp 2d). The role of the quality of the mentoring relationship, measured with psychological and vocational support and role modeling, was analyzed as a possible mediator of the effect of a mentor on a protégé (Hp 2e).

The results support the presence of a longitudinal effect of a mentor on a student's attitude toward work. The model with a mentor's job, career and calling orientation as predictors of the protégé's calling better represented the data. In line with the hypothesis, a mentor's orientation influences the student's orientation. However, the influence of a mentor's attitude mainly regards career orientation and only marginally the protégé's sense of calling. A mentor's career orientation increases a protégé's career and job orientation and decreases a protégé's calling orientation. Having a mentor interested in career and success (career orientation) promotes in the protégé the

same interest in career and success, fosters interest in material benefits from work (protégé's job orientation) and reduces the attitude towards work as a calling (protégé's calling orientation).

A mentor's calling orientation increases a protégé's career orientation, but does not have any effect on a protégé's sense of calling and job orientation. Consequently, the only effect of a mentor on a student's sense of calling is a negative effect from career orientation. Even when mentors are passionate about their work, when they live it out as a vital part of their lives (calling orientation), students tend to develop a higher career orientation and interest in succeeding; therefore, a mentor's career and calling orientations both increase their protégé's career orientation. Career orientation is the stronger predictor of protégé orientation, a mentor's job orientation does not affect the protégé's attitude, and a mentor's calling orientation predicts only the protégé's career orientation toward work.

A mentor was expected to shape the protégé's sense of work as a calling, a job or a career, because there is evidence that a mentor influences their protégé's attitudes (Allen et al., 2004; Eby et al., 2008) and because people look to others for cues regarding how to think and behave (Social Learning Theory; Bandura, 1971; Social Information Processing Theory; Salancik & Pfeffer, 1978). This study, however, suggests that the influence of a mentor on a protégé is limited to career orientation. Even if a mentor's orientation conditions the protégé's job, career and calling orientations, it is the career mentor's attitude that appears to be the fundamental predictor. A possible explanation for these results is that career orientation is easier for a mentor to impart and easier for a protégé to learn than job and calling orientation.

People with a career orientation have a deep personal investment in their work; their achievements are not only monetary gains, but also career advancement within the occupational structure (Wrzesniewski et al., 1997). People who see their work as a career want to move on to a better, higher level job. They probably adopt career strategies and know what to do in order to achieve their goals in the future. As a consequence, career orientation is more related to behavior, strategies and career plans that can be imitated or learned by a protégé.

The main concern of people with a job orientation is the material benefits of working that allow them to support and enjoy their time outside work. The professional experience does not have a deep meaning; the job is seen as a means to achieve other non-work related purposes. This kind of feeling and attitude toward work is probably related to personal values and motivation that are less likely to be influenced by other people. This could be the reason why the degree to which a mentor carries out their work as a job does not influence a protégé's attitude.

The same interpretation can be applied to the result concerning calling orientation. Mentors who had a calling orientation were found to increase their protégés' career orientation. A person

with a calling orientation works for the fulfillment that doing the work brings to them (Wrzesniewski et al., 1997); therefore, pleasure and passion for work cannot be taught or imitated. However, a mentor's career orientation was found to negatively predict their protégé's calling orientation. Even if a calling orientation cannot be directly adopted from a role model, the presence of a different example might prevent the development of a calling. If examples of people with a calling are not available, students might be less willing to find or look for their calling.

The last hypothesis regards the process of influence and assumes the association between a mentor's and student's orientation to be mediated by the quality of the mentoring relationship. This hypothesis was not supported. The quality of mentorship does not explain the influence of the mentor's orientation on the protégé's orientation toward work; therefore, the effect of a mentor is independent of how a protégé views their mentor as a role model and independent of the psychological and vocational support that mentor provides. The mentor's orientation towards work influences the student's orientation after one year and the effect is independent of the quality of mentoring.

In conclusion, the analysis of the relationship between calling and mentorship suggests that:

- the mere presence of a mentor influences the protégé's sense of calling, clarity of professional identity and development over time;
- a mentor's career and calling orientations influence a student's career, job, and calling orientations, but the mentor's orientations are not associated with other measures of calling;
- the quality of mentorship does not explain the influence of a mentor's orientation.

Engagement in learning fosters the development of calling one year later.

Literature suggests a positive association between having a calling and engagement in work and study. In the present research, the longitudinal association between having a calling and engagement in learning and the direction of this influence over time were analyzed.

The first hypothesis was confirmed, indicating that calling dimensions and engaged learning are related over time. We also expected to find that being involved in learning activities predicts calling over time. This hypothesis was confirmed, but we also observed a reciprocal effect of the experience of having a calling at Time 1 on engagement in learning activities at Time 2. Therefore, calling and engaged learning reciprocally influence each other over time. The relationship is complex, and the direction of causality depends on the dimension of calling and engaged learning involved. This may lead to hypothesize that there are longitudinal moderators at work that regulate both the direction and intensity of these relationships.

Only two dimensions of calling predict engagement in learning: calling measured as a meaningful passion (ICS; Dobrow & Tosti-Kharas, 2011) and calling as a prosocial orientation. First, being interested in helping others and looking for a career that benefits society (prosocial orientation at Time 1) increases the perception that what a person is studying is meaningful at Time 2 (engaged learning meaningful processing). Second, calling at Time 1 (measured with ICS), predicts higher focused attention at Time 2. This second effect is reciprocal: being interested and paying attention in class positively predicts calling as a passion, but the effect of calling on focused attention is stronger.

The effect of calling on engagement in learning concerns only the cognitive and affective dimensions (focused attention and meaningful processing respectively), but does not influence behavioral active participation during activities. Active participation in class and discussion might be influenced by factors beyond the experience of having a calling. Taking part in class discussion, asking questions, and interacting with other people, are influenced by personal characteristics and features of the context, representing only one dimension of how people can manifest their calling. The other two dimensions of engagement in learning are more intimate and regard the sense of meaning allocated to studying and the level of attention and concentration during classes. These two dimensions are less influenced by context, are more related with people's attitude toward the study domain and were, in fact, found to be predicted by calling.

There are many paths of influence from engagement in learning to having a calling measured with ICS, purposeful work and calling orientation.

Both focused attention and active participation at Time 1 positively predict calling as a meaningful passion at Time 2 (ICS). The effects are small, but suggest that being involved in learning activities could help to develop a calling. This also suggests that a captivating and dynamic learning and social environment help calling development (ICS). In fact, focused attention and active participation relate to the quality of teaching and how much the academic environment supports discussion and active learning.

Meaningful processing positively predicts ICS, purposeful work and calling orientation, with a stronger effect on the latter. Feeling energized by learning and feeling that the learning experience is worthwhile outside the academic context is associated with an increase in passion and willingness to make sacrifices (ICS), fosters the orientation toward work as a calling, and augments the feeling that the career is in line with the life purpose. The dimension of meaning is more associated with calling than the other two dimensions of engagement, and this is in line with the empirical evidence of a strong association between calling and meaning in life and work (Duffy, Allan et al., 2011; Dik et al., 2012; Duffy, Douglass et al., 2014; Duffy et al., 2013; Duffy & Sedlacek, 2010; Duffy,

Manuel et al., 2011; for a review Dalla Rosa, Galliani, Vianello, in press). Meaning in life is defined as "the sense made of, and significance felt regarding, the nature of one's being and existence" (Steger, Frazier, Oishi, & Kaler, 2006, p. 81). Moreover, the calling domain should be in line with people's life meaning and living out a calling should help them to make sense of life (Steger et al., 2012). A possible interpretation of this result is that people first understand what gives meaning to their life and then are able to identify a calling.

In literature, behavioral involvement was found to be a predictor (Dobrow, 2013) and an outcome of calling (Dobrow & Tosti-Kharas, 2011; Dobrow & Heller, 2014). Our findings suggest that calling is likely to be an outcome of engagement in learning and has only a slight effect on meaningful processing and focused attention. Calling is predicted by a positive feeling about studying, which is perceived as meaningful and important also outside the academic setting.

This study underlines the importance of finding meaning in work and study in order to understand the engagement of people in the calling domain. Indeed, meaningful processing, which is how much a person finds meaningful and worthwhile what they are doing, is the main predictor of calling development, more than mere participation and attention during classes. People have a calling because they are studying something engaging and meaningful. Consequently, when a person is engaged in activities and thinks that what they are doing is important and meaningful in their lives, then they probably develop a calling for the domain.

On the other hand, the experience of having a calling increases the attention people devote to the activities and the feeling of meaning obtained from personal involvement.

This study suggests that active participation in learning activities is a predictor of calling and that no dimension of calling seems to influence its development.

Being engaged in learning and finding meaning in the study domain creates the foundation for individuals to develop a calling over time. In Chapter 1, we anticipated two ways in which calling may develop: *a priori* and *a posteriori*. This result supports the second hypothesis, that having a calling is the result of positive experiences, satisfaction and meaning gained through involvement in a domain.

The results of multi-group analyses we conducted revealed the importance of major and year of enrollment in the relationship between calling and engagement in learning. Even if the cross-lagged paths are invariant across groups of students enrolled in psychology, engineering and medical science, there are differences in the level of prosocial orientation and engagement learning at Time 2, on dimensions of calling and engagement in learning at Time 1, and in the amount of change of prosocial orientation over time.

The second multiple groups analysis compared students at different stages in their educational career. Results indicated that calling and engagement in learning do not influence each other in the same way when we compare students at different stages of their college education. The level of engagement in learning activities and the experience of having a calling do not have a greater effect on each other for students with no academic experience (students that pass from the first to the second year of their college education). When students have greater experience, engaged learning meaningful processing is the principal predictor of calling and has a positive effect on its development over time. Attention and active participation during classes, on the other hand, have a negative effect on older students' calling orientation (WLP).

Multiple groups analysis suggests that the development of calling in college students is influenced by the specific calling domain (the major) and students' seniority in their college education.

Clarity of professional identity increases the experience of having a calling one year later.

Positive associations between clarity of professional identity, decidedness and vocational clarity have been observed in literature (Duffy, Douglass et al., 2014; Hirschi & Hermann, 2013; Dobrow & Tosti-Kharas, 2011; Hirschi & Herrmann, 2012). Previous results regarding the nature of the longitudinal association between calling and vocational clarity have led to contrasting results. In this study, we analyzed this relationship adopting different measures of calling and a short but precise measure of clarity of professional identity.

Calling and clarity of professional identity were found to be related over time, as we expected (Hp 4a). In fact, models estimating the paths between calling and clarity of professional identity over time (Models 2, 3 and 4) presented a better fit to the data than the simple autoregressive model. Yet, the direction of the relationship is opposite to our expectations (Hp 4b): clarity of professional identity at Time 1 influenced calling at Time 2. Only one dimension of calling, the presence of a transcendent summons, was found to positively predict clarity of professional identity at Time 2. Hence, our results suggest that clarity of professional identity is a predictor of calling over time. Having a clear professional identity increases passion, prosocial orientation, the sense of purpose and meaningfulness in work and study (purposeful work), calling orientation toward work, need for a calling and presence of a transcendent summons.

The third hypothesis concerning the negative effect of searching for a transcendent summons at Time 1 on clarity of professional identity at Time 2 was supported: searching for a transcendent

summons decreases subjects' clarity of professional identity. However, the effect of clarity of professional identity on the presence of and search for a transcendent summons were significant and larger than the reciprocal effects supporting the idea that the longitudinal effect is in one direction from clarity to calling. These results support the position of Duffy, Douglass et al.'s findings (2014), suggesting that students who feel decided and have a clear idea about the occupational world ahead of them are more likely to develop a calling over time. This sense of clarity might serve as an important basis to develop a calling in a specific career.

We expected that people, in order to answer their calling, would invest more time in planning and exploring the path that might enable them to live out their calling, and that, consequently, they would develop a clearer professional identity. In addition, calling is a more general attitude toward a domain that might not be related to a precise professional role, while clarity of professional identity measures how much a person has a clear idea of the specific profession that they want to perform in life. Therefore, we expected professional clarity to be a consequence of career exploration and reflection motivated by the presence of a calling. The findings regarding transcendent summons are in line with these expectations. Transcendent summons is not related to meaning or prosocial values and, consequently, it is more independent from the characteristic of a professional domain. In fact, only transcendent summons, the more abstract dimension of calling, was found to predict clarity of professional identity.

Even if there is a reciprocal effect between clarity of professional identity and transcendent summons, the size of the effect over time indicates that clarity of professional identity precedes the development of a calling. These results provide additional support, together with the results concerning engagement in learning, for the *a posteriori hypothesis* of calling development. According to this theory, people first explore a career, make a decision about their subject of study, the profession and role they want to perform in society, and then build a calling by means of positive experiences in the calling domain. Calling is the way people think, talk and feel about a career that they have already chosen. A calling does not help people to identify their careers.

Also, career decidedness and planning, vocational clarity and vocational development were found to predict calling (Hirschi & Hermann, 2013; Duffy, Manuel et al., 2011; Duffy, Douglass et al., 2014). Together with our findings, this suggests that greater personal knowledge supports the development of a calling. When students have an idea about the future alternatives (planning, vocational development), having a clear idea about what they want to do in the future (decidedness and vocational clarity), they are in a better position to discover and develop the sense of having a calling for a specific life role.

We think that having a clear idea about professional identity means that a person has a deep knowledge of their professional preference and is aware of their life goals. Indeed, we found that the meaningful processing component of engagement in learning is the stronger predictor of calling and other studies found that having and searching for meaning in life predict calling (Duffy, Manuel et al., 2011; Duffy, Douglass et al., 2014). Clarity of professional identity, together with meaning in life and enjoyment in learning experiences, creates a positive environment for the development of a calling.

This study supports the *a posteriori* hypothesis, suggesting that calling is the consequence of career exploration and engagement in domain-related activities. We found that, as a first step, people explore career alternatives, develop a clear idea of which profession and role they want to perform in society, start to engage in related activities, develop a positive feeling about what they are studying and only then do they develop a calling. From this perspective, calling is no longer the motivating source of exploration and engagement but a way people think, talk and feel about a career that they have already chosen (clarity of professional identity) and explored (engagement).

Limitations and future directions

Further analyses are needed to clarify some results and there are still various aspects relating to the origin, development, measurement and the very nature of calling that need to be clarified.

The role of mentorship

It is necessary to better understand the role of mentors on calling development. First, further analysis is needed in order to understand whether the level of calling influences the probability of having a mentor.

Second, the functions of a mentor such as role modeling, vocational and psychological support does not explain the influence of a mentor on students' calling orientation. Other variables such as gender, age, duration and satisfaction with a mentoring relationship, or whether the mentor is formal or informal, might moderate the effect of a mentor's on students' calling. Literature on mentorship suggests that gender is a key factor in influencing people's choices, quality of relationship and the effectiveness of a mentorship (Ragins & Cotton, 1991; Scandura & Williams, 2001). The role a mentor fulfills in a person's life is another key factor that distinguishes formal and informal mentoring relationships (Ragins et al., 2000; Kram, 1985; Levinson, 1978). These two kinds of mentorship have different origins and different developments; we might expect an informal mentor to be more effective in terms of influencing a student's attitude toward work than a formal mentor.

Third, a critical point in these results is that mentor orientation is not associated with other measures of calling over time. The effect of a mentor's orientation on students concerns only the measures of the protégé's orientation and does not influence other measures or dimensions of calling (ICS, prosocial orientation, purposeful work, search for and presence of a transcendent summons and need for a calling). This might be due to a common method bias produced using the same raters and the same scales (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Conway & Lance, 2010). The students, in fact, rated themselves and their mentors on the same scale, the WLP (Wrzesniewski et al., 1997). The evaluation of mentor's orientation might be biased: a student might tend to describe their mentor as more similar to them on the same scale. However, this interpretation does not explain why a mentor's job orientation has no effect on the student's job orientation (same scale same raters) and why mentor and student calling orientations are not related (same scale same raters). In addition, no significant effects of student orientations on mentor orientations were found. If the results observed are due to a bias, we would expect to find significant reciprocal effects over time. The correlation between student calling orientation and the other measures of calling is medium, the higher is r = .42 with calling measured with ICS, but they decrease at Time 2, r = -.38. All the other correlations are smaller; this suggests that calling orientation and the other dimensions of calling are substantially different. This might explain why the effect of mentor orientation regards only the student's orientation and not the level of passion (ICS), transcendent summons, prosocial orientation or the feeling of study and career as purposeful. The measure of orientation specifically regards the attitude toward work and not toward study (such as calling measured with ICS) or career (as CVQ scales), it concerns practical aspect of life and experience such as free time management, relationship with colleagues, retirement, withdrawal and self-definition. To go beyond the limitations of this research, a study involving both mentors and protégés might clarify some doubts.

Different definitions of calling

Different measures of calling were adopted for this study, revealing that these scales are not only different in their underlying definitions, but that they relate in a different way with antecedents and outcomes. For example, transcendent summons does not predict or cannot be predicted by social support and mentor's orientation, but it is associated with clarity of professional identity. A work on calling definition and its measurement is needed, not only to arrive at a non-conflicting and shared definition of what a calling is, but also to clarify its place in relation to antecedents and outcomes. Indeed, if we clarify its theoretical attributes, we can proceed with an unequivocal

operationalization that will enable us to draw conclusions about the construct per se, no longer wondering whether our conclusions depend on how we have chosen to measure it.

A limit of this study regards the factor structure of the measures of calling, specifically the Integrated Calling Scale (Dobrow & Tosti-Kharas, 2011) and the Calling and Vocational Questionnaire (CVQ; Dik et al., 2012). The same problems with the factor structure were observed in the original scales. In this study, confirmatory factor analysis did not show a good fit of the theoretical models. More work is needed in order to identify better measurement models for these two scales.

The multi-group analysis performed on the relationship between calling and engagement in learning suggests that the calling domain moderates the association between calling and other measures. The development of calling might function otherwise in differing domains; for example, we might expect that a calling to be a doctor and a calling to be an engineer follow different paths.

This study, as well as almost all the longitudinal studies, was conducted with college students. It would be interesting to collect longitudinal data with younger students and professionals, before and after crucial moments in their career, such as the choice of high school and college, the search for and choice of work, the loss of work.

Assessing causality and change of calling over time

Longitudinal compared to cross-sectional designs allow for better assessment of the temporality of relationships, it is possible to determine whether variation in the independent variable precedes variation in the dependent variable, but causation cannot be concluded (De Vaus, 2001). Although longitudinal designs can be used to assess associations and better control for the timing of events, it is impossible to control for all of the external factors that could produce spurious relationships. Spuriousness can be better controlled with experimental designs. However, given the impracticality of randomly allocating students to experience a calling or not, a longitudinal panel design was evaluated as the next best design for studying calling's antecedents and outcomes.

The analysis of calling development needs more than two data collections and a wider time frame in order to study how a sense of calling changes over time and to further test the results of this and other longitudinal studies (Singer & Willett, 2003; Willett, 1989; Chan, 1998; Ployhart & Vandenberg, 2010). This study is part of a longitudinal project with three waves and the findings present in this work are based on the first two waves.

There are only two studies about calling development over time and both observe a decline of calling over time (Dobrow, 2013; Duffy, Manuel et al., 2011). In our research, we analyzed calling in a wide sample of students from more than 24 study domains and we used different measures of

calling. Although we did not focus on the change in calling over time, the analyses performed in this study, suggest a more complex dynamic of calling development. As presented in Chapter 4 ("The mere presence of a mentor influences student calling and development", p. 80), the increment and decrement of calling seems to depend on the facets analyzed.

In our study, calling measured with Dobrow and Tosti-Kharas's scale (2011) significantly increases from Time 1 to Time 2, unlike the presence of transcendent summons, which significantly decreases over the same time frame. Calling as prosocial orientation and purposeful work significantly increase over time, need for calling and calling orientation were found to be stable over time. In addition, the presence of a mentor has been identified as a moderator of change in calling.

Our findings lead to some reflections. First, different dimensions of calling do not change over time in the same way.

Second, calling tends to increase over time. It is possible that the calling domain moderates the development of calling (indeed calling in medical students and music students decreases over time).

Third, we found that the presence of a mentor influences how different dimensions of calling change over time. Therefore, future analysis of calling development might consider different dimensions of calling, such as the presence of a moderator, a mentor, the perception of social support, and the level of engagement in activities related to the domain.

Remarks

This study contributes to literature on calling in many ways. These might be considered when designing future studies.

1. We found support for the *a posteriori* hypothesis of calling development: people are more likely to first explore career alternatives, develop a clear idea of which profession and role they want to perform in society and, only then, make a decision about their study, start to engage in related activities, develop a positive feeling about what they are studying. As a final consequence of this process, they develop a calling. Calling is a way people think, talk and feel about a career that they have already chosen. This study suggests that it is not a sense of calling that helps people to determine their careers.
2. The presence of a supportive environment helps students to develop their calling. The presence of people with whom students can discuss their problems and who are willing to comfort and encourage them when facing career problems helps calling development.

3. Even if it is not clear how a mentor influences a protégé's calling, results highlight the fact that a mentor's orientation influences a protégé's orientation and that having a mentor is beneficial for the development of a calling, engagement in learning and clarity of professional identity.
4. A calling to the study domain is probably the result of finding a meaningful and engaging study domain. Being engaged in learning activities creates the foundation for individuals to develop a calling over time.
5. Students with a clear idea of the occupational world ahead of them are more likely to develop a calling over time. The sense of professional clarity might serve as an important foundation to develop a calling in a specific career.

REFERENCES

References marked with an asterisk (*) indicate studies included in the meta-analysis.

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*(3), 317-332.

Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: a meta-analysis. *Journal of applied psychology*, *89*(1),127-136.

Arbuckle, J. L. (1995). Amos user's guide [Computer software]. Chicago: SmallWaters.

Aryee, S., & Chay, Y. W. (1994). An Examination of the Impact of Career-Oriented Mentoring on Work Commitment Attitudes and Career Satisfaction Among Professional and Managerial Employees1. *British Journal of Management*, *5*(4), 241-249.

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of management review*, *14*(1), 20-39.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Bandura, A. (1971). Social learning theory. New York, NY: General Learning Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173 - 1182.

Baumeister, R. F. (1991). *Meanings of life*. New York, NY: Guilford Press.

Bell, A. P. (1970). Role modelship and interaction in adolescence and young adulthood. *Developmental Psychology*, *2*(1), 123 -128.

Bellah, R. N., Madsen, R., Sullivan, W. M., Swidler, A., & Tipton, S. M. (2007). *Habits of the heart: Individualism and commitment in American life*. Berkeley: University of California Press.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, *107*(2), 238 -246.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, *88*(3), 588-606.

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, *16*(1), 78-117.

Berg, J. M., Grant, A. M., & Johnson, V. (2010). When callings are calling: Crafting work and leisure in pursuit of unanswered occupational callings. *Organization Science*, *21*(5), 973-994.

Berkelaar, B. L., & Buzzanell, P. M. (2015). Bait and switch or double-edged sword? The (sometimes) failed promises of calling. *Human relations*, *68*(1), 157-178.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage focus editions*, *154*, 136-136.

Bryant, B. K., Zvonkovic, A. M., & Reynolds, P. (2006). Parenting in relation to child and adolescent vocational development. *Journal of Vocational Behavior*, *69*(1), 149-175.

Bullock, H. E., Harlow, L. L., & Mulaik, S. A. (1994). Causation issues in structural equation modeling research. *Structural Equation Modeling: A Multidisciplinary Journal*, *1*(3), 253-267.

* Bunderson, J. S., & Thompson, J. A. (2009). The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work. *Administrative Science Quarterly*, *54*(1), 32-57.

Buzzanell, P. M. (2009). Spiritual mentoring: Embracing the mentor-mentee relational process. *New Directions for Teaching and Learning*, *2009*(120), 17-24.

Byrne, B. M. (2006). *Structural Equation Modeling with EQS: Basic Concepts, Applications, and Programming* (2nd Ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Byrne, D. E. (1971). *The attraction paradigm* (Vol. 11). New York, NY: Academic Press.

* Cardador, M. T., Dane, E., & Pratt, M. G. (2011). Linking calling orientations to organizational attachment via organizational instrumentality. *Journal of Vocational Behavior*, *79*(2), 367-378.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of applied psychology*, *83*(2), 234 - 246.

Chao, G. T. (1997). Mentoring phases and outcomes. *Journal of vocational behavior*, *51*(1), 15-28.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural equation modeling*, *14*(3), 464-504.

Cheung, G. W., & Rensvold, R. B. (1999). Testing factorial invariance across groups: A reconceptualization and proposed new method. *Journal of management*, *25*(1), 1-27.

Cochran, W. G. (1954). The combination of estimates from different experiments. *Biometrics*, *10*(1), 101-129.

Cohen J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Erlbaum; 1988.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: questions and tips in the use of structural equation modeling. *Journal of abnormal psychology*, *112*(4), 558-577.

Conway, J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, *25*(3), 325-334.

* Coulson, J. C., Oades, L. G., & Stoyles, G. J. (2012). Parents' subjective sense of calling in childrearing: Measurement, development and initial findings. *The Journal of Positive Psychology*, *7*(2), 83-94.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. P*sychometrika*, *16*(3), 297-334.

Dalla Rosa, A., Galliani, E. M., & Vianello, M. (2014). Theories and Measures of Occupational Calling: A Review and Research Agenda. *Educational and Reflective Practices*, *4*(2), 99-121.

Dalla Rosa, A., Galliani, E. M., & Vianello, M. (in press). An integrative model of Career Calling and meta-analyses of its nomological network. In V. Boffo, M. Fedeli, F. Lo Presti, C.

Melacarne, M. Vianello (Eds.), *Employability, Teaching and Learning, and Guidance: New Strategies in Higher Education*. London: Pearson.

Davidson, J. C., & Caddell, D. P. (1994). Religion and the meaning of work. *Journal for the scientific study of religion*, 135-147.

Dawson, J. (2005). A history of vocation: Tracing a keyword of work, meaning, and moral purpose. *Adult Education Quarterly*, *55*(3), 220-231.

Day, R., & Allen, T. D. (2004). The relationship between career motivation and self-efficacy with protégé career success. *Journal of Vocational Behavior*, *64*(1), 72-91.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *The journal of abnormal and social psychology*, *51*(3), 629 -636.

De Vaus, D.A. (2001). *Research Design in Social Science*. London: Sage Publications.

Dik, B. J., & Duffy, R. D. (2009). Calling and vocation at work definitions and prospects for research and practice. *The Counseling Psychologist*, *37*(3), 424-450.

Dik, B. J., Duffy, R. D., & Eldridge, B. M. (2009). Calling and vocation in career counseling: Recommendations for promoting meaningful work. *Professional Psychology: Research and Practice*, *40*(6), 625.

* Dik, B. J., Eldridge, B. M., Steger, M. F., & Duffy, R. D. (2012). Development and validation of the calling and vocation questionnaire (CVQ) and brief calling scale (BCS). *Journal of Career Assessment*, 20(3), 242-263. doi:1069072711434410

Dik, B. J., & Steger, M. F. (2008). Randomized trial of a calling-infused career workshop incorporating counselor self-disclosure. *Journal of Vocational Behavior*, *73*(2), 203-211.

Dobrow, S. R. (2013). Dynamics of calling: A longitudinal study of musicians. *Journal of Organizational Behavior*, *34*(4), 431-452. doi: 10.1002/job.1808

Dobrow S. R. (2006). *Having a calling: A longitudinal study of young musicians.* (Unpublished Doctoral dissertation). Cambridge: Harvard University.

Dobrow, S. R. (2004, August). Extreme subjective career success: a new integrated view of having a calling. *Academy of Management Proceedings 1*, B1-B6.

Dobrow, S. R., & Heller, D. (2014). Siren song? A longitudinal study of the facilitating role of calling and ability in the pursuit of a challenging career. *Academy of Management Annual Meeting Proceedings*, 898-903.

Dobrow, S. R., & Higgins, M. C. (2005). Developmental networks and professional identity: A longitudinal study. *Career Development International*, *10*(6/7), 567-583.

Dobrow, S. R., & Tosti-Kharas, J. (2012). Listen to your heart? Calling and receptivity to career advice. *Journal of Career Assessment*, *11*(24), 41-79.

* Dobrow, S. R., & Tosti-Kharas, J. (2011). Calling: The development of a scale measure. *Personnel psychology*, *64*(4), 1001-1049.

* Douglass, R. P., & Duffy, R. D. (2015). Calling and career adaptability among undergraduate students. *Journal of Vocational Behavior*, *86*, 58-65.

DuBois, D.L., Holloway, B.E., Valentine, J.C., Cooper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. American Journal of Community Psychology, *30*, 157–197.

Duffy, R. D., Allan, B. A., & Bott, E. M. (2012). Calling and life satisfaction among undergraduate students: Investigating mediators and moderators. *Journal of Happiness Studies*, *13*(3), 469-479.

* Duffy, R. D., Allan, B. A., Autin, K. L., & Bott, E. M. (2013). Calling and life satisfaction: It's not about having it, it's about living it. *Journal of counseling psychology*, *60*(1), 42-52.

* Duffy, R. D., Allan, B. A., & Dik, B. J. (2011). The presence of a calling and academic satisfaction: Examining potential mediators. *Journal of Vocational Behavior*, *79*(1), 74-80.

Duffy, R. D., Allan, B. A., Autin, K. L., & Douglass, R. P. (2014). Living a calling and work well-being: A longitudinal study. *Journal of counseling psychology*, *61*(4), 605-615.

Duffy, R. D., & Autin, K. L. (2013). Disentangling the link between perceiving a calling and living a calling. *Journal of Counseling Psychology*, *60*(2), 219-227.

* Duffy, R. D., Bott, E. M., Allan, B. A., Torrey, C. L., & Dik, B. J. (2012). Perceiving a calling, living a calling, and job satisfaction: Testing a moderated, multiple mediator model. *Journal of Counseling Psychology*, *59*(1), 50-59.

Duffy, R. D., & Dik, B. J. (2013). Research on calling: What have we learned and where are we going?. *Journal of Vocational Behavior*, *83*(3), 428-436.

Duffy, R. D., & Dik, B. J. (2009). Beyond the self: External influences in the career development process. *The career development quarterly*, *58*(1), 29-43.

* Duffy, R. D., Douglass, R. P., Autin, K. L., & Allan, B. A. (2014). Examining predictors and outcomes of a career calling among undergraduate students. *Journal of Vocational Behavior*, *85*(3), 309-318.

* Duffy, R. D., Manuel, R. S., Borges, N. J., & Bott, E. M. (2011). Calling, vocational development, and well -being: A longitudinal study of medical students. *Journal of Vocational Behavior*, *79*(2), 361-366.

* Duffy, R. D., Dik, B. J., & Steger, M. F. (2011). Calling and work-related outcomes: Career commitment as a mediator. *Journal of Vocational Behavior*, *78*(2), 210-218.

* Duffy, R. D., & Sedlacek, W. E. (2010). The salience of a career calling among college students: Exploring group differences and links to religiousness, life meaning, and life satisfaction. *The Career Development Quarterly*, *59*(1), 27-41.

* Duffy, R. D., & Sedlacek, W. E. (2007). The presence of and search for a calling: Connections to career development. *Journal of Vocational Behavior*, *70*(3), 590-601.

Dyrbye, L. N., Massie, F. S., Eacker, A., Harper, W., Power, D., Durning, S. J., ... & Shanafelt, T. D. (2010). Relationship between burnout and professional conduct and attitudes among US medical students. *Jama*, *304*(11), 1173-1180.

Eby, L. T., Allen, T. D., Evans, S. C., Ng, T., & DuBois, D. L. (2008). Does mentoring matter? A multidisciplinary meta-analysis comparing mentored and non-mentored individuals. *Journal of vocational behavior*, *72*(2), 254-267.

Elangovan, A. R., Pinder, C. C., & McLean, M. (2010). Callings and organizational behavior. *Journal of Vocational Behavior*, *76*(3), 428-440.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological review*, *100*(3), 363.

Festinger, L. (1962). *A theory of cognitive dissonance* (Vol. 2). Stanford, CA: Stanford university press.

Festinger, L. (1956). *When Prophecy Fails: A Social and Psychological Study of a Modern Group that Predicted the Destination of the World*. Stanford, CA: Harper.

Goodman, J. S., & Blum, T. C. (1996). Assessing the non-random sampling effects of subject attrition in longitudinal research. *Journal of Management*, *22*(4), 627-652.

Guo, Y., Guan, Y., Yang, X., Xu, J., Zhou, X., She, Z., ... & Fu, M. (2014). Career adaptability, calling and the professional competence of social work students in China: A career construction perspective. *Journal of Vocational Behavior*, *85*(3), 394-402.

* Hagmaier, T., & Abele, A. E. (2012). The multidimensionality of calling: Conceptualization, measurement and a bicultural perspective. *Journal of Vocational Behavior*, *81*(1), 39-51.

Hall, D. T., & Chandler, D. E. (2005). Psychological success: When the career is a calling. Journal of organizational behavior, 26(2), 155-176.

Harzer, C., & Ruch, W. (2012). When the job is a calling: The role of applying one's signature strengths at work. *The Journal of Positive Psychology*, *7*(5), 362-371.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Hedges, L. V., & Olkin, I. (2014). *Statistical method for meta-analysis*. London: Academic press.

Higgins, J. P., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in medicine*, *21*(11), 1539-1558.

Higgins, M. C. (2001). Changing careers: The effects of social context. *Journal of Organizational Behavior*, *22*(6), 595-618.

* Hirschi, A., & Herrmann, A. (2013). Calling and career preparation: Investigating developmental patterns and temporal precedence. *Journal of Vocational Behavior*, *83*(1), 51-60.

Hirschi, A., & Herrmann, A. (2012). Vocational identity achievement as a mediator of presence of calling and life satisfaction. *Journal of Career Assessment*, *20*(3), 309-321. doi: 10.1177/1069072711436158

Holland, J. L., Daiger, D. C., & Power, P. G. (1980). *My vocational situation*. Palo Alto, CA: Consulting Psychologists Press.

Holland, J. L., Johnston, J. A., & Asama, N. F. (1993). The Vocational Identity Scale: A diagnostic and treatment tool. *Journal of Career Assessment*, *1*(1), 1-12.

Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, *27*, 87-97.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Hunter, I., Dik, B. J., & Banning, J. H. (2010). College students' perceptions of calling in work and life: A qualitative analysis. *Journal of Vocational Behavior*, *76*(2), 178-186.

Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, *44*(4), 764-791.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Lincolnwood, IL: Scientific Software International.

Kahn, J. H. (2006). Factor analysis in counseling psychology research, training, and practice principles, advances, and applications. *The Counseling Psychologist*, *34*(5), 684-718.

Kaufmann, F. A., Harrel, G., Milam, C. P., Woolverton, N., & Miller, J. (1986). The nature, role, and influence of mentors in the lives of gifted adults. *Journal of counseling & development*, *64*(9), 576-578.

Kline, R. B. (2011). Principles and practice of structural equation modeling (3rd ed.). New York, NY: Guilford Press.

Kram, K.E., (1996). A Relational Approach to Career Development. In D.T. Hall (Eds.) *The Career Is Dead: Long Live The Career* (pp. 132-157). San Francisco, CA: Jossey-Bass.

Kram, K. E. (1985). *Mentoring at work: Developmental relationships in organizational life*. Glenview, IL: Scott Foresman.

Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management journal*, *26*(4), 608-625.

Kram, K. E., & Isabella, L. A. (1985). Mentoring alternatives: The role of peer relationships in career development. *Academy of management Journal*, *28*(1), 110-132.

Lee, F. K., Dougherty, T. W., & Turban, D. B. (2000). The role of personality and work values in mentoring programs. *Review of Business*, *21*(1/2), 33-37.

Levinson, D. J. (1978). *The seasons of a man's life*. New York, NY: Random House Digital.

Little, T. D., Preacher, K. J., Selig, J. P., & Card, N. A. (2007). New developments in latent variable panel analyses of longitudinal data. *International Journal of Behavioral Development*, *31*(4), 357-365.

Little, R. J., & Schenker, N. (1995). Missing data. In G. Arminger, C.C. Clogg & M.E. Sobel (Eds.), *Handbook of statistical modeling for the social and behavioral sciences* (pp. 39-75). Plenum, NY: Springer US.

Lloyd, C., & Gartrell, N. K. (1984). Psychiatric symptoms in medical students. *Comprehensive Psychiatry*, *25*(6), 552-565.

Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of personality and social psychology*, *73*(1), 91-103.

London, M. (1983). Toward a theory of career motivation. *Academy of management review*, *8*(4), 620-630.

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York, NY: Routledge.

Mannetti, L., & Tanucci, G. (1993). The meaning of work for young people: the role of parents in the transmission of a social representation. *Empirical approaches to social representations*, 298-314.

Marcia, J. E. (1980). Identity in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology* (pp. 158-187). New York: Wiley.

Martens, M. P., & Haase, R. F. (2006). Advanced applications of structural equation modeling in counseling psychology research. *The Counseling Psychologist*, *34*(6), 878-911.

Meredith, W. (1993). Measurement invariance, factor analysis and factorial invariance. *Psychometrika*, *58*(4), 525-543.

Muthén, B., Kaplan, D., & Hollis, M. (1987). On structural equation modeling with data that are not missing completely at random. *Psychometrika*, *52*(3), 431-462.

Muthén, L.K. and Muthén, B.O. (1998-2012). Mplus User's Guide (7th Edition). Los Angeles, CA: Muthén & Muthén.

Noe, R. A. (1988). An investigation of the determinants of successful assigned mentoring relationships. *Personnel psychology*, *41*(3), 457-479.

Payne, S. C., & Huffman, A. H. (2005). A longitudinal examination of the influence of mentoring on organizational commitment and turnover. *Academy of Management Journal*, *48*(1), 158-168.

Pellegrini, E. K., & Scandura, T. A. (2005). Construct equivalence across groups: An unexplored issue in mentoring research. *Educational and Psychological Measurement*, *65*(2), 323-335.

* Peterson, C., Park, N., Hall, N., & Seligman, M. E. (2009). Zest and work. *Journal of Organizational Behavior*, *30*(2), 161-172.

* Phillips, S. L. (2011). Path models of vocational calling in Christian college students. *Christian Higher Education*, *10*(3-4), 296-323.

Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, *36*(1), 94-120.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, *88*(5), 879-903.

* Praskova, A., Creed, P. A., & Hood, M. (2014). Self-regulatory processes mediating between career calling and perceived employability and life satisfaction in emerging adults. *Journal of Career Development*, *42*(2), 86-101.

* Praskova, A., Hood, M., & Creed, P. A. (2014). Testing a calling model of psychological career success in Australian young adults: A longitudinal study. *Journal of Vocational Behavior*, *85*(1), 125-135.

Pratt, M. G. (1998). Central questions in organizational identification. *Identity in organizations*, 171-207.

Prezza, M., & Principato, M. C. (2002). La rete sociale e il sostegno sociale. In M. Prezza, & M. Santinello (Eds.),*Conoscere la comunità* [Know the community] (pp. 193–233). Bologna: Il Mulino.

Ragins, B. R., & Cotton, J. L. (1999). Mentor functions and outcomes: a comparison of men and women in formal and informal mentoring relationships. *Journal of applied psychology*, *84*(4), 529.

Ragins, B. R., & Cotton, J. L. (1991). Easier said than done: Gender differences in perceived barriers to gaining a mentor. *Academy of Management Journal*, *34*(4), 939-951.

Ragins, B. R., Cotton, J. L., & Miller, J. S. (2000). Marginal mentoring: The effects of type of mentor, quality of relationship, and program design on work and career attitudes. *Academy of Management Journal*, *43*(6), 1177-1194.

Ragins, B. R., & McFarlin, D. B. (1990). Perceptions of mentor roles in cross-gender mentoring relationships. *Journal of Vocational Behavior*, *37*(3), 321-339.

Raj, S. R., Simpson, C. S., Hopman, W. M., & Singer, M. A. (2000). Health-related quality of life among final-year medical students. *Canadian Medical Association Journal*, *162*(4), 509-510.

Reave, L. (2005). Spiritual values and practices related to leadership effectiveness. *The leadership quarterly*, *16*(5), 655-687.

Rosal, M. C., Ockene, I. S., Ockene, J. K., Barrett, S. V., Ma, Y., & Hebert, J. R. (1997). A longitudinal study of students' depression at one medical school. *Academic medicine*, *72*(6), 542-6.

Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in organizational behavior*, *30*, 91-127.

Russell, D. W. (2002). In search of underlying dimensions: The use (and abuse) of factor analysis in Personality and Social Psychology Bulletin. *Personality and social psychology bulletin*, *28*(12), 1629-1646.

Salancik, G. R., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative science quarterly*, 224-253.

Sambunjak, D., Straus, S.E., Marusic, A. (2006). Mentoring in academic medicine. *Journal of the American Medical Association*, 296, 1103–1115.

Savickas, M. L. (1984). Career maturity: The construct and its measurement. *Vocational Guidance Quarterly*, *32*(4), 222-231.

Scandura, T. A. (1992). Mentorship and career mobility: An empirical investigation. *Journal of organizational behavior*, *13*(2), 169-174.

Scandura, T. A., & Williams, E. A. (2001). An investigation of the moderating effects of gender on the relationships between mentorship initiation and protégé perceptions of mentoring functions. *Journal of Vocational Behavior*, *59*(3), 342-363.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire a cross-national study. *Educational and psychological Measurement*, *66*(4), 701-716.

Schein, E. H. (1978). *Career dynamics: Matching individual and organizational needs*. Reading, Mass: Addison-Wesley Pub. Co.

Schreiner, L. A., & Louis, M. C. (2011). The engaged learning index: Implications for faculty development. *Journal on Excellence in College Teaching*, *22*(1), 5-28.

Schreiner, L. A., & Louis, M. (2006). *Measuring engaged learning in college students: Beyond the borders of NSSE.* Paper presented at the annual meeting of the Association for the Study of Higher Education, Anaheim, CA.

Selig, J. P., & Little,* T. D., (2012). Autoregressive and cross-lagged panel analysis for longitudinal data. In B. Laursen, T. D. Little, & N. A. Card (Eds). *Handbook of developmental research methods* (pp. 265-278). New York, NY: Guilford Press.

Sellers, T. S., Thomas, K., Batts, J., & Ostman, C. (2005). Women called: A qualitative study of Christian women dually called to motherhood and career. *Journal of Psychology and Theology*, *33*, 198–209.

Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: the self-concordance model. *Journal of personality and social psychology*, *76*(3), 482 -497.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York, NY: Oxford university press.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological methodology*, *13*(1982), 290-312.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of counseling psychology*, *53*(1), 80-93.

* Steger, M.F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: the Work and Meaning Inventory (WAMI). *Journal of Career Assessment*, 19, 322-337. doi:1069072711436160

Tabachnick, B.G. & Fidell, L.S. (2007), *Using Multivariate Statistics* (5th ed.). New York, NY: Allyn and Bacon.

* Torrey, C. L., & Duffy, R. D. (2012). Calling and well-being among adults: Differential relations by employment status. *Journal of Career Assessment*, *20*(4), 415-425, doi:1069072712448894

Underhill, C. M. (2006). The effectiveness of mentoring programs in corporate settings: A meta-analytical review of the literature. *Journal of vocational behavior*, *68*(2), 292-307.

Van Emmerik, I. J. (2004). The more you can get the better: Mentoring constellations and intrinsic career success. *Career Development International*, *9*(6), 578-594.

Vroom, V. H. (1966). Organizational choice: A study of pre-and postdecision processes. *Organizational behavior and human performance*, *1*(2), 212-225.

Weinberg, F. J., & Locander, W. B. (2014). Advancing workplace spiritual development: A dyadic mentoring approach. *The Leadership Quarterly*, *25*(2), 391-408.

Whiston, S. C., & Keller, B. K. (2004). The influences of the family of origin on career development a review and analysis. *The Counseling Psychologist*, *32*(4), 493-568.

Whittemore, I. C. (1925). The Competitive Consciousness. *The Journal of Abnormal and Social Psychology*, *20*(1), 17.

Willett, J. B. (1989). Some results on reliability for the longitudinal measurement of change: Implications for the design of studies of individual growth. *Educational and psychological measurement*, *49*(3), 587-602.

Wrzesniewski, A. (2010). Callings. In Cameron, K., & Dutton, J. (Eds.). *The Oxford handbook of positive organizational scholarship*. New York, NY: Oxford University Press.

Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of research in personality*, *31*(1), 21-33.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of personality assessment*, *52*(1), 30-41.

APPENDIX 1

Table 1.
Changes in calling by presence (vs absence) of a mentor at the two time points.

Dependent variables	Main effects			Interaction effects		
	Time	Mentor T1	Mentor T2	Time*Mentor T1	Time*Mentor T2	Time*Mentor T1*Mentor T2
ICS	*F(*1,1298) = 48.97, μ^2 = .04	*F(*1,1298) = 25.91, μ^2 = .02	*F(*1, 1298) = 13.55, μ^2 = .01			
Presence of Transcendent S.	*F(*1, 1232) = 21.98, μ2 = .02	*F(*1, 1232) = 18.61, μ2 = .02	*F(*1, 1232) = 35.70, μ2 = .03			
Searching for Transcendent S.	*F*(1, 1280) = 12.30, μ2 = .01	*F*(1, 1280) = 6.09, μ^2 = .01		*F*(1, 1280) = 7.56, μ^2 = .01		*F*(1, 1280) = 4.89, μ^2 = .004
Prosocial orientation	*F(*1,1299) = 7.96, μ^2 = .005	*F(*1, 1299) = 7.20, μ2 = .01	*F(*1, 1299) = 13.38, μ2 = .01			
Purposeful work	*F*(1, 1301) = 32.56, μ2 = .02	*F(*1, 1301) = 4.93, μ2 = .004	*F(*1, 1301) = 12.41, μ2 = .01		*F*(1, 1301) = 4.20, μ2 =.003	
Need for calling		*F(*1, 1287) = 13.69, μ2 = .01	*F(*1, 1287) = 22.73, μ2 = .02		*F*(1, 1287) = 7.49, μ2 = .006	
Calling orientation		*F*(1, 1298) = 7.61, μ^2 = .01	*F* (1, 1298) = 7.43, μ^2 = .01			
Job orientation			*F*(1, 1298) = 7.42, μ^2 = .01			
Career orientation		*F*(1, 1298) = 5.78, μ^2 = .004	*F* (1, 1298) = 11.78, μ^2 = .01			

Note. The table reports the results of the GLM analyses.

APPENDIX 2

Table 2.

Multi-groups analysis of the relationship between calling and engagement in learning in function of the year of enrollment. Cross-lagged estimates for the three groups of students are reported.

	Group 1-2					Group 2 - 3					Group 4 - 5				
	Est.	S.E.	C.R.	*p*	St. Est.	Est.	S.E.	C.R.	*p*	St. Est.	Est.	S.E.	C.R.	*p*	St. Est.
ICS T2 ←ICS T1	.44	.07	6.72	< .001	.44	.48	.05	9.19	< .001	.46	.52	.07	7.57	< .001	.51
Pros T2 ← Pros T1	.63	.05	13.53	< .001	.63	.66	.04	16.69	< .001	.67	.67	.05	12.88	< .001	.68
Purp T2 ← Purp T1	.44	.04	1.27	< .001	.48	.52	.04	13.11	< .001	.54	.42	.06	7.23	< .001	.43
TraP T2 ← TraP T1	.62	.05	12.53	< .001	.60	.47	.05	1.24	< .001	.46	.56	.06	9.30	< .001	.56
ELMen T2 ← ELMen T1	.52	.07	7.72	< .001	.55	.50	.05	9.37	< .001	.51	.61	.07	8.37	< .001	.58
ELAtt T2 ← ELAtt T1	.39	.06	6.95	< .001	.39	.43	.05	9.39	< .001	.45	.48	.08	6.30	< .001	.42
ELPar T2 ← ELPar T1	.41	.06	7.24	< .001	.43	.59	.05	11.54	< .001	.59	.53	.07	7.43	< .001	.49
O.Call T2 ← O.Call T1	.35	.06	6.06	< .001	.34	.21	.04	4.71	< .001	.24	.28	.07	3.74	< .001	.24
ELMen T2 ←ICS T1	.01	.09	.09	.93	.01	.13	.06	2.01	.05	.12	.22	.08	2.72	.01	.20
ELAtt T2 ←ICS T1	.07	.10	.68	.49	.05	.18	.07	2.46	.01	.14	.22	.10	2.15	.03	.17
ELPar T2 ←ICS T1	.16	.08	1.99	.05	.14	-.11	.07	-1.58	.11	-.09	.07	.09	.77	.44	.06
ELMen T2 ←Pros T1	.04	.09	.39	.70	.02	.04	.07	.50	.62	.02	.22	.10	2.16	.03	.12
ELAtt T2 ←Pros T1	-.07	.14	-.46	.65	-.03	-.22	.10	-2.21	.03	-.11	-.10	.16	-.65	.52	-.05
ELAtt T2 ←Purp T1	.21	.16	1.34	.18	.09	-.03	.13	-.23	.82	-.01	-.38	.19	-2.01	.05	-.16
ELPar T2 ←Pros T1	.01	.11	.11	.91	.01	-.19	.09	-2.14	.03	-.10	.23	.14	1.67	.10	.12
ELMen T2 ←Purp T1	.06	.10	.55	.58	.03	.05	.09	.51	.61	.02	-.12	.12	-1.00	.32	-.06
ELPar T2 ←Purp T1	-.04	.12	-.35	.73	-.02	-.01	.11	-.07	.95	.00	.02	.17	.14	.89	.01
ELMen T2 ←TraP T1	.10	.07	1.39	.17	.07	.04	.06	.64	.52	.03	-.05	.08	-.66	.51	-.03
ELAtt T2 ←TraP T1	-.19	.11	-1.73	.08	-.11	-.12	.09	-1.38	.17	-.07	.22	.13	1.69	.09	.12
ELPar T2 ←TraP T1	.09	.08	1.11	.27	.06	.10	.08	1.24	.22	.06	-.11	.11	-.93	.36	-.06
ELMen T2 ←O.Call. T1	-.15	.07	-2.14	.03	-.11	.00	.05	-.06	.95	.00	-.08	.08	-1.07	.28	-.05
ELAtt T2 ←O.Call. T1	.01	.11	.11	.92	.01	-.01	.07	-.09	.93	-.01	.03	.13	.22	.83	.02
ELPar T2 ←O.Call. T1	.06	.08	.69	.49	.04	.07	.07	1.11	.27	.05	-.20	.11	-1.82	.07	-.12
ICS T2 ←ELMen T1	.11	.06	1.78	.08	.13	.14	.05	2.69	.01	.15	.23	.07	3.34	< .001	.25

Pros T2 ←ELMen T1	.02	.03	.46	.65	.03	.00	.03	-.02	.99	.00	.06	.04	1.61	.11	.10
Purp T2 ←ELMen T1	.08	.03	2.63	.01	.18	.05	.03	1.84	.07	.10	.13	.04	3.59	< .001	.27
TraP T2 ←ELMen T1	-.05	.05	-1.22	.22	-.08	.09	.04	2.24	.03	.13	.10	.05	2.10	.04	.15
O.Call. T2 ←ELMen T1	.08	.05	1.59	.11	.11	.20	.04	4.96	< .001	.30	.27	.06	4.63	< .001	.37
ICS T2 ←ELAtt T1	-.01	.03	-.36	.72	-.02	.04	.03	1.30	.19	.05	.03	.04	.59	.55	.03
Pros T2 ←ELAtt T1	.02	.02	.92	.36	.04	.03	.02	1.32	.19	.06	.03	.03	1.08	.28	.05
Purp T2 ←ELAtt T1	-.02	.02	-.79	.43	-.04	-.03	.02	-1.80	.07	-.08	.05	.03	1.78	.08	.11
TraP T2 ←ELAtt T1	.00	.03	-.10	.92	-.01	-.01	.03	-.45	.66	-.02	.06	.04	1.53	.13	.09
O.Call. T2 ←ELAtt T1	.02	.03	.59	.56	.03	-.06	.03	-2.23	.03	-.11	.08	.05	1.65	.10	.11
ICS T2 ←ELPar T1	.06	.05	1.23	.22	.07	.08	.04	1.80	.07	.09	.04	.05	.68	.50	.04
Pros T2 ←ELPar T1	-.04	.03	-1.14	.25	-.07	-.03	.03	-1.01	.32	-.05	.06	.03	1.92	.06	.11
Purp T2 ←ELPar T1	-.06	.03	-1.95	.05	-.13	.00	.02	.08	.94	.00	.02	.03	.66	.51	.05
TraP T2 ←ELPar T1	.02	.05	.48	.63	.03	.01	.04	.33	.74	.02	-.07	.05	-1.57	.12	-.11
O.Call. T2 ←ELPar T1	.05	.05	.94	.35	.06	-.04	.04	-.98	.33	-.06	-.12	.06	-2.15	.03	-.16

Note. Group 1-2: students who made the transition from the first to the second academic year; Group 2-3: students who made the transition from the second to the third academic year; Group 4-5: students who made the transition from the fourth to the fifth academic year; ICS = Calling measured as meaningful passion; Pros = Prosocial orientation; Purp = Purposeful work; TraP = Presence of transcendent summon; O.Call = calling orientation; ELMen = Engagement in learning meaningful processing; ELAtt = engagement in learning focused attention; ELPar = Engagement in learning active participation; T1 = collected at Time 1; T2 = collected at Time 2.

APPENDIX 3

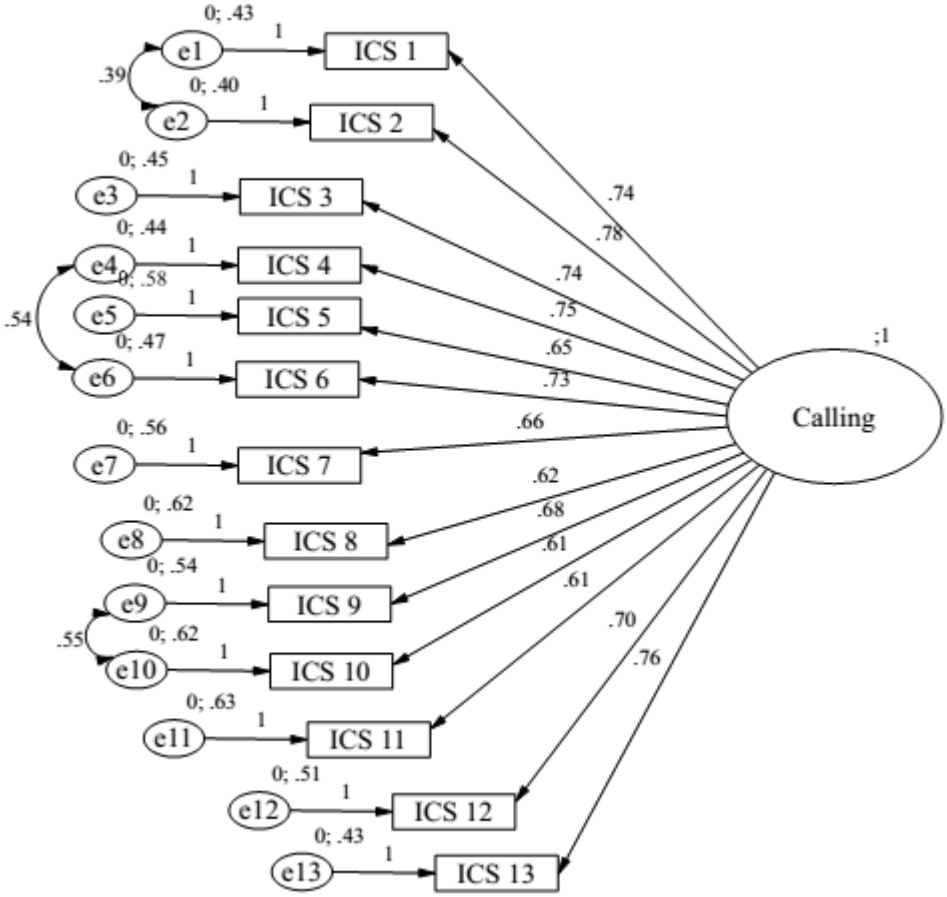

Figure 17. The CFA measurement model for the ICS scale using the second split-half sample. The model showed an acceptable fit, χ^2 (*df* = 62) = 1683.026, $p < .001$, TLI = .92, CFI = .90, RMSEA = .09.

Items:

(ICS 1) I am passionate about what I am studying.

(ICS 2) I enjoy what I study more than anything else.

(ICS 3) This study gives me immense personal satisfaction.

(ICS 4) I would sacrifice everything to continue studying this discipline.

(ICS 5) My study is part of who I am.

(ICS 6) I would continue this study even in the face of severe obstacles.

(ICS 7) What I study will always be part of my life.

(ICS 8) What I study is part of my destiny.

(ICS 9) What I study is always in my mind in some way.

(ICS 10) Even when not studying, I often think about my course's disciplines.

(ICS 11) My days would be much less meaningful without my study.

(ICS 12) Studying is a deeply moving and gratifying experience for me.

(ICS 13) I can deal with many sacrifices in order to study this discipline.

APPENDIX 4

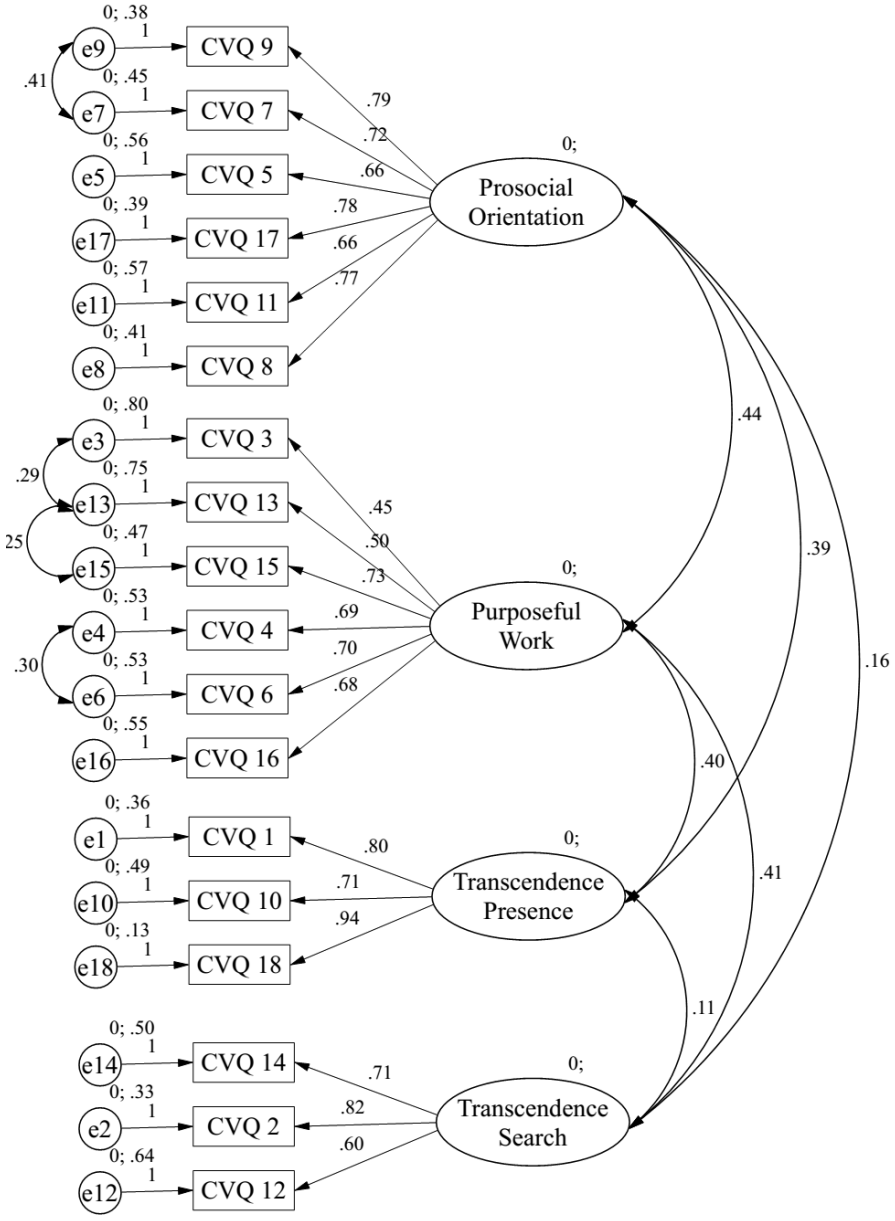

Figure 18. The CFA measurement model for the CVQ scale using the second split-half sample. The model showed an acceptable fit, χ^2 (*df* = 125) = 2115.085, *p* < .001, TLI = .90, CFI = .91, RMSEA = .075.

Items:

(Dik 1) I believe that I have been called to my current career.

(Dik 2) I'm searching for my calling in my career.

(Dik 3) My academic and professional career helps me live out my life's purpose.

(Dik 4) I am looking for work that will help me live out my life's purpose.

(Dik 5) I am trying to find a work that ultimately makes the world a better place.

(Dik 6) I intend to construct a career that will give my life's purpose.

(Dik 7) I want to find a work that meets some of society's needs.

(Dik 8) The most important aspect of my future work is its role in helping to meet the needs of others.

(Dik 9) I am looking for a work that benefits society.

(Dik 10) I was drawn by something beyond myself to pursue this career.

(Dik 11) Making a difference for others is the primary motivation in my academic and professional career.

(Dik 12) I yearn for a sense of calling in my career.

(Dik 13) I see my academic and professional career as a path to purpose in life.

(Dik 14) I am trying to figure out which is my career calling.

(Dik 15) My academic and professional career is an important part of my life's meaning.

(Dik 16) I want to pursue a career that is a good fit with the reason for my existence.

(Dik 17) I am always trying to evaluate how beneficial my work will be to others.

(Dik 18) I am pursuing my current career because I believe I have been called to do so.