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**Development of Career Callings in Organizations -
Evidence from a Multilevel and Multisource Longitudinal Study on the
Roles of Leaders and Job Performance**

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Abstract

Career callings are characterized as a profound sense of purpose that guides individuals toward career paths that are aligned with their identity and passion. In the last 20 years, the study of a calling increased exponentially in the realm of organizational behavior, and yet the development of callings is still an open question. This research addresses this gap with two studies that investigate the longitudinal relationships between leaders' and followers' career callings, task performance, and the underlying mechanisms that influence these dynamics.

In Study 1, we employed a three-wave longitudinal design and cross-lagged Structural Equation Models for panel data to assess the temporal precedence between task performance and calling among 285 employees. We observed that self-evaluations of task performance are more likely to be a predictor of a calling, rather than an outcome. Moreover, we show that a leader's own sense of calling serves as a predictor of their followers' sense of a calling, indicating that the leader-follower dynamic plays a pivotal role in shaping career callings within organizations.

Building on these insights, Study 2 delved deeper into the processes and conditions of the relationship between leaders' and followers' career callings on a sample of 157 leaders and 656 followers. We observed that the sense of a calling can spill over from leaders to followers when employees feel well-supported and engage in high-quality exchanges with their leaders.

These studies offer valuable theoretical and practical implications for the fields of career calling development and leadership. They shed light on the social antecedents of career callings, and highlight the substantial influence that leaders have on their followers' perceptions of calling. Furthermore, these studies show that leaders influence followers' calling through the means of a supporting, high-quality relation. These results offer insights on how to handle effective career development processes in organizations.

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The only way to do great work is to love what you do.

If you haven't found it yet, keep looking. Don't settle.

Steve Jobs

Introduction

Theoretical background and rationale of the studies

A calling is characterized by a deep and meaningful belief that one's professional endeavors hold personal significance, contribute to society, and align with one's identity. This concept involves transcendent summons, compelling individuals to dedicate themselves to a specific vocation. It integrates elements of passion, purpose, and a commitment to making a meaningful contribution within a broader societal context (Vianello et al., 2018).

Although scientific evidence about the development of callings remains a largely uncharted territory, the prevalent perspective posits that a calling is a predictor to both well-being and professional advancement (Duffy et al., 2018). According to this view, the sense of calling serves as a motivational force that positively impacts individuals' career progression (Dik & Duffy, 2009). An alternative outlook on the development of callings is the idea that a calling might be the consequence of positive experiences in a domain, such as perception of support, engagement and clarity about one's identity (Dalla Rosa et al., 2019). Empirical findings support this notion.

The aim of study 1 is to analyze the development of a calling over time, investigating the direction of causality among employees' calling, task performance and leader's calling. Currently, there is no conclusive evidence on the relationship between calling and performance. Some scholars report a small positive link between calling and self-reported performance, while others found no correlation at all (e.g., Lobene & Meade, 2013; Kim et al., 2018; Vianello et al., 2022). Most studies utilize cross-sectional designs, assuming that a calling enhances performance. The question of whether individuals' performance predicts their career calling, which implies that the application or expression of one's talents and interests in a domain leads to a profound sense of being called to perform that activity, is still unanswered (Bunderson & Thompson, 2009).

Beyond examining the link between calling and employee task performance, it's crucial to consider the environmental context, especially the influence of a leader. We will specifically investigate how a leader's calling is connected to employees' calling. Leaders with a clear sense of calling tend to be more engaged, passionate, and dedicated (Esteves et

al., 2018), and this enthusiasm can positively affect employee engagement, creating a work environment where employees feel enthusiastic and committed (Cain et al., 2018).

In Study 2 we investigate the mechanisms between a leader's calling and employee's calling. Leader's calling, perceived supervisor support and leader-employee relationship were chosen as external predictors for three reasons. First, based on social exchange theory (Blau, 1964), we assume that experiencing a called leader is inspiring, and satisfies fundamental needs of employees, leading them to feel an obligation to reciprocate the same positive behaviors. Second, leaders are a key part of their employees' working environment as they shape this environment, for instance, through personal relations or the support they provide (Demerouti et al., 2001; Kwon & Kim, 2020). Thus, leaders are expected to influence employees' calling through the social environment they shape in the workplace. Finally, the relationship with and support from others has been previously found to help developing a calling (Dalla Rosa et al., 2019; Ensher & Ehrhardt, 2022). Consequently, we consider the leader-employee relationship and the support employees gain from their leader as highly relevant because both shape how employees think and behave at work (Wrzesniewski, 2012).

Methodology

Two studies have been conducted to test 1) the longitudinal relationships between leader's career calling, employee's career calling and task performance, and 2) to understand which mechanisms operate the relation between leader's calling and employee's calling. Study 1 used cross-lagged panel models within the Structural Equation Model (SEM) approach to longitudinal data on a sample of 285 employees. In study 2, multilevel SEMs were performed on a sample of 157 leaders and their 656 followers.

Dissertation Structure

Chapter 1 summarizes current knowledge about the career calling literature, by first talking about calling definitions, then about calling outcomes and antecedents and lastly about career calling development and longitudinal evidence. It further describes knowledge gaps in the literature, and defines the research questions.

Chapter 2 provides a comprehensive overview of Study 1, revealing that both task performance and a perceived leader's sense of calling serve as predictors for an employee's sense of calling.

In Chapter 3 the findings of Study 2 are summarized. This study discloses that at the individual level, the relationship between perceived leader's calling and an employee's calling is mediated by leader-member exchange and perceived supervisor support.

The dissertation closes with a general discussion on the development of calling and discusses directions for future research on the topic.

Chapter 1 Literature review

Definitions of career calling

The notion that people might pursue their work as a calling has existed for centuries. The concept of a calling dates back to the Christian religion, where it was used to represent God's call to become what people are destined to be and are not yet (Cahalan & Schuurman, 2016). Up to the protestant reformation, a calling was limited to the clerical works of priests, monks and nuns. It is only after Luther and Calvin that calling was extended to any kind of work, as a way to find purpose in life through prosociality and self-transcendence (Calvin, 1574; Luther, 1883). However, the psychological study of career calling is relatively young, with no clear consensus on what a calling is. Notwithstanding, the last 25 years have seen a peak in the scholarly interest on the concept of career calling, and interest is increasing exponentially (Thompson & Bunderson, 2019).

One of the first contributions to investigate the career as a calling is by Wrzesniewski and colleagues (1997). The authors stated that a calling focuses on enjoyment of fulfilling socially useful work. Following this work, scholars have been introducing different constructs and definitions of a calling focusing on meaningful and purposeful work, either with a religious background or adopting a more secular approach that focuses on prosocial motivations and inner fulfillment. In 2009, Bunderson and Thompson investigated whether modern workers can have a traditional calling. According to their qualitative study on zookeepers they concluded that their view on calling was closer to the Protestant reformers than it was to more recent formulations. The authors named the two approaches: Neoclassical and modern definitions of calling.

Neoclassical perspectives on callings share the fundamental aspect of viewing work as meaningful and purposeful. However, they tend to uphold the traditional belief that a calling is driven by a prosocial desire to utilize one's abilities for the betterment of society. This motivation often stems from an external or transcendent entity, such as God, pressing social needs, a family legacy, or a sense of destiny. An illustration of the neoclassical viewpoint can be found in Dik and Duffy's (2009) definition of a calling, which describes a 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" (p. 427). Importantly, they differentiate calling from a vocation due to the presence of a transcendent summons. While this definition aligns with the historical roots of being called to serve God, it recognizes that the external call may also be rooted in other

factors, such as a prominent social need, a sense of duty towards one's country, or a desire to honor a family legacy (Dik & Duffy, 2012). Another neoclassical example is Bunderson and Thompson's (2009) definition, which defines calling as the "place in the occupational division of labor in society that one feels destined to occupy." This approach emphasizes the notion of destiny as the origin of a calling, while acknowledging that identifying one's calling requires considering personal abilities and opportunities (Dik & Shimizu, 2019).

In contrast, in the definition of a modern calling, scholars view a calling as a highly personal, meaningful and intrinsically motivated approach to work, with an emphasis on self-actualization and personal fulfillment. This is a less traditional approach and has been advocated for example by Dobrow and Tosti-Kharas (2011) who define calling as “a consuming, meaningful passion people experience toward a domain” (p. 1005). Similarly, Hall and Chandler (2005) point to an internal source and define a calling as work that people perceive as their purpose in life. In the modern view, calling is seen as a journey of self-discovery, personal growth, and continuous adaptation, rather than a fixed destination. This kind of conceptual disagreement has led to the development of multiple measurements of calling (Table 1), each corresponding to a specific definition of the construct (Dalla Rosa et al., 2014; Gerdel et al., 2022; Thompson & Bunderson, 2019). To give the field a clearer direction, it is important to establish a common definition of calling. To address this limitation, an inclusive definition that combines both modern and neoclassical approaches defines calling as a multidimensional construct that involves affective, motivational, spiritual and identity-related facets of the relations between individuals and work or life domains (Vianello et al., 2018). In the definition, seven facets of calling are included that combine the most common dimensions of calling in both the neoclassical and modern approach. The seven main dimensions of calling are Passion, Pervasiveness, Purposeful Work, Transcendent Summons, Prosocial orientation, Identity, and Sacrifice.

Outcomes of calling

Regardless of the heterogeneity in definitions and measurement scales, research has been very consistent in demonstrating that having a calling has beneficial outcomes both at the individual and organizational level.

The most comprehensive framework in explaining outcomes of a calling is the work as a calling theory (WCT; Duffy et al., 2018) which proposes a complex set of predictors, mediators, and outcomes and theorizes the importance of distinguishing when a calling is perceived and lived out. While individuals can perceive a calling, they might not live it out.

For example, they might have a calling for the job of zookeepers, but they might not be involved in any zookeeping activities nor work in an animal shelter. Individuals who are living out their calling, are engaging in activities that allow them to fulfill their calling (Duffy, Bott, et al., 2012). For example, a nurse perceives a calling for helping individuals and is currently living it out by working in a hospital. According to the theory, perceiving work as a calling, through several mediators, leads to many positive outcomes. The theory, which is supported by substantial evidence, posits that perceiving a calling leads to living out a calling through person-environment fit, career commitment and work meaning. The link between person-environment fit (P-E fit) and work meaning has been demonstrated (Duffy et al., 2019). Individuals with a sense of calling are entering work-environments that fit them better (Hirschi, 2012; Zhang et al., 2021), which in turn will lead to experiencing greater work meaning (Duffy et al., 2014; Duffy et al., 2019). Up to date, only the mediating link of work meaning between perceiving a calling and living out a calling has been empirically observed (Duffy et al., 2019), leaving the test of the mediation of P-E fit between perceiving and living a calling as an idea for future research. The final step relates to living out the calling, which increases job satisfaction and job performance (Lobene & Meade, 2013; Duffy et al., 2022). In this research, we will not distinguish between perceiving and living out a calling, since we are not interested in the mediators that account for the differences in perceiving and living a calling. The research concentrates on individuals' feelings of being called to their current job without delving into the complex interplay of mediators that differentiate perception from actualization. We focus on the extent to which individuals feel that they are called towards their current job, which entails both perceiving and living out a calling at work (Vianello et al., 2022).

Individuals who view their work as a calling are more likely to experience personal growth, commitment, and career success (Bunderson & Thompson, 2009; Hall & Chandler, 2005) and report being more satisfied and having overall higher well-being (Dobrow, 2006; Wrzesniewski, 1997). In a recent meta-analysis on calling outcomes, Dobrow and colleagues (2023) demonstrate that a calling is more strongly related to outcomes indicative of a good life, specifically eudaimonic well-being, than recently argued. On average, they found that calling exhibited positive relationships with psychological and subjective well-being with correlations ranging from .28 to .45, and a negative relation with strain ($r = -.23$), which they categorized as life outcomes. Furthermore, they observed a strong and positive connection between calling and work-related outcomes, including self-efficacy, job satisfaction, perceived work meaningfulness, and work engagement with significant correlations ranging

from .38–.61. Additionally, they found that neoclassical or modern types of calling are differently related to work outcomes. Modern callings are more positively related to hedonic outcomes and less positively related to eudaimonic outcomes compared to neoclassical callings.

In summary, there is plenty of evidence that a calling is moderately to strongly related to work and life outcomes. Research on antecedents of calling is scarcer, and only recently more attention has been paid to this line of research (e.g.: Dalla Rosa et al., 2019; Thompson & Bunderson, 2019; Reed et al., 2022). Investigating which predictors lead to a calling is important to understand how a calling can emerge or develop. Knowledge about the development of a calling can both inform the theory on what a calling is and guide interventions aimed at fostering individual well-being and organizational effectiveness.

Antecedents of calling

The pursuit of meaning and purpose in life is a fundamental aspect of the human experience (Frankl, 1985). Individuals who perceive their lives as meaningful are more likely to experience a career calling (Zhang et al., 2022). The quest for meaning may drive individuals to seek professions that align with their sense of purpose, leading to a more profound commitment to their careers. This is in line with research on work identity. When individuals perceive their work as an essential part of their identity and they are genuinely drawn to certain domains, they are more likely to experience a sense of calling in their careers (Dalla Rosa et al., 2019; Pratt & Ashforth, 2003; Yuliawati & Ardyan 2022).

Research has shown that some individual traits and behaviors can serve as predictors of a calling. For instance, job crafting refers to the proactive behavior of employees in modifying their job tasks and responsibilities to better align with their personal values. Job crafting predicts calling because it is a means for individuals to make their job an opportunity to express their core values and beliefs (Duffy et al., 2018). The congruence between personal values and job demands can foster a deeper connection to one's profession. Therefore, it is not surprising that proactivity, which is the tendency to take initiative and actively shape one's environment, can significantly impact the pursuit of a calling (Hanan et al., 2021). Additionally, conscientiousness which is associated with a strong sense of responsibility and dedication towards one's career (Zhang et al., 2021), contributes to the development of a calling (Zhang et al., 2021).

Another example is gratitude. Expressing gratitude serves as a catalyst for recognizing and nurturing the sense of purpose and fulfillment that can be associated with individuals'

careers (Zhang et al., 2022). Individuals who display gratitude are more inclined to recognize and value the opportunities that are present in their careers, and this appreciation, in turn, contributes to the development of a calling. Grateful individuals tend to focus on the positive aspects of their work, which can lead to a deeper connection with their profession. This sense of appreciation encourages them to see their work as more meaningful and aligned with their personal values, ultimately fostering a stronger sense of calling (Zhang et al., 2022).

Notably, the antecedents examined thus far have primarily focused on cross-sectional evidence and individual behaviors, potentially overlooking the impact of the external environment on the development of a career calling. For example, Dik and Duffy (2009) suggested that “research could be conducted within an organization to assess [...] particular organizational practices designed to nurture callings [...] [and to] identify organizational practices that impede development of callings [...]” (p. 440). Despite calls from scholars to consider the "organizational context", to our knowledge, there are only two studies that investigated environmental predictors of a calling.

Both studies aimed to explore the impact of a supportive environment on individuals' sense of calling. The first study revealed that the mere presence of a mentor was associated with elevated levels of calling among students (Dalla Rosa et al., 2019). To delve deeper, it was found that the mentor's own sense of calling played a pivotal role in influencing the development of a calling in students (Dalla Rosa et al., 2019).

In the second study, the focus shifted to examining the quality of the mentor-student relationship. This study investigated how having a high-quality relationship with a mentor could assist students in identifying a calling for their future careers (Ensher & Ehrhardt, 2022). The findings underscored the significance of mentorship not only in terms of its presence but also its quality in shaping individuals' callings. A positive and strong mentor-student relationship was shown to be a valuable factor in guiding students toward the discovery of their own callings within their chosen career paths (Ensher & Ehrhardt, 2022).

These findings carry important implications for theories related to career callings. Specifically, they shed light on the limits of current theorization and knowledge on the development of career calling. Most theoretical accounts and empirical investigations focused on individual factors and neglected both environmental factors and the interaction between individuals and their environments. Understanding how external elements, such as mentorship and supportive environments, contribute to the formation and development of a calling is of utmost importance both for the theories on calling and for designing vocational guidance practices.

Calling development: a review of theoretical accounts

A review of the literature highlights a differentiation between two fundamental yet contrasting assumptions regarding the antecedents of a calling. There is an intriguing conflict surrounding whether callings are perceived as something that is found or discovered relatively quickly as an insight, versus something that is actively, progressively, and slowly created or nurtured. Little is known about the development of a calling and most scholars propose a calling as a predictor rather than an outcome. The question therefore remains on how do individuals come to view their work as a calling?

Work orientations provide a helpful framework to explore whether callings are found or discovered and whether they are created or made (Wreszniewski et al., 1997). The discovery of a career calling refers to the initial realization or identification of a particular profession or vocation that aligns with an individual's interests, values, and passion and therefore is closely aligned with the definition of neoclassical calling. It often involves self-reflection, exploration, and a deep understanding of one's strengths, skills, and personal aspirations (Dik & Duffy, 2009). Discovering a career calling is a pivotal moment that provides a sense of direction and purpose. As stated by Bunderson and Thompson (2009) “individuals develop an early sense of their gifts and interests, which leads them to certain types of work, which in turn motivates them to justify their choices, which in turn deepens their occupational commitment, and so on” (p.53).

On the other hand, the development of a calling involves the intentional cultivation and growth of the chosen career path. It is related to forming an identity and self-fulfillment and therefore aligns with the definition of modern calling. It encompasses acquiring the necessary knowledge, skills, and experience through education, training, mentorship, and practical application (Dobrow et al., 2023). It is likely that during a calling development one has to show ongoing commitment, perseverance, and continuous learning to excel in the chosen field.

In 2010, Elangovan and colleagues proposed a framework on the discovery of a calling. They suggest that the “search for one’s calling and discovering it requires the presence and confluence of four antecedent conditions” (p. 433). First, a person should have the *motivation* to find meaning in their life. This urge is a critical factor in initiating, maintaining and identifying one’s calling. The search can be prompted by positive curiosity, a growing sense of dissatisfaction, a critical event, or religiousness. To sustain the process, individuals need to experience an urge to find meaning in their life. Second, to identify one’s

calling, individuals need to be attentive. Without *attentiveness*, individuals might miss opportunities to discern their calling. This requires a process of introspection (Weiss et al. 2004) as well as reflection and eventually a dialogue with friends or family members (Hall & Chandler, 2005). The state of attentiveness, essential for recognizing the signals of a call, is nurtured through introspection, cognitive elaboration, and engaging in social discussions. This state ultimately leads individuals to uncover meaning, observe, decipher and respond to the cues that make up their calling. Third, to be able to pinpoint the actual course of action that constitutes the calling, individuals need to have a willingness to *experiment* with new paths. Therefore, it is necessary to engage in certain callings and test whether they are true. The constant testing and evaluating will ultimately form an identity that either leads to further experimentation or not (Pratt & Ashforth, 2003). This leads to the fourth point, which is a growing *understanding of the self*. Self-identity and self-development are central to the concept of a calling. To see one's purpose in a job and to understand the meaningful question of "why am I here" one has to go through the path of identity development (Pratt & Ashforth, 2003). To summarize, the main focus lies on the sense of one's personal identity, pro-social intention and self-awareness with four conditions that might explain the discovery of a calling.

Within the framework of the discovery of a calling not every prerequisite condition necessarily focuses on the actual discovery of a calling. Trying out different career paths and developing an identity (conditions three and four) are more closely aligned with the development of a calling. Earlier theoretical accounts primarily emphasized the significance of self-awareness processes in the journey of developing one's calling (Hall & Chandler, 2005). Within this framework a model similar to the goal-setting performance cycle is proposed, which suggests that subjective success is a direct function of objective outcomes. Self-awareness and adaptability are the main drivers behind the process, which are key points in the argumentation of Elangovan's et al. (2010) discovery of calling. The developmental perspective on callings suggests that individuals' self-awareness and their ability to adapt are fundamental drivers in the process of uncovering their calling. It highlights the idea that self-awareness helps individuals to recognize what aligns with their calling, and adaptability enables them to navigate their path effectively in pursuit of that calling. This dynamic interplay between self-awareness, adaptability, and the achievement of objective outcomes forms the basis of understanding how individuals come to develop their callings.

Two attempts have been made to understand the development of individuals' calling. The first study suggests that the development of callings results from an ongoing interaction

between individual characteristics and the environment (Dalla Rosa et al., 2019). This approach is in line with self-awareness processes. The hypothesis states that individuals develop the perception of having a calling for a work domain or set of activities through a cyclical process of exploration, involvement in the calling domain, and self-reflection. This hypothesis has been supported by empirical evidence (Dalla Rosa et al., 2019; Duffy et al., 2014; Mauno et al., 2022; Ahn et al., 2017; Sturges et al., 2019). Second, Reed et al. (2022) propose that individuals develop a calling through work identity formation, which is related to cognitive processes. According to their approach, a calling develops through four antecedent conditions: effort calculation, reflection, appraisal, and fusion. The two approaches align and suggest that a calling develops through interaction with the environment and an understanding of the self which is in line with the calling development approach rather than the discovery approach.

Interestingly, both approaches mention that calling development happens in interaction with the environment. The importance of individuals' environmental contexts in shaping their sense of calling has been a recurring theme in various scales developed to assess this concept. These scales theoretically emphasize that a calling is more a product of environmental influences rather than a mere self-discovery process. It implies that factors such as family (Zhang, et al., 2015, Dik & Duffy, 2009), organizations (Bunderson & Thompson, 2009), and social norms (Praskova et al., 2015) have a significant impact on the development of an individual's calling. It's intriguing, however, that some of these measures seem to prioritize the idea of self-discovery, even though they acknowledge the significance of the social context in a calling development. Table 1 summarizes calling measures and their definitions in terms of a discovery or developmental approach. Table 1 also notes whether a given element (discovery/development) is a primary emphasis of the definition or a secondary or implicit part of the definition. Of the eight calling measures reviewed, three focus primarily on a discovery approach and two focus primarily on a developmental approach. One scale does not have a defined focus. One of the calling measures defines calling as a discovery approach, but the focus reflected in the content of items does not align with the scale's underlying conceptual definition. The items rather reflect facets of modern callings, like passion, that are more closely aligned with a developmental approach. Only one measure of calling integrated the developmental and discovery approach.

In the past it has been stated that callings are developmental processes rather than discovery processes. For example, Dik and Duffy (2009), stated that “[callings] do not reflect something a person discovers once and for all but rather involves an ongoing process of

evaluating the purpose and meaningfulness of activities within a job and their contribution to the common good or welfare of others” (p. 429). This statement is in line with Dobrow (2013) who argues that an individual’s calling is a dynamic process that can change over time rather than a stable construct. Regardless of their different conception of what a calling is, scholars seem to agree that calling is an ongoing and dynamic process. It is likely that a calling is neither discovered nor developed but rather unfolds on a continuum. While initially distinguishing between neoclassical and modern definitions is valuable, it's widely acknowledged now that focusing exclusively on one perspective to the exclusion of the other is likely to overlook significant aspects of the calling experience (Thompson & Bunderson, 2019). Although scholars have been moving away from the strict distinction between the discovery approach and developmental approach towards a more integrated framework (Dobrow et al., 2023), most of the calling measures are lagging behind.

Table 1¹*Summary of Existing Measures of a Career Calling*

Career calling measure	Number of items	Number of dimensions	Calling Definition related to Discovery or Development
1. Calling and Vocation Questionnaire (CVQ) (Dik et al., 2012)	24	3 (Transcendent Summons, Purposeful work, Prosocial orientation) X 2 (Presence and Search)	Discovery
2. Brief Calling Scale (BCS) (Dik et al., 2012)	4	2 Calling search, Calling Presence	Neither
3. Chinese Calling Scale (CCS) (Zhang et al., 2015)	11	3 Altruism, Guiding Force, Meaning and Purpose	Discovery
4. 12-item Calling Scale (Dobrow & Tosti-Kharas, 2011)	12	1	Development

¹ Adapted from Gerdel, S., Dalla Rosa, A., & Vianello, M. (2022). Psychometric properties and measurement invariance of a short form of the Unified Multidimensional Calling Scale (UMCS). *European Journal of Psychological Assessment*. <https://doi.org/10.1027/1015-5759/a000722>

Table 1 (continued)

Career calling measure	Number of items	Number of dimensions	Calling Definition related to Discovery or Development
5. Neoclassical Calling Scale (Bunderson & Thompson, 2009)	6	1	Discovery* → Development
6. Multidimensional Calling Measure (MCM) (Hagmaier & Abele, 2012)	9	3 Identification & Person-Environment-Fit, Transcendent Guiding Force, Sense and Meaning & Value-Driven-Behavior	Discovery
7. Career calling scale for emerging adults (CCS) (Praskova et al., 2015)	15	3 Other-Oriented Meaning, Personal Meaning and Active Engagement	Development
8. Unified Multidimensional Calling Scale (UMCS) (Vianello et al., 2018)	22	7 Passion, Pervasiveness, Purposeful Work, Transcendent Summons, Prosocial orientation, Identity, and Sacrifice	Both

Note. *The focus reflected in the content of items does not align with the scale's underlying conceptual definition.

Calling development: a review of longitudinal evidence

In this section, we provide a comprehensive summary of longitudinal research findings on the predictors of calling. Our review exclusively encompasses studies employing a complete longitudinal approach, wherein all variables have been systematically assessed on the same persons at every wave of data collection (Longitudinal Panel Designs; Menard, 2008). This method is employed to gain insight into the causal relations among these variables, a level of understanding that is not feasible with a partial longitudinal design (Little, 2013). We identified 11 studies that pertained to these criteria. Research studies were identified through a search on Google Scholar using keywords related to the concept of career calling. Dissertations were excluded from the search criteria.

Most studies have been conducted on student samples. The predictors studied can be categorized into individual predictors or environmental predictors of calling. The main focus has been on individual factors that can be broadly categorized as aspects of vocational development, vocational clarity, and life meaning. Vocational development is the lifelong process of acquiring and refining the skills, knowledge, and experiences needed to make informed career choices and progress in one's chosen profession while vocational clarity refers to the state of having a clear and well-defined understanding of one's career or vocational goals, interests, and path (Holland et al., 1993). Meaning in life pertains to the belief that one's existence holds purpose and significance, while the search for meaning in life is characterized by the extent to which individuals actively seek a sense of purpose (Steger et al., 2006).

Individual predictors - meaning. In total, four studies investigated the relation between calling and *life meaning*. Two studies found life meaning to be a predictor and two studies found a reciprocal relation. Life meaning can be a predictor of calling as well as an outcome. This underscores the idea that the development of a calling is not always instantaneous but it can be a complex journey towards aligning individuals' meaning with their professional pursuits. In a small sample of medical students ($N = 68$), it has been observed that students who fully embrace a profound sense of meaning in their lives at time 1 were more inclined to develop a calling in their vocational journeys at time 2 ($T1$ vs $T2$: $\beta = .12, p < .001$; Duffy et al., 2011). This result was replicated in another student sample ($N = 473$), showing that life meaning predicts calling ($T1$ vs $T2$: $\beta = .13, p = .24$; $T2$ vs $T3$: $\beta = .23, p < .05$; Zhang et al., 2017). Students who lay a strong foundation for their life's purpose, are more likely to develop a calling.

In a sample of undergraduate students ($N = 292$) and in a sample of psychology students ($N = 90$), the relation was reciprocal (Duffy, Douglass et al., 2014; Bott & Duffy, 2015). Among the undergraduate student sample, a sense of life meaning was found to enhance a sense of calling (T1 vs T2: $\beta = .23$; $p < .05$), and a strong calling was associated with increased life meaning (T1 vs T2: $\beta = .15$; $p < .05$). Similar relations were observed among psychology students, where life meaning was linked to an increase in a calling (T1 vs T2: $\beta = .16$, $p > .05$), and having a calling was associated with an elevation in life meaning (T1 vs T2: $\beta = .14$, $p > .05$). The reciprocal relation between these two variables suggests that a calling has the capacity to enhance individuals' sense of life meaning. Consequently, students with a calling tend to experience an increase in life meaning.

Two studies specifically focused on *search for meaning in life* as a predictor of calling. One study found search for meaning in life to positively predict a calling in undergraduate students (T1 vs T2: $\beta = .13$; $p < .05$; Duffy, Douglass et al., 2014), the other study identified a reciprocal relation in the opposite direction in a sample of psychology students (Bott & Duffy, 2015). To elaborate, it was observed that the *search for life meaning* initially enhances the sense of calling (T1 vs T2: $\beta = .19$, $p < .01$), yet conversely, the presence of a calling diminishes the need to search for life meaning (T1 vs T2: $\beta = -.14$; $p > .05$). Essentially, students who have already developed their calling and thus possess a clear life purpose may find themselves less inclined to engage in the search of life meaning, whereas students in search of life meaning might develop a calling through their career path.

Among workers, only one study investigated the relation between calling and *work meaning*, hypothesizing that calling is a predictor of work meaning (Duffy, Allan et al., 2014). *Work meaning* can be defined as the degree to which participants felt their work was meaningful (Steger et al., 2012). Interestingly, it has been observed that calling is an outcome of work meaning (T1 vs T2: $\beta = .24$, $p < .05$; T2 vs T3: $\beta = .31$, $p < .05$). Once employees develop a good sense of what makes their job meaningful, a calling is more likely to develop.

This picture is slightly different when looking at the reciprocal relation between *authentic living* and calling (Zhang et al., 2018). Authentic living refers to whether an individual can behave and live in a way that expresses or honors the true self (Wood et al., 2008). Using a latent change score model, higher levels of authentic living at T1 significantly predicted an increase in calling over time (T1 vs T2: $\gamma = 0.45$, $p < 0.01$; T2 vs T3: $\gamma = 0.46$, $p < 0.01$). In a latent change score model, higher levels at T1 mean that there was an increase in authentic living from T1 to T2. However, higher levels of calling at T1 predicted a decrease in authentic living (T1 vs T2: $\gamma = -.96$, $p < 0.01$; T2 vs T3: $\gamma = -.94$, $p < 0.01$),

meaning that there was a decrease in authentic living from T2 to T3. Although authentic living can predict within-person individual changes in calling in students, higher callings might pose challenges when it comes to feeling genuinely authentic within one's current student role. In other words, the more students feel a profound calling, the more they may struggle to fully embody authenticity in their student life. The authors propose that this could be attributed to the fact that the sample consists of university students who have not yet had significant opportunities to experience their callings in a professional environment (Zhang et al., 2018).

Individual predictors - Vocational clarity. A calling is closely related to individuals' career paths. Thus, it is not surprising that next to meaning, career related predictors are important indicators for the development of a calling. Specifically, clarity in individuals' career paths is related to a calling. *Vocational clarity* at T1 predicts calling at T2 in students (T1 vs T2: $\beta = .15, p < .05$; Duffy, Douglass et al., 2014). Students who have a clear picture about the occupational world ahead of them are more likely to perceive a calling two years later. The same pattern emerges in the relation of *clarity of professional identity* and calling (T1 vs T2: $\beta = .10 - .26, p < .05$; T2 vs T3: $\beta = .09 - .15, p < .05$; Dalla Rosa et al., 2019). Students who feel positive about their identity and are prepared for a career are more inclined to view their work as a calling.

Further, students who exhibit *personal growth initiative*, hence indicating a clear understanding of their career path and engagement in behaviors that contribute to their self-improvement, are more likely to develop a calling (T1 vs T2: $\beta = .34, p < .01$; Bott & Duffy, 2015). In an earlier study, while controlling for presence and search for life meaning and vocational clarity a reciprocal relation was found, such that calling at T1 positively predicted personal growth initiative at T2 ($\beta = .14, p < .05$, and personal growth initiative at T1 negatively predicted calling at T2 ($\beta = -.13, p < .05$; Duffy, Douglass et al., 2014). The authors hypothesized that a suppression effect could be at work, such that when accounting for the positive longitudinal effects on calling of life meaning and vocational clarity, personal growth initiative might have a negative effect.

Individual predictors - Vocational development. *Career planning* is the systematic process of setting individual career goals, developing a strategy to achieve them, and making informed decisions about education, training, and employment opportunities to advance one's professional aspirations (Savickas, 1997). In a large sample of college students ($N = 846$), it was observed that *career planning* and calling have a reciprocal relation (Hirschi & Hermann, 2013). Career planning at time 1 has a positive effect on calling at time 3 (T1 vs

T3: $\gamma = .18, p < .05$) and calling at time 1 has a positive effect on career planning at time 3 (T1 vs T3: $\gamma = .11, p < .05$). It appears that having a calling serves as a motivating factor for students to formulate career plans, potentially with the aim of realizing their callings within their professional roles.

Career decidedness refers to the level of certainty and determination with which an individual makes choices and decisions related to their career path, considering their interests, values, and goals (Savickas, 2005). *Career decidedness* among college students during T1 was associated with an increased likelihood of experiencing higher levels of calling during T2 and T3 (T1 vs T2: $\gamma = .14, p < .01$; T1 vs T3: $\gamma = .17, p < .05$; Hirschi & Hermann, 2013). Students who exhibit greater decisiveness regarding their careers are more inclined to develop a sense of calling. This is also in line with *work volition*, which can be defined as feeling greater choice in one's career (Duffy, Autin et al., 2018), which is a significant predictor of an individual's sense of calling in working adults (T1 vs T2: $\beta = .33, p < .05$; T2 vs T3: $\beta = .36, p < .05$). Those who experience more autonomy in their career decision-making are more inclined to feel a calling towards their job.

Individual predictors - Other. There are additional individual predictors of a calling that cannot be categorized into either meaning, vocational clarity or vocational development. *Career commitment*, which is a readiness to invest time and effort to attain professional success and long-term objectives within a chosen career or occupation, shows a reciprocal relation with calling (Duffy, Allan et al., 2014). Working adults ($N = 217$) with high career commitment were more likely to develop a calling (T1 vs T2: $\beta = .25, p < .05$; T2 vs T3: $\beta = .27, p < .05$) and when calling is high, they were more likely to show high career commitment (T2 vs T3: $\beta = .10, p < .05$). Working adults who feel committed to their career are more likely to feel that they are called and in turn feeling called to your job leads to being more committed to your career. Furthermore, a study focusing on kindergarten teachers (Feifei et al., 2021) revealed that *gratitude*, considered a catalyst for recognizing and fostering the sense of purpose and fulfillment linked to individuals' careers (Zhang et al., 2022), at time 1 positively predicts the development of a calling at time 2 (T1 vs T2: $\beta = .39, p < .01$). In other words, teachers who exhibit higher levels of gratitude are more likely to experience a sense of calling in their profession.

Perhaps most surprisingly is the result that *job satisfaction* (Duffy, Allan et al., 2014) has been shown to be a significant predictor of calling. While numerous studies have traditionally treated job satisfaction as an outcome of individuals' work experiences (Lent & Brown, 2013), and even within the context of the WCT (Duffy et al., 2018) job satisfaction is

considered a consequence of living a calling, it's important to consider that a calling may, in fact, stem from a broader sense of contentment in the workplace (Duffy, Allan et al., 2014). This broader satisfaction encompasses individuals' overall happiness and fulfillment with their job, suggesting that a strong sense of calling may manifest when everything in their work environment is going well, contributing to their overall job satisfaction.

Although some factors share a reciprocal connection with calling, the influence appears to be somewhat more modest when calling is considered as the predictor. This suggests that the primary direction of influence is from career commitment, career planning, and life meaning toward the development of individuals' calling (Hirsch & Hermann, 2013; Duffy, Allan et al., 2014). The reciprocal relation hints at a dynamic interplay between meaning in life and developing a calling. Notably, career commitment and career planning are gradual, continuous processes that unfold over time (Savickas, 2005), aligning with the developmental perspective of a calling. In this context, a calling is not something that one suddenly realizes or decides upon in an instant; instead, it is a journey that evolves and deepens as individuals gain more experience, self-awareness, and insight into their career paths. As they progress in their careers and encounter new challenges, they continuously shape and refine their sense of calling, recognizing that it is not a fixed destination but a dynamic, long-term exploration of their professional purpose.

Environmental predictors. Two longitudinal studies have analyzed predictors of a calling in relation to an environmental context. First, the *presence of engagement in learning* and *social support* are influential predictors of individuals' calling (Dalla Rosa et al., 2019). Students who actively engage in their studies are more likely to develop a sense of calling as time progresses. Furthermore, results indicate that having a supportive environment plays a crucial role in facilitating students' development of their calling. Second, in amateur musicians over a period of seven years it was demonstrated that “individuals who were more *behaviorally involved* and felt higher *social comfort* in the calling domain (e.g., music) experienced higher levels of calling early on but experienced a decline in calling over time” (p. 431, Dobrow, 2013). This suggests that callings can be directly influenced by the environment. It also suggests that calling is a dynamic process rather than a stable construct.

The individual and environmental predictors examined closely resemble the model on calling and career success (Hall & Chandler, 2005). In this model a reciprocal relation between calling and proximal variables is proposed. This view asserts that a calling is not a static or instantaneous realization but rather an ongoing, evolving journey. Contrary to the common assumption that individuals first discover their calling, empirical evidence supports

that positive well-being, vocational development, and a clear career direction play a significant role in enabling individuals to perceive their work as a calling (see Table 2).

Conclusions

Initial longitudinal evidence suggests that calling is a dynamic process influenced by various factors, and further research is needed to fully understand the complexities of this phenomenon, specifically focusing on employees and their work environment. The current state of research lacks a sufficient number of studies that thoroughly investigate the longitudinal dynamics of calling, particularly with a specific focus on the environmental context. A mere two studies have explored the longitudinal relations within the scope of the environmental context. Surprisingly, the social environment within the workplace, and notably the influence of leaders in shaping individuals' sense of calling, remains an underexplored facet.

Although the literature has made commendable progress in unraveling the predictors associated with the formation of a calling, a gap exists in understanding the role played by the social context, especially leadership. Most notably, the leadership dynamics within the organizational framework have been overshadowed, representing a significant gap in our understanding. The emphasis should shift towards a more inclusive exploration of the social environment, especially leadership dynamics, within the workplace. Recognizing and understanding the dynamics between an individual and their environment is crucial for constructing a theory on the development of a calling (see Figure 1). This theory should align with empirically validated propositions concerning individual processes as outlined by the WCT (Duffy et al., 2018). Furthermore, it should integrate propositions that delineate the development of a calling in response to external influences. This will not only enrich our understanding of calling but also offer practical implications for organizational leaders and policymakers seeking to foster a sense of calling among employees.

Table 2*Longitudinal Predictors of a Calling*

Study	Variables	Sample	Time frame	Analysis	Relation hypothesized?	Effect estimation: Predictors of calling	Effect estimation: Outcomes of calling	Calling is/has
Dobrow, 2013	Behavioral involvement	Amateur musicians	4-wave, 7 years	Longitudinal 2-level model with random intercept and random slope	Calling as an outcome	$\beta = .08, p < .01, n = 225, \text{ obs.} = 624$	Did not test opposite direction	an outcome
	Actual ability				Calling as an outcome	$\beta = .07, p = \text{n.s.}, n = 225, \text{ obs.} = 624$		no relation
	Social comfort				Calling as an outcome	$\beta = .20, p < .001., n = 225, \text{ obs.} = 624$		an outcome
Hirschi & Hermann, 2013	Career Decidedness	College students (N=846)	3-wave, 6 months apart	SEMs	Both directions hypothesized	T1 vs T2: $\gamma = .14, p < .01$; T1 vs T3: $\gamma = .17, p < .05, n = 846$	T1 vs T3: $\gamma = .03, p = \text{n.s.}$	an outcome
	Career self-efficacy				Both directions hypothesized	T1 vs T2: $\gamma = -.02, p = \text{n.s.}$; T1 vs T3: $\gamma = .04, p = \text{n.s.}, n = 846$	T1 vs T2: $\gamma = .21, p < .001$; T2 vs T3: $\gamma = .19, p < .001, n = 846$	a predictor
	Career planning*				Both directions hypothesized	T1 vs T3: $\gamma = .18, p < .05$	T1 vs T3: $\gamma = .11, p < .05$	reciprocal

Table 2 (continued)

Study	Variables	Sample	Time frame	Analysis	relation hypothesized?	Effect estimation: Predictors of calling	Effect estimation: Outcomes of calling	Calling is
Duffy et al., 2011	Vocational development*	Medical students	2-wave, 3 months apart	Hierarchical Regression analysis	Both directions hypothesized	$B = .25, \beta = .04, p < .05, n = 68$	$B = .23, \beta = 2.01, p = n.s, n = 68$	reciprocal
	Life meaning				Both directions hypothesized	$B = .31; \beta = .12, p < .001, n = 68$	$B = -.06; \beta = -.17, p = n.s, n = 68$	an outcome
Duffy, Douglass et al., 2014	Vocational clarity	Undergraduate students	2-wave, 3 months apart	SEMs	Both directions hypothesized	T1 vs T2: $\beta = .15, p < .05, n = 291$	n.s (details not reported)	an outcome
	Personal Growth initiative*				Both directions hypothesized	T1 vs T2: $\beta = -.13, p < .05, n = 291$	T1 vs T2: $\beta = .14, p < .05, n = 291$	reciprocal (but opposite directions)
	Life meaning*				Both directions hypothesized	T1 vs T2: $\beta = .23; p < .05, n = 292$	T1 vs T2: $\beta = .15; p < .05, n = 292$	reciprocal
	Search for life meaning				Both directions hypothesized	T1 vs T2: $\beta = .13; p < .05, n = 292$	n.s (details not reported)	an outcome

Table 2 (continued)

Study	Variables	Sample	Time frame	Analysis	relation hypothesized?	Effect estimation: Predictors of calling	Effect estimation: Outcomes of calling	Calling is
Duffy, Allan et al., 2014 ^a	Career commitment*	Adults	3-wave, 6 months apart	SEMs	Calling as a predictor	T1 vs T2: $\beta = .25, p < .05$; T2 vs T3: $\beta = .27, p < .05, n = 217$	T2 vs T3: $\beta = .10, p < .05, n = 217$	reciprocal
	Work meaning				Calling as a predictor	T1 vs T2: $\beta = .24, p < .05$; T2 vs T3: $\beta = .31, p < .05, n = 217$	T2 vs T3: $\beta = .07, p < .05, n = 217$	an outcome
	Job satisfaction				Calling as a predictor	T1 vs T2: $\beta = .12, p < .05$; T2 vs T3: $\beta = .12, p < .05, n = 217$	n.s (details not reported)	an outcome
Duffy et al., 2018 ^a	Work volition	Adults	3-wave, 6 months apart	SEMs	Calling as an outcome	T1 vs T2: $\beta = .33, p < .05$; T2 vs T3: $\beta = .36, p < .05, n = 273$	n.s (details not reported)	an outcome
Bott & Duffy, 2015	Search for life meaning*	Psychology students	2-wave, 6 months apart	SEMs	Calling as an outcome	T1 vs T2: $\beta = .19, p < .01, n = 90$	T1 vs T2: $\beta = -.14, p = n.s, n = 90$	reciprocal (but opposite directions)
	Life meaning*				Calling as an outcome	T1 vs T2: $\beta = .16, p = n.s, n = 90$	T1 vs T2: $\beta = .14, p = n.s, n = 90$	reciprocal
	Career decision self-efficacy				Calling as an outcome	T1 vs T2: $\beta = .05, p = n.s, n = 90$	T1 vs T2: $\beta = .01, p = n.s, n = 90$	no relation

Table 2 (continued)

Study	Variables	Sample	Time frame	Analysis	relation hypothesized?	Effect estimation: Predictors of calling	Effect estimation: Outcomes of calling	Calling is
	Religiousness				Calling as an outcome	T1 vs T2: $\beta = .12, p = \text{n.s.}, n = 90$	T1 vs T2: $\beta = -.03, p = \text{n.s.}, n = 90$	an outcome
	Personal Growth initiative				Calling as an outcome	T1 vs T2: $\beta = .34, p < .01, n = 90$	T1 vs T2: $\beta = .00, p = \text{n.s.}, n = 90$	an outcome
Zhang et al., 2017	Future Work self	Students	3-wave, 6 months apart	SEMs	Calling as an outcome	T1 vs T2: $\beta = .05, p = .59$; T2 vs T3: $\beta = .02, p = .85, n = 473$	T1 vs T2: $\beta = -.06, p = .52$; T2 vs T3: $\beta = -.05, p = .72, n = 473$	no relation
	Life meaning				Calling as an outcome	T1 vs T2: $\beta = .13, p = .24$; T2 vs T3: $\beta = .23, p < .05, n = 473$	T1 vs T2: $\beta = -.06, p = .52$; T2 vs T3: $\beta = -.06, p = .54, n = 473$	an outcome
Zhang et al., 2018	Authentic living*	Students	3-wave, 6 months apart	Latent change score model	Authentic living predicts an increase in calling over time. Calling predicts a decrease in authentic living over time	T1 vs T2: $\gamma = 0.45, p < 0.01$; T2 vs T3: $\gamma = 0.46, p < 0.01, n = 459$	T1 vs T2: $\gamma = -.96, p < 0.01$; T2 vs T3: $\gamma = -.94, p < 0.01, n = 459$	reciprocal (but opposite directions)

Table 2 (continued)

Study	Variables	Sample	Time frame	Analysis	relation hypothesized?	Effect estimation: Predictors of calling	Effect estimation: Outcomes of calling	Calling is
Dalla Rosa et al., 2019	Clarity of Professional Identity	Students	3-waves, 12 months apart	SEMs	Calling as an outcome	T1 vs T2: $\beta = .10 - .26$, $p < .05$; T2 vs T3: $\beta = .09 - .15$, $p < .05$, $n = 434^{**}$	n.s (details not reported)	an outcome
	Engagement in learning				Calling as an outcome	T1 vs T2: $\beta = .15 - .35$, $p < .05$; T2 vs T3: $\beta = .08 - .26$, $p < .05$, $n = 434^{**}$	n.s (details not reported)	an outcome
	Social support				Calling as an outcome	T1 vs T2: $\beta = .12 - .19$, $p < .05$; T2 vs T3: $\beta = .11 - .13$, $p < .05$, $n = 434^{**}$	n.s (details not reported)	an outcome
Feifei et al., 2021	Gratitude	Kindergarten teachers	2-wave, 6 months apart	SEMs	Calling as an outcome	T1 vs T2: $\beta = .39$, $p < .01$, $n = 223$	T1 vs T2: $\beta = -.02$, $p = n.s$, $n = 223$	an outcome

Note. T = Time. SEM = Structural Equation Model.

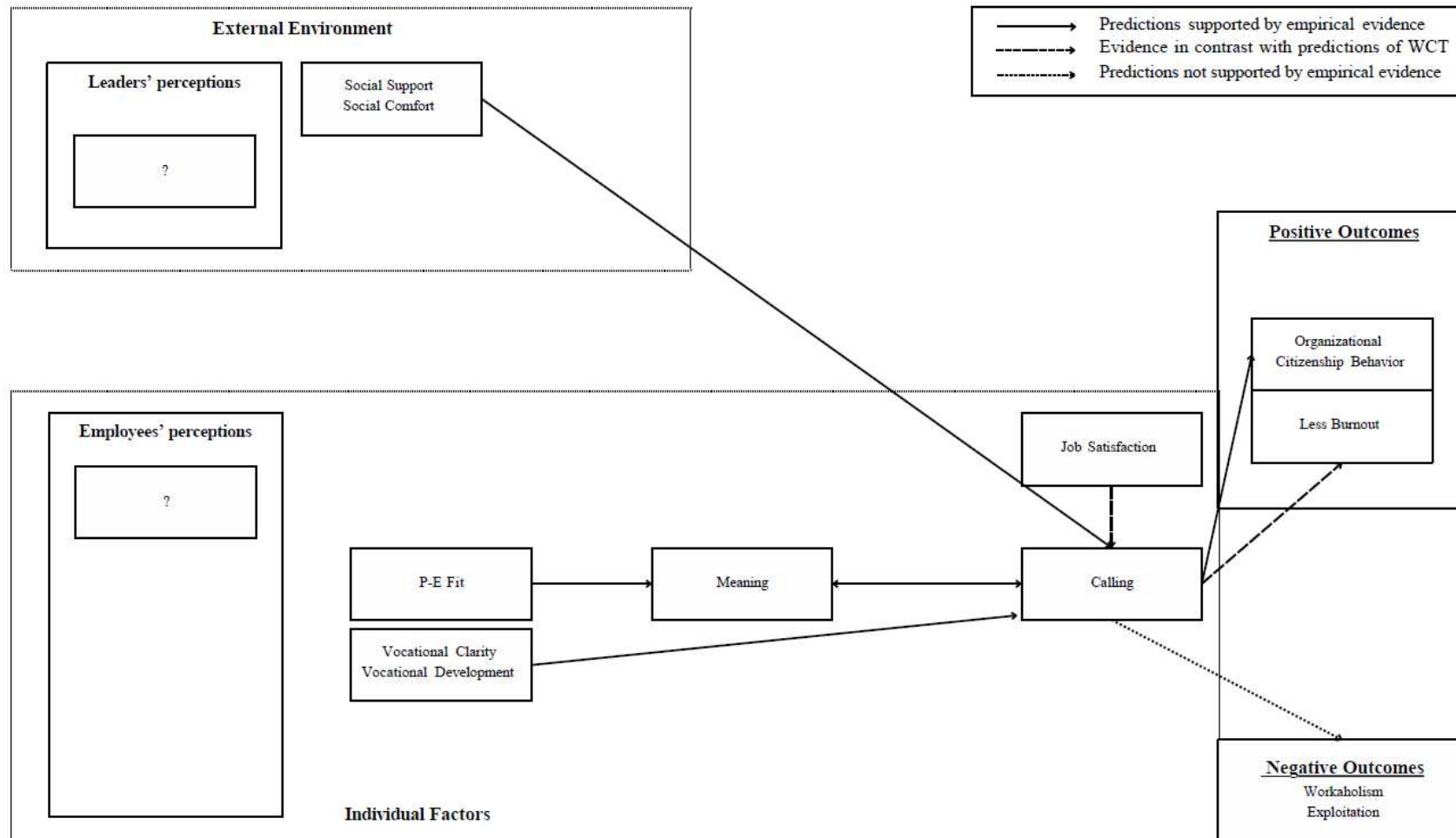
^a Study measured living out a calling.

*Construct was found to be both predictor and outcome of a calling (reciprocal effect).

**Results vary between the seven facets of calling.

Figure 1

Towards a Developmental Theory of a Calling



Note. P-E fit = Person-Environment fit; WCT = Work as a Calling Theory (Duffy et al., 2018). Vocational clarity and vocational development refer to: clarity of professional identity, work volition, personal growth initiative, career planning and career decidedness.

Knowledge gaps and research questions

The concept of a career calling has emerged as a compelling facet of career development. Also, career calling is largely beneficial for employees, organizations and even the society as a whole. Yet, we know little about how a calling develops (Duffy & Dik, 2013; Thompson & Bunderson, 2019), and even less about the organizational strategies that can be implemented to help employees see their job as a calling. While past research has extensively examined various aspects of career calling with a large focus on the outcomes of a calling, the association between an individual's level of performance and the likelihood of perceiving their career as a calling has led to mixed results. So far, there is no clear evidence on the relation between calling and performance. Some scholars found a small positive relation between calling and self-reported performance (e.g., Lobene & Meade, 2013; Park et al., 2016) while others did not find a relation at all (e.g., Kim et al., 2018; Vianello et al., 2022). Eleven studies employed cross-sectional designs, presupposing that a calling enhances performance (see Vianello et al., 2022). Yet research has never investigated whether individuals' performance predicts their calling. Our beliefs of competence and achievement in a given job might lead individuals to the belief that their job is their place in the world of work (Bunderson & Thompson, 2009). A possible account is that perceiving high performance satisfies competence needs, which are related to a calling (Li et al., 2023).

Upon determining the direction of the relation between a calling and employee performance, research should concentrate on investigating the sources of environmental feedback affecting employees' performance. This information is crucial in forming the belief that an employee is proficient in their job. One key source of that information are leaders. Understanding how leaders impact individuals' journey toward recognizing and cultivating a calling is a critical area of interest, since it highlights the external factors that contribute to the development of calling. Therefore, as we navigate the ongoing exploration of the development of callings, the role of leaders in this process stands as a compelling avenue for further study and examination.

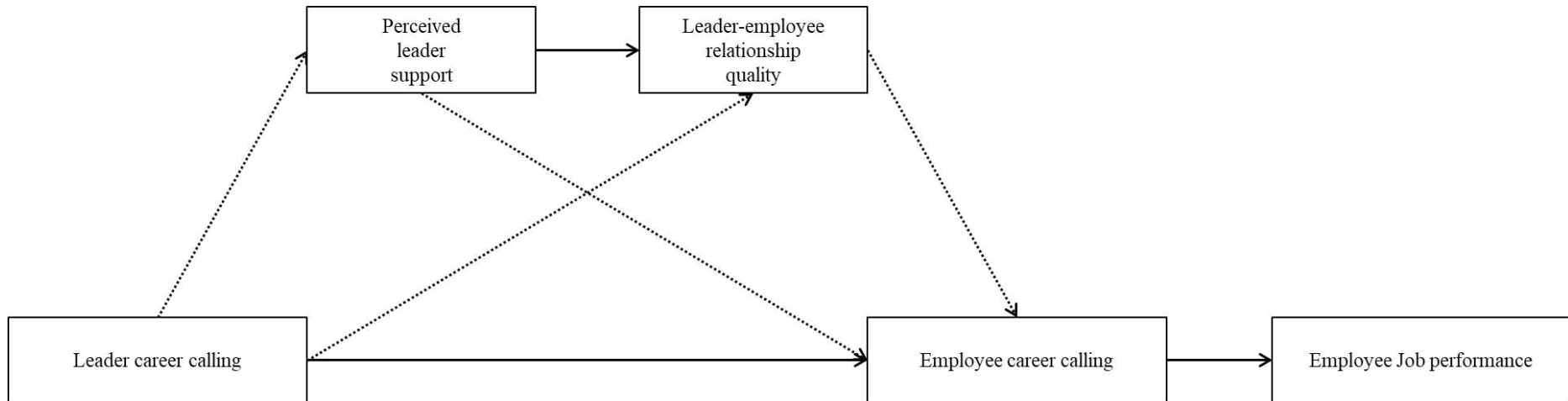
Further, the few existing studies on the predictors of calling found that calling is either driven by 1) internal or person-oriented aspects like personality or clarity of professional identity (Dalla Rosa et al., 2019; Hanan et al., 2021; Zhang et al., 2022); or 2) by external aspects, like supporting relationships with mentors (Ensher & Ehrhardt, 2022) or an environment that offers opportunities of choosing or crafting one's own job (Duffy et al., 2018). While the study of internal antecedents has received some attention, external or environmental predictors of a calling have been neglected. Socio-emotional components of

the immediate work environment play a crucial role when developing a calling, and therefore it is important to investigate how leaders can influence employees' calling. Understanding the mechanisms behind this relation will help to gather insights into how employees' career calling can be fostered and thus offer organizations a strategy to manage their members' positive development.

Figure 2 provides a comprehensive overview of the theoretical pathways that have undergone empirical testing, as well as those that remain unexplored in terms of statistical evidence. What is particularly noteworthy is that none of these relations have been subjected to examination within the framework of a longitudinal study. This critical gap in the existing research means that we currently lack robust causal evidence to support these theoretical propositions. Longitudinal studies are pivotal for establishing causality in relations between variables when experimental studies are not feasible (Granger, 1969). In essence, the lack of longitudinal research implies that we cannot definitively conclude that 1) the level of one variable temporally precedes a level in another variable and 2) that changes in one variable lead to changes in another.

Figure 2

Empirical Evidence on Key Study Variables



Note. Solid lines = Predictions supported by empirical evidence, dashed lines = Predictions not supported by empirical evidence.

Longitudinal studies that investigate these relations would contribute to existing knowledge in four ways. First, we would understand the relation between employees' sense of calling and performance, seeking to understand the direction between the two variables. Consequently, the results of the study can be used to refine or extend existing theories, such as the Work as a Calling Theory (WCT), and develop new theories on the development of a calling that eventually incorporate perceptions of task performance.

Second, understanding the relation between a leader's calling and employees' calling might shed light on interpersonal and organizational advantages associated with callings. Most research in this area has concentrated on the impact of an individual's own sense of calling. By examining the relationship between a leader's calling and employees' calling, such studies might enable an understanding of when a calling develops and provide initial insights into whether employees' career calling is fostered by the social environment.

Third, investigating pathways to how and why employees' calling is fostered by the external working environment can help in understanding how leaders shape employees' work environment. Unraveling the mechanisms underlying the development of a calling, particularly in relation to the immediate work environment and leadership, provides valuable insights for researchers and practitioners in the realms of organizational behavior and management.

Fourth, by understanding the relation between a leader's career calling and employee's career calling, organizations can create strategies to foster a more purpose-driven and high-performing work culture, benefiting both the individuals and the organization as a whole. By providing insights into how employees' career calling can be fostered we could offer organizations a strategy to manage their members' positive development. Notably, as we focus on external antecedents of calling, these mechanisms represent malleable aspects which can be shaped by others. This is particularly relevant for organizations as it might provide evidence-based advice to increase commitment and well-being through the working environment.

If you love your work, you'll be out there every day trying to do it the best you possibly can, and pretty soon everybody around you will catch the passion from you – like a fever.

Sam Walton

Chapter 2 Study 1²³ Leader's Calling, Employee's Calling and Performance: Direction of Causality

The concept of a career calling has emerged as a compelling facet of career development, encompassing a profound sense of purpose, passion, and alignment between an individual's skills and values with their chosen profession. Although living a calling at work is hypothesized to increase job performance (Duffy et al., 2018), only a few studies empirically investigated this prediction. Specifically, cross-sectional studies evidence that career calling and task performance are positively related (Kim et al., 2018; Lobene & Meade, 2013; Lee et al., 2018, Park et al., 2016) and meta-analytic estimates on these handful of studies have shown the relation between calling and performance is small-to-moderate (Vianello et al., 2022). In sum, compelling evidence on the relation and temporal precedence between calling and work performance is extremely limited, and in the current study we seek to address this limitation using advanced longitudinal methods.

Which causal relation exists between employees' calling and performance?

In the Work as a calling theory (WCT; Duffy et al., 2018), it has been proposed that individuals with a higher calling in their workplace perform better. The theory speculates that individuals who find meaning in their work and derive a profound sense of purpose from it are inherently more motivated to excel in their tasks. When individuals perceive their work as a calling, the theory predicts that job performance will increase through a serial mediation of person-environment fit, commitment, and living out a calling. The idea is that individuals who perceive a calling become deeply committed and engaged in their tasks, which will ultimately lead them to live out their calling. Their work becomes more than a means of earning a living; it becomes a fulfilling and meaningful pursuit.

Other scholars argued that the calling-performance relation might be explained by self-enhancement processes due to increased ability rather than motivation (Dobrow et al., 2015). Although the research conducted by Dobrow and colleagues does not directly address the calling-performance relation but investigates abilities, this argument can be used to

² Manuscript in preparation Gerdel et al., (2023)

³ Inspired by an Open Science Approach to research, all materials, data and analyses are openly accessible at <https://osf.io/g2658/>

explain the calling-performance relation because abilities are a proximal predictor of performance (Porter & Lawler, 1968). Self-enhancement can lead to a continuous cycle of improvement, ultimately contributing to higher perceived ability (Dobrow et al., 2015). Having a sense of calling fosters self-enhancement processes (Hirschi, 2011). This means that individuals who view their work as a calling might be more likely to invest in self-improvement, skill development, and personal growth. They are driven to become better versions of themselves, both professionally and personally, which ultimately could lead to higher task performance.

This assumption has been tested eleven times in cross-sectional studies (see Vianello et al., 2022). For example, in a study involving 186 high-tech and service industry professionals, there was a notable positive correlation between perceiving a calling and self-reported performance ($r = 0.20$; Lee et al., 2018). Similarly, in a separate study involving 965 salesmen, a significant positive correlation was found between perceiving a calling and self-reported performance ($r = 0.23$; Vianello et al., 2022). Furthermore, living out one's calling was observed to be positively associated with job performance ($r = 0.24$; Park et al., 2016).

In summary, meta-analytic estimates⁴ showed that there is a positive correlation between calling and performance ($\rho = .29$, 95% CI [.18, .39], $\tau = 0.00$, $I^2 = 0.00$, $Q(10) = 7.04$; Vianello et al., 2022). More precisely, the relation between calling and performance is small-to-moderate (Cohen, 1992; Gignac & Szodorai, 2016) in studies that employed self-reported measures of performance (weighted mean $\rho = .21$, 95% CI [.14, .28]). Regardless of whether a calling is perceived or lived out there seems to be a positive relation between calling and job performance. Aligned with the WCT proposition and supported by statistical evidence indicating a positive correlation between calling and performance we hypothesize the following:

Hypothesis 1: Employee's calling positively influences task performance one year later.

However, the opposite direction of causality (e.g., job performance fosters a sense of calling) is also plausible. The Psychological Success Model (Hall, 1977; Hall & Chandler, 2005) proposes a causal cycle in which effort leads to job performance (goal attainment)

⁴ For a complete overview of the meta-analysis refer to Vianello, M., Dalla Rosa, A., & Gerdel, S. (2022). Career calling and task performance: The moderating role of job demand. *Journal of Career Assessment*, 30(2), 238-257.

which in turn triggers feelings of success, work identity growth, increased self-esteem, higher career commitment and motivation. As a result, effective performance enhances job attitudes and career commitment, nurturing the embrace of greater goals, subsequently resulting in improved performance, and so forth. Following repeated successes in the job, individuals develop enduring positive feelings about their accomplishments, cultivating an overall positive attitude toward the job as a source of future success opportunities. This is also in line with a narrative model of authoring an identity as a called professional (Bloom et al., 2021). Individuals who actively pursue professional legitimacy, which is exploring different work experiences, are involved in experiences that enhance their expertise, and therefore increase the likelihood of cultivating a sense of calling (Bloom et al., 2021). By attaining mastery and showcasing their innate talents, individuals gain a realization of their proficiency in their work, which, in turn, contributes to the formation of their calling identity. According to this view, job performance can trigger positive experiences of success that can lead people to perceive their job as a calling. This view is also in line with the idea that a calling might be the consequence of positive experiences in a domain, such as perception of support, engagement and clarity about one's identity (a posteriori hypothesis; Dalla Rosa et al., 2019).

To the best of our knowledge, only one longitudinal study has delved into the connection between performance and calling. In a remarkable 11-year investigation, Dobrow and their colleagues (2015) examined whether abilities predict calling or if it operates in the reverse direction, particularly within the context of musicians. Their research was distinct in that it focused on abilities rather than performance measures, recognizing that abilities are connected to performance but more straightforward to address in musicians. They contend that self-enhancement processes are a catalyst for enhancing individuals' abilities but do not dismiss the possibility that abilities may, in turn, influence the emergence of a calling. It is plausible that excelling in a specific domain could lead to the development of a calling for that domain. In their study, involving 450 musicians, they measured both actual and perceived abilities, as well as calling, at three distinct time points. Actual ability was measured in awards and audition ratings, while perceived ability was measured as self-assessment of participants. They analyzed aggregated data from T1 and T2 using OLS regression models linking calling and both measures of ability. Results showed that calling (aggregated T1-T2) did not predict actual ability at T3 ($\beta = -.01$, ns). Further, they tested the relation between calling and perceived ability. Initial calling (aggregated T1-T2) had a significant influence on perceived ability at T3, and an effect size that is remarkably in line with meta-analytic estimates of subsequent studies on calling and performance ($\beta = .20$). The

reverse relationship was close ($\beta = .12$), but not significant. The authors concluded that perceived ability (but not actual ability) is an outcome of one's sense of calling. Although remarkable, this study has some limitations. Results were somewhat mixed, because effect sizes rather than null hypothesis significance testing suggested a reciprocal relation. Also, measurement error was not taken into account, and the career of musicians is very peculiar. In summary, the literature is still missing compelling evidence on the direction of causality between calling and performance and these limits would be overcome by using a complete longitudinal design and cross-lagged panel models (Little, 2013).

What causal relation exists between a leader's calling and employees' calling?

Performance assessment presents a dual perspective: It can be self-reported by the employee, or it can be reported by others. Typically, performance assessments by others are primarily conducted by the employee's leader. While we recognize that coworkers can also participate in performance assessments, our focus in the following discussion will be on leaders.

Performance assessment and feedback mechanisms in the workplace serve as crucial factors in the development of a career. Constructive feedback on one's performance helps individuals identify areas of strength and areas that require improvement. Positive feedback and recognition for outstanding performance can reinforce an individual's commitment to their chosen career and encourage them to explore avenues that align with their demonstrated competencies (Ng & Feldman, 2014). As they continue to grow professionally, individuals are more likely to recognize and embrace opportunities that capitalize on their unique strengths, further deepening their sense of a calling (Hirschi, 2012).

Specifically, individuals in leadership positions with a stronger sense of a calling might view their role as a meaningful and purposeful aspect of their career journey. This sense of calling can amplify their identification with leadership roles, consequently fostering increased dedication and active participation in their leadership responsibilities. For instance, research by Park et al. (2018) has demonstrated that a leader's sense of calling is positively related with followers' team commitment and their job performance. Additionally, mentors play an important role in developing a calling in students (Dalla Rosa et al., 2019), showing that the leadership is of particular interest in the development of a calling.

Consequently, individuals can be influenced by someone else's calling. Leader's calling does not only influence employees' behavior, but employee's calling has been shown to influence leader's behavior as well. A study by Cho and Jiang (2022) investigated whether

leaders perceive calling-oriented employees as higher performing and whether this perception leads to higher rewarding behavior. They found that leaders inferred that called employees perform better and therefore they offered them a higher bonus. This study shows that a leader's feedback can be influenced in their evaluations of performance by employees' sense of calling. When it is demonstrated that both a leader's sense of calling and an employee's sense of calling can mutually benefit each other, a pertinent inquiry arises: Does the calling of employees have the potential to influence a leader's sense of calling, or does the influence operate in the opposite direction? Therefore, we will test the causal direction of a leader's calling and employees' calling.

Employees are influenced by their leaders in a wide array of aspects. Importantly, it is not only their outcomes which are partly shaped by the leader (Judge et al., 2002) but also their behaviors and more latent characteristics such as attitudes or interests (De Clercq et al., 2019). Leaders with higher career calling talk passionately and satisfyingly about their work, engage vividly in discussions about it and pursue it in a joyful and loving manner (Esteves et al., 2018). From an employee's perspective, such leader behavior is inspiring and enriching because it offers engagement and positive affect (relatedly, see Tee, 2015). This alleged spillover of career calling from the leader to the employee should translate into a direct link between leaders and employee's career calling. When it comes to career calling, Xie and colleagues (2019) provided initial evidence that the level of a given calling can spill over from the leader to the employee. Therefore, we hypothesize the following:

Hypothesis 2: Leader's calling positively influences employees' calling one year later.

The present study

The goal of this study is to explore the longitudinal relation between employees' calling, leader's calling and job performance and better understand the direction of the effects between the three variables. While the positive correlations of having a calling and performance are evident, there remains limited knowledge about the longitudinal precedence. The longitudinal precedence is also unclear for leader's calling and employee's calling. Additionally, understanding the relation between leader's calling and employee's calling will help foster a workplace culture that promotes shared values and a collective sense of purpose. This, in turn, can contribute to higher levels of employee satisfaction, engagement, and overall well-being, creating a more harmonious and fulfilling work environment for everyone involved.

Procedure

This study is a three-wave longitudinal study. Data were collected at three different time points: May 2022 (T1), September 2022 (T2) and January 2023 (T3). The time interval between all three data collections was approximately 4 months.

Participants were recruited through an online platform called ResearchMatch. ResearchMatch is a database where scholars can collect data from adult participants throughout the United States (Harris et al., 2012). The study was explained on Research Match and when participants agreed to participate, they were sent a link to the survey (hosted by Qualtrics) via email. Informed consent was provided on the first page of the survey and electronically signed. Filling in the survey took approximately 10 minutes. Anonymized data and analysis codes of this study are publicly available on the OpenScience Framework: <https://osf.io/g2658/>.

Participants

A total of 358 volunteers from Research Match participated in the first wave (T1). Of this initial group, 98 participants were excluded for failing attention check items (e.g., please select item “strongly agree”) or failing quality check items (e.g., please select “yes” if you took this survey seriously) (Aust et al., 2013; Kung et al., 2018). The final sample size at T1 was 260. Out of the 358 participants, 202 replied to the second wave (T2). In this group, we excluded 42 participants for failing attention and quality check items. The final sample size at T2 was 160. In the last wave (T3) a total of 110 participants answered the survey out of 202 participants of the second wave. Due to failing attention and quality check items, we excluded 7 participants and the final sample size at T3 was 103. The complete data set consists of 285 participants who participated in at least one wave and did not fail the attention check items.

Table 3 summarizes the demographics of study participants. Participants were highly educated, 42.7% had a Bachelor’s degree and 32% had a Master’s degree, and were mainly female (71.8%; male = 26.2%; other = 1.9%). At T1 participants were on average 44.66 ($SD = 15.20$), at T2 45.45 ($SD = 15.12$), and at T3 45.73 ($SD = 15.24$) years old. At T1 participants worked on average for 6.74 ($SD = 7.79$) years in their organization and for 3.40 ($SD = 4.53$) years with their supervisor. Participants worked slightly longer hours at T2 (39.53, $SD = 10.59$) than T1 (37.62, $SD = 11.58$) and T3 (36.84, $SD = 11.47$).

Table 3*Demographics*

Variable	Label	Time 1 (N=260)	Time 2 (N=160)	Time 3 (N=103)
		n (%)		
Gender	Male	53 (25.7)	34 (21.5)	27 (26.9)
	Female	148 (71.8)	119 (75.3)	74 (71.8)
	Non-binary	3 (1.5)	4 (2.5)	2 (1.9)
	Prefer not to say	2 (1.0)	1 (0.6)	-
Education	High school	18 (8.7)	7 (4.4)	6 (5.8)
	Vocational school	9 (4.4)	9 (5.7)	4 (3.9)
	Community college	26 (12.6)	16 (10.1)	8 (7.8)
	Bachelor	87 (42.2)	71 (44.9)	44 (42.7)
	Master	53 (25.7)	43 (27.2)	33 (32.0)
	Doctoral	13 (6.3)	12 (7.6)	8 (7.8)
Organizational Function	Purchase and commercial	1 (0.5)	3 (1.9)	1 (1.0)
	Administration	30 (14.4)	22 (13.9)	13 (12.6)
	Customer Service	15 (7.2)	18 (11.4)	7 (6.8)
	Management	18 (8.7)	13 (8.2)	7 (6.8)
	HR	7 (3.4)	4 (2.5)	2 (1.9)
	IT	12 (5.8)	9 (5.7)	6 (5.8)
	Logistics and warehouse	4 (1.9)	3 (1.9)	2 (1.9)
	Marketing and communication	5 (2.4)	7 (4.4)	3 (2.9)
	Maintenance, cleaning and vigilance	3 (1.4)	2 (1.3)	1 (1.0)
	Production	3 (1.4)	4 (2.5)	3 (2.9)
	Quality	4 (1.9)	3 (1.9)	3 (2.9)
	Research and development	22 (10.6)	15 (9.5)	10 (9.7)
	Sales and Service	12 (5.8)	5 (1.8)	2 (1.9)
	Other	72 (34.6)	50 (31.6)	43 (41.7)
		<i>M (SD)</i>		
Age		44.66 (<i>SD</i> =15.2)	45.45 (<i>SD</i> =15.12)	45.73 (<i>SD</i> =15.24)
Organizational Seniority	Years	6.74 (<i>SD</i> =7.79)	7.3 (<i>SD</i> =8.35)	7 (<i>SD</i> =8.27)
Supervisor Seniority	Years	3.4 (<i>SD</i> =4.53)	3.1 (<i>SD</i> =4.15)	3.07 (<i>SD</i> =4.16)
Workload	Hours per week	37.62 (<i>SD</i> =11.58)	39.53 (<i>SD</i> = 10.59)	36.84 (<i>SD</i> =11.47)

Measures

The survey was administered in English and all items were rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The mean of all items per scale was used as a compound score to measure its respective scale. Participants answered additional questions on their leader's performance, their relationship with the leader (trust in the leader and perceived support from the leader), which will not be further discussed here. A full list of variables measured in this study can be found here <https://osf.io/g2658/>.

Employee's Calling

Employees rated their level of career calling using the Unified Multidimensional Calling Scale-7 (UMCS-7; Gerdel et al., 2022). An example item would be "My work gives meaning to my life". Items were completed on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The average score of all 7 items was used as a compound score and yielded a Cronbach Alpha of .85 (T1), .82 (T2), .85 (T3), supporting its internal consistency.

Perceived Leader's Calling

Employees rated their leaders' level of career calling using the same scale specifying the idea of perceived leader's calling. Items were slightly modified, changing the word 'my' to 'my supervisor'. For example: "*My supervisor* is passionate about his/her work" or "*My supervisor's* work is always on their mind". The average score of all 7 items was used as a compound score and yielded a Cronbach Alpha of .90 (T1), .91 (T2), .92 (T3), supporting its internal consistency.

Task performance

Task Performance was measured with 4 items from the In-role behavior scale by Williams and Anderson (1991). The 4 items were chosen because they had the highest factor loadings. Sample items are: "I adequately completed assigned duties" and "I performed the tasks that were expected of me". At T1 Cronbach's alpha was .85, at T2 .88 and at T3 .90.

Statistical approach

Cross-Lagged Panel Model

In our research, we have taken a comprehensive approach by employing a full structural equation model (SEM), that incorporates measures at three distinct time points. Supplementary materials can be found in Appendix A. To test longitudinal relationships between variables and the direction of the relationship the path model approach is used using composite scores. To test the hypotheses, cross-lagged analysis can provide information

about the strength of the temporal relationship among the variables, which is necessary to establish causality (Martens & Haase, 2006). The panel model approach (Selig & Little, 2012) is useful for identifying the relations between variables across time.

The relationship between variables of interest will be tested at subsequent time points. Competing causal models will be estimated and then compared. Specifically, the estimated models represent the possible relationship between employee's calling and employee's task performance (Hypothesis 1), and employee's calling and perceived leader's calling (Hypothesis 2) that are supposed to be its antecedent or outcome through different paths.

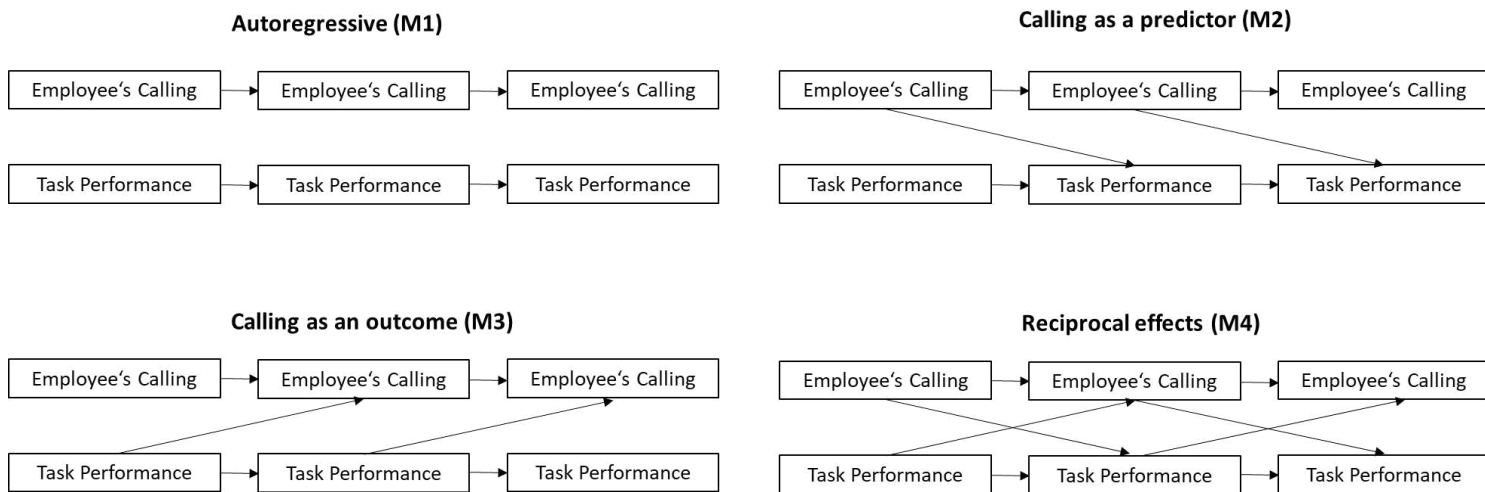
Four path models will be computed and compared. The first model is the autoregressive model, which provides information on the stability of the construct between Time 1, 2 and 3, with higher values indicating greater stability. The next three models are cross-lagged models that provide information on the degree to which one variable is a stronger temporal predictor of the other.

The models used in this study to test the direction of a longitudinal relationship for hypothesis 1 and 2 are described below and presented in Figure 3.

- 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 – Employee's Calling as a predictor: The second model estimates autoregressive effects, and includes additional cross-lagged structural paths from employee's calling at Time 1 and Time 2 to task performance (for hypothesis 1) and leader's calling (for hypothesis 2) at Time 2 and at Time 3, respectively.
- c) Model 3 – Employee's Calling as an outcome: The third model estimates the autoregressive effects (like Model 1), and includes additional cross-lagged structural paths from task performance (for hypothesis 1) and leader's calling (for hypothesis 2) at Time 1 and Time 2 to employee's calling at Time 2 and at Time 3, respectively.
- 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 at Time 1 predicting each other's variables measured at Time 2 and Time 3.

Figure 3

Models 1 to 4 of the Cross-lagged Analysis of Employee's Calling and Task Performance Over Three Time Points.



Note. Only the model with task performance is shown, the same approach was used to test hypothesis 2, but instead of analyzing task performance, perceived leader's calling was analyzed.

After estimating the models for employee's calling and task performance, and for leader's calling and employee's calling, the fit for each model was assessed and compared to understand which model fits the data best. The chi-square different test can be used to assess change in fit upon release of constraints (Kline, 2011). The autoregressive model is nested within Model 2, 3 and 4. If additions of cross-lagged paths do not improve the model over and above the stability paths, the more parsimonious baseline model has to be chosen. 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). 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
- Comparative Fit index (CFI, Bentler, 1990)
- The Root Mean Square Error of Approximation (RMSEA; Steiger, 1990)
- The standardized root mean square residual (SRMR; Bentler, 1995)

The differences in CFI, RMSEA and SRMR 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). They were only considered if the significant chi-square difference test was non-significant. 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, a 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. The same is true for SRMR, if the delta is negative, Models 2, 3, or 4 have a greater SRMR than Model 1. Differences in CFI greater than .01 (Chen, 2007; Cheung & Rensvold, 1999) greater than .015 in RMSEA (Chen, 2007), and greater than .01 in SRMR (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).

Exploratory Analysis: Random intercept cross-lagged panel model

After establishing the causal relation between calling and task performance we wanted to explore how calling and task performance changes within individuals. Therefore, we ask the question: Does a change in calling come with a change in task performance or is it the reverse? The lagged parameters that are obtained with the panel approach do not capture the actual within-person relationships over time. To separate within-person processes from stable between-person differences, random intercept cross-lagged panel models (RI-CLPM, Hamaker et al., 2015) were estimated. RI-CLPM can be thought of as an extension of the CLPM that accounts not only for temporal stability, but also for time-invariant, trait-like stability through the inclusion of a random intercept (Figure 4). The goal is to determine how the variables influence each other through the cross-lagged relationships at the within-person, state-like level, while controlling for trait-like differences at the between-person level.

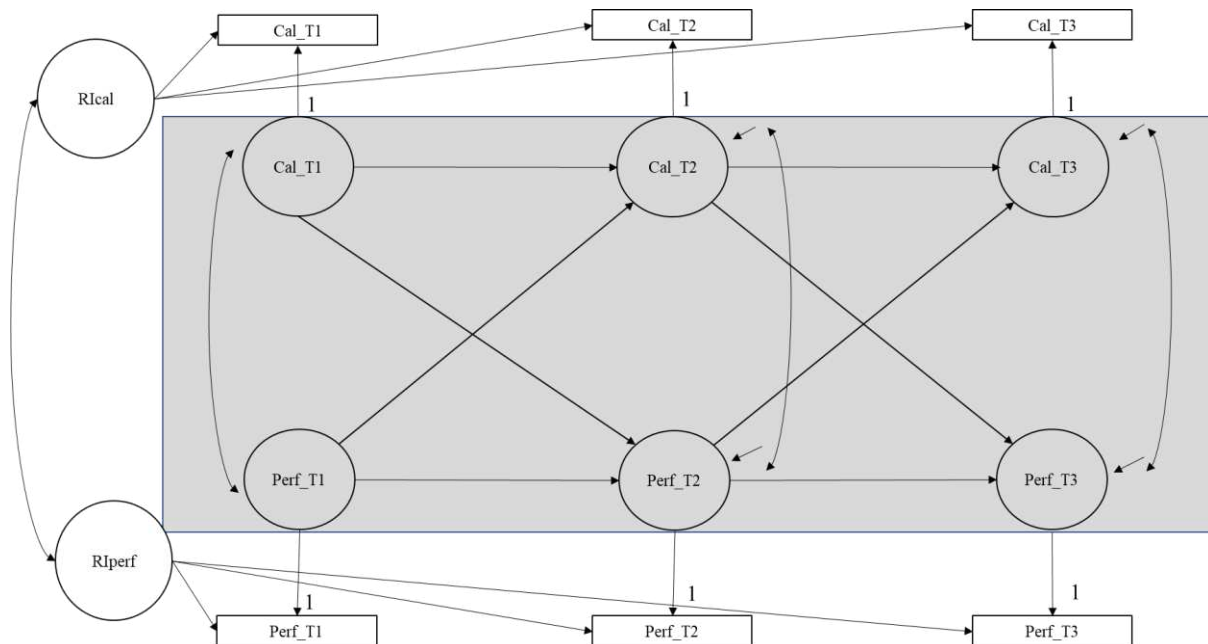
In the current study RI-CLPM were used to test how calling and task performance change within each person at three different time points and how they affect each other over time.

In a RI-CLPM the autoregressive paths represent the amount of within-person carry-over effect. For example, if the score of an individual on calling was high at Time 1, they are more likely to score high at Time 2, and vice versa. The cross-lagged parameters describe to which extent two variables influence each other. For example, they indicate the degree by which deviations from an individual's expected score on task performance can be predicted from preceding deviations from one's expected score on calling, while controlling for the individual's deviation of the preceding expected score on task performance. To estimate the

size of the effects, we followed Orth and colleagues (2022), who proposed to use .03 (small effect), .07 (medium effect), and .12 (large effect) as benchmark values when interpreting the size of cross-lagged effects in RI-CLPM. Models were estimated using Mplus. Missing values were estimated using full information maximum likelihood was used (Muthén & Muthén, 2017).

Figure 4

Random Intercept Cross-lagged Panel Model



Note. Gray area captures within-person effects. Cal_T = Calling at Time 1, Time 2 and Time 3 respectively. Perf_T = Performance at Time 1, Time 2 and Time 3 respectively.

Results

The direction of the longitudinal relation between perceived leader’s calling, employee’s calling and task performance

Table 4 reports mean, standard deviations, Cronbach’s alpha and correlations between the studied variables at T1, T2 and T3. Group means of all variables were relatively stable across time points. The correlations between calling and task performance were statistically significant only between calling assessed at T2 and task performance assessed at T1 and T2. The correlations between perceived leader’s calling and employee’s calling were statistically significant at all three time points, with the highest correlation between employee’s calling assessed at T1 and T3 and perceived leader’s calling assessed at T1 and T3.

Table 5 summarizes the fit indices for the competing models for employee's calling and performance. Table 6 summarizes the fit indices for the competing models for perceived leader's calling and employee's calling. After inspecting estimates, it turned out to be useful to add an autoregression between calling at T1 and calling at T3 to account for a high correlation. At T1 and T3 calling was more stable, whereas at T2 calling showed more fluctuations across participants for unknown reasons. After this modification, the fit for models 1, 2, 3 and 4 was good. We opted not to incorporate an autoregression between performance at T1 and performance at T3 due to the lack of a substantial improvement in model fit.

Table 4*Mean, Standard Deviations, Correlations and Cronbach's Alpha between Study Variables at three Different Time Points*

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Employee calling T1	3.73	.88	.85								
2. Employee calling T2	3.71	.81	.66**	.82							
3. Employee calling T3	3.68	.87	.74**	.71**	.85						
4. Perceived Leader calling T1	3.78	.91	.28**	.21*	.23*	.9					
5. Perceived Leader calling T2	3.86	.88	.21*	.21*	.29**	.58**	.91				
6. Perceived Leader calling T3	3.89	.9	.30**	.20*	.43**	.67**	.67**	.92			
7. Task Performance T1	4.6	.49	-.001	.19*	.12	-.08	0	-.03	.85		
8. Task Performance T2	4.67	.5	.1	.17*	.14	.02	.06	.03	.66**	.88	
9. Task Performance T3	4.68	.51	.03	.01	.13	.06	.06	.21*	.49**	.43**	.9

Note. Cronbach Alpha values are displayed in Italics on the main diagonal. **p < .01, *p < .05

Table 5

Fit indices for Path Models for Hypothesis 1: autoregressive model, causal structural models and fully cross-lagged model for employee's calling and employee's task performance

Variables	χ^2	df	χ^2/df	CFI	RMSEA	95% CI		SRMR
						LL	UL	
Model 1 - Autoregressive	15.11	7	2.16	.97	.06	0.02	.11	.07
Model 2 - Calling as a predictor	13.84	5	2.76	.97	.08	.03	.13	.07
Model 3 - Calling as an outcome	9.17	5	1.83	.98	.06	0	.11	.05
Model 4 - Reciprocal	7.98	3	2.66	.98	.08	0	.15	.05

Note. Acceptable fit was defined by the following criteria: RMSEA \leq .06, SRMR \leq .08, CFI \geq .95 (Hu & Bentler, 1999).

Table 6

Fit indices for Path Models for Hypothesis 2: autoregressive model, causal structural models and fully cross-lagged model for employee's calling and perceived leader's calling

Variables	χ^2	df	χ^2/df	CFI	RMSEA	95% CI		SRMR
						LL	UL	
Model 1 - Autoregressive	27.11	7	3.87	.94	.1	.06	.14	.13
Model 2 - Calling as a predictor	22.67	5	4.53	.94	.11	.07	.16	.10
Model 3 - Calling as an outcome	17.36	5	3.47	.96	.1	.05	.15	.09
Model 4 - Reciprocal	13.47	3	4.5	.97	.12	.06	.18	.06

Note. Acceptable fit was defined by the following criteria: RMSEA \leq .06, SRMR \leq .08, CFI \geq .95 (Hu & Bentler, 1999).

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 calling and performance better describes the data than a model with no cross-lagged effects

over time. Table 7 shows the results. The chi-square difference test is not significant for the comparison of Model 1 with Model 2 and 4 which suggest that adding a path from calling to performance and adding reciprocal causation paths do not improve the fit of the model. Only Model 3, which estimates a cross-lagged effect from task performance at T1 and T2 to calling at T2 and T3, respectively, presents a better fit to the data than the autoregressive model. The test of the difference in chi-square, the difference in CFI and the decrease in RMSEA and SRMR indices suggest that the cross paths increase the model fit from the baseline model. Therefore, task performance at T1 and T2 is better positioned as a predictor of calling at T2 and T3, rejecting hypothesis 1. Figure 5 shows the autoregressive paths and cross-lagged effects of the selected model.

Table 7

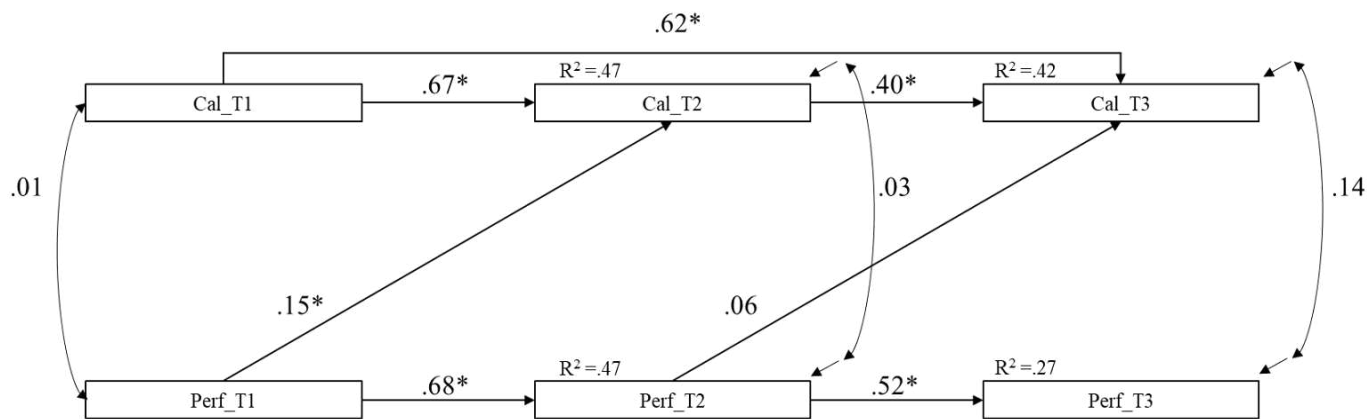
Results of Nested Models Comparison Employee's Calling and Employee's Task Performance

Variables	$\Delta \chi^2$	Δdf	p	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$
Model 1 vs Model 2	1.27	2	.53	0	.01	0
Model 1 vs Model 3	5.95	2	.05	-.01	0	-.02
Model 1 vs Model 4	7.13	4	.55	-.01	.02	-.02

Note. All differences were computed subtracting the less parsimonious model from the most parsimonious model (e.g. Model 1 - Model 2). Hence, negative differences in CFI indicate that the less parsimonious model is a better fit, whereas positive differences in RMSEA and SRMS indicate that the less parsimonious model is a better fit. Differences in CFI greater than .01 (Chen, 2007; Cheung & Rensvold, 1999) greater than .015 in RMSEA (Chen, 2007), and greater than .01 in SRMR (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).

Figure 5

Standardized autoregressions and cross-lagged paths for Model 3 for employee's calling and task performance



Note. Cal_T = Calling at Time 1, Time 2 and Time 3 respectively; Perf_T = Performance at Time 1, Time 2 and Time 3 respectively.

* $p < .05$.

Next, we compared the models that estimated the relation between perceived leader's calling and employee's calling. 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 calling and perceived leader's calling better describes the data than a model with no cross-lagged effects over time. Table 8 shows the results. The chi-square difference test is not significant for the comparison of Model 1 with Model 2 which suggest that adding a path from employee's calling to perceived leader's calling does not improve the fit of the model. Model 3, which estimates a cross-lagged effect from perceived leader's calling at T1 and T2 to employee's calling at T2 and T3, respectively, and Model 4, which adds reciprocal causation paths, presents a better fit to the data than the autoregressive model. When comparing Model 3 and Model 4 the chi-square difference test is not significant, which suggests that adding a reciprocal path from employee's calling to perceived leader's calling does not improve the fit of Model 3. The test of the difference in chi-square, the difference in CFI and the decrease in RMSEA and SRMR indices suggest that the cross paths increase the model fit from the baseline model. Therefore, perceived leader's calling at T1 and T2 is better positioned as a predictor of employee's calling at T2 and T3, supporting hypothesis 2. Figure 6 shows the autoregressive paths and cross-lagged effects of the selected model.

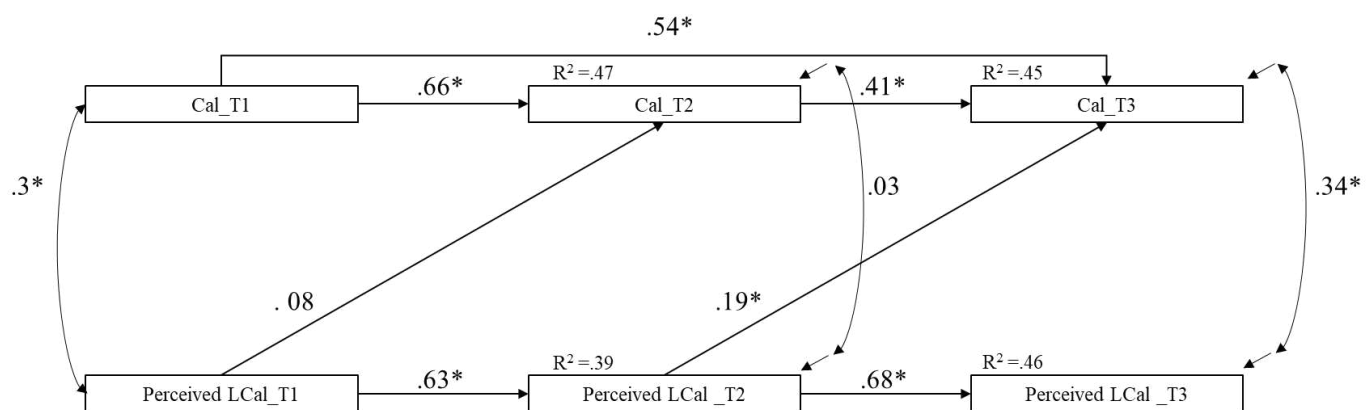
Table 8*Results of Nested Models Comparison Employee's Calling and Perceived Leader's Calling*

Variables	$\Delta \chi^2$	Δdf	p	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$
Model 1 vs Model 2	4.44	2	.11	0	.01	-.03
Model 1 vs Model 3	9.75	2	0	.02	0	-.04
Model 1 vs Model 4	13.64	4	0	.03	.02	-.07
Model 3 vs Model 4	3.89	2	.14	.01	.01	-.03

Note. All differences were computed subtracting the less parsimonious model from the most parsimonious model (e.g. Model 1 - Model 2). Hence, negative differences in CFI indicate that the less parsimonious model is a better fit, whereas positive differences in RMSEA and SRMS indicate that the less parsimonious model is a better fit. Differences in CFI greater than .01 (Chen, 2007; Cheung & Rensvold, 1999) greater than .015 in RMSEA (Chen, 2007), and greater than .01 in SRMR (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).

Figure 6

Standardized autoregressions and cross-lagged paths for Model 3 for employee's calling and perceived leader's calling



Note. Cal_T = Calling at Time 1, Time 2 and Time 3 respectively; Perceived LCal_T = Perceived Leader's calling at Time 1, Time 2 and Time 3 respectively.

* $p < .05$.

Exploratory Analysis: Within-individual differences for employee's calling and task performance

We specified a RI-CLPM model in which we set all autoregressive and cross-lagged paths to vary across time to estimate the effects between calling and performance. The model showed an excellent fit (CFI = 1, RMSEA = 0, 95% CI [0,.14], SRMR = 0.02). The RI-CLPM with autoregressive and cross-lagged paths for employee's career calling and task performance is represented in Figure 7. All coefficients were standardized for interpretability and are reported in Table 9. A priori power analysis indicated that, in order to achieve an 80% power to detect a cross-lagged effect of .2, a minimum of 600 participants would have been required (Mulder, 2023). Although we did not meet this threshold for lack of resources, we decided to interpret results as exploratory.

Autoregressive effects varied between calling and task performance. Earlier state career calling predicted future state of career calling negatively from T1 to T2 ($\beta = -.37, p = .23$) and from T2 to T3 ($\beta = -.28, p = .23$), indicating that after a deviation, scores on career calling tend to get back to their average. Earlier state task performance predicted future state task performance positively from T1 to T2 ($\beta = .19, p = .46$) and negatively from T2 to T3 ($\beta = -.08, p = .74$), indicating that individuals at T2 scored above their expected score on task performance and tend to get back to their average at T3.

Regarding cross-lagged effects, state task performance at T1 and T2 had a large positive effect on subsequent states of career calling at T2 ($\beta = .20, p = .46$) and T3 ($\beta = .28, p = .35$), respectively. Earlier states of career calling at T1 had a medium positive effect on future states of task performance at T2 ($\beta = .05, p = .84$) and states of career calling at T2 had a large positive non-significant effect on future states of task performance at T3 ($\beta = .12, p = .52$). These results suggest that changes in task performance have a stronger impact on changes in career calling than the opposite.

The covariance between the random intercepts of employee's calling and task performance that accounts for the between-person effect was positive and non-significant (COVRI = 0.09, $p = .40$). At the between-person level, the relation between initial levels of calling performance is null or tiny. As a summary, the CLPM at the between-person level suggests that task performance influences calling, rather than the opposite. When considering the RI-CLPM, the effect is almost completely accounted for at the within level, meaning how calling and task performance change within each person at three different time points. It looks like individuals with higher initial levels of task performance have higher levels of

calling, rather than the opposite, and this relation is mainly due to associations between intra-individual change processes.

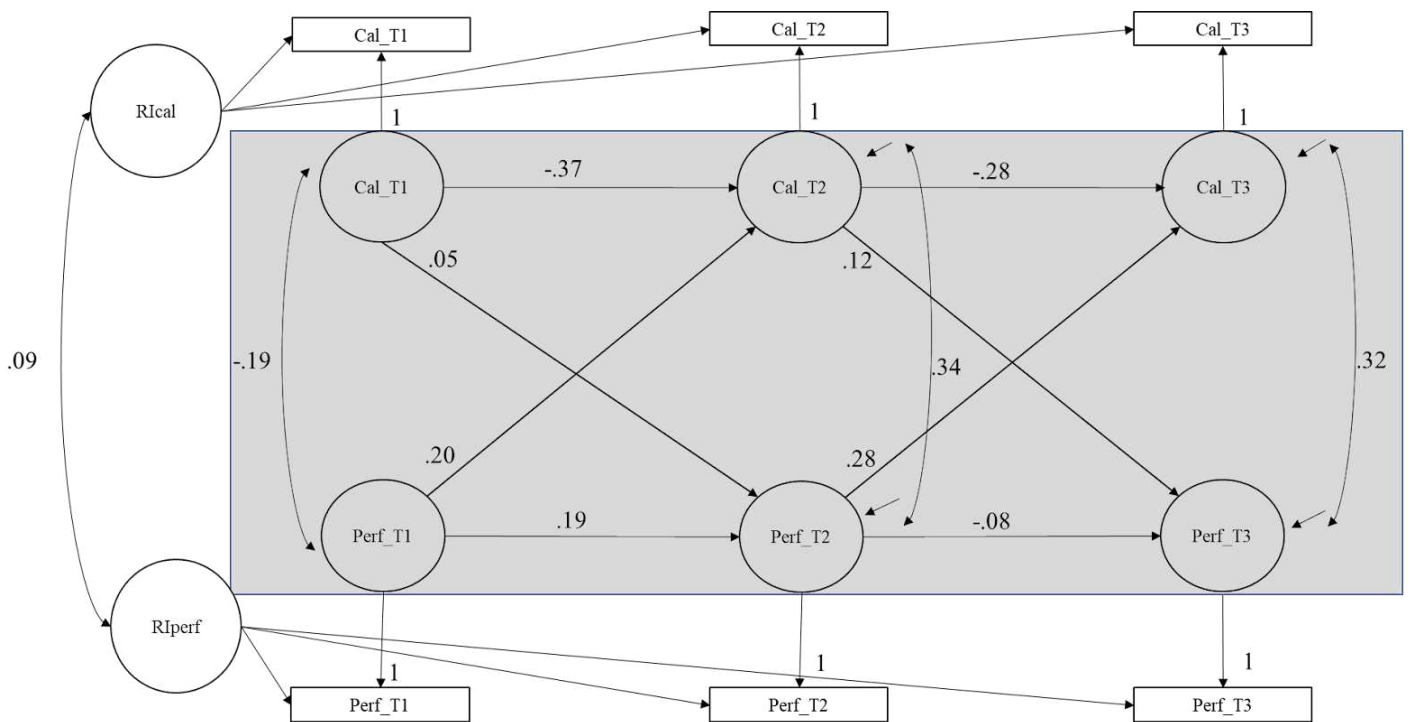
Table 9

Results of the Regressions and Covariances Estimated within RI-CLPMs on calling and performance

	Coefficient	SE	p	Coefficient standardized
Autoregressive paths				
Cal_T1 → Cal_T2	-.27	.21	.2	-.37
Cal_T2 → Cal_T3	-.38	.36	.29	-.28
Perf_T1 → Perf_T2	.21	.29	.47	.19
Perf_T2 → Perf_T3	-.09	.28	.75	-.08
Cross-lagged paths				
Cal_T1 → Perf_T2	.03	.16	.84	.05
Cal_T2 → Perf_T3	.13	.21	.53	.12
Perf_T1 → Cal_T2	.23	.33	.49	.20
Perf_T2 → Cal_T3	.40	.43	.35	.28
Covariances				
RIcal ↔ RIperf	.02	.03	.42	.09

Note. Cal_T = Calling at Time 1, Time 2 and Time 3 respectively; Perf_T = Performance at Time 1, Time 2 and Time 3 respectively; RIcal = random intercept for calling, capturing between-person variance; RIperf = random intercept for performance, capturing between-person variance.

Figure 7
RI-CLPM for Calling and Performance



Note. Gray area captures within-person effects. Cal_T = Calling at Time 1, Time 2 and Time 3 respectively. Perf_T = Performance at Time 1, Time 2 and Time 3 respectively.

Discussion

In the current study, we investigated the causal relation between leader’s calling, employee’s calling, and task performance. We analyzed calling and performance in a 3-wave panel design sample, focusing on time-lagged relations at both the within- and between-individual levels. We observed that task performance and leader’s calling are predictors of employee’s calling rather than the opposite. Exploratory analysis that accounted for trait-like variations between individuals helped to understand that the effects of perceived task performance might operate at the within-individual level.

These results contradict earlier assumptions, and they enrich our comprehension of how career callings develop. In previous theoretical models, it was commonly assumed that a calling would motivate individuals, initiating self-enhancement processes that subsequently resulted in improved task performance. However, our findings present a different perspective. We contend that task performance actually enhances and strengthens the calling itself. It is possible that task performance serves as a source of positive feedback on individuals’ achievements and might aid in the clarification of individuals’ talents and abilities and in the

extent to which the environment helps satisfying their competency need (Deci & Ryan, 2000), which has been shown to be associated with a calling (Li et al., 2023).

Individuals with a calling should experience a sense of competence in the domain of their calling (Hall & Chandler, 2005). Therefore, high levels of task performance and achievement in a profession should foster a strong identification with that career path. As outlined by a narrative model of authoring an identity as a called professional (Bloom et al., 2021), individuals who are on the path for *achieving professional legitimacy*, often form a connection between their professional identity and their accomplishments because they progress and experience positive outcomes in their roles. This alignment between identity and mastery fosters individuals' needs to exploit their talents and experiences, potentially leading individuals to view their work as a significant aspect of their life's purpose (Bloom et al., 2021). Over time, as individuals continue to achieve their goals and excel in their work, they may begin to see themselves as someone who contributes meaningfully to their profession, ultimately leading to the development of a calling.

Further, high task performance serves as positive feedback which enhances individuals' self-esteem and self-worth, thereby reinforcing the connection between their identity and their accomplishments (Bunderson & Thompson, 2009). In this context, calling develops within a specific domain as a result of recognizing positive feedback on individuals' abilities and talents. In line with the Psychological Success Model (Hall & Chandler, 2005), repeated success in the job fosters positive feelings about individuals' accomplishments. These positive experiences then can lead people to view their job as a calling.

Leaders who view their job as a calling can positively influence employee's calling. Socio-emotional components of the immediate work environment play a crucial role when developing a calling, an aspect that has so far been neglected in the literature and disregarded even by the most comprehensible theoretical model on calling: the work as a calling theory (WCT; Duffy et al., 2018). Our results suggest expanding and integrating the WCT by adding a process through which a calling is developed. We suggest that, by means of feedback, leaders play a substantial role in their employees' work identity and leader's calling, may extend the scope of the theory and allow scholars a greater insight into the calling development process. This idea is also in line with work identity as a precursor of how individuals develop the perception of having a calling (Reed et al., 2022).

Finally, individuals' calling showed negative autoregressive effects at the within-level, meaning that individuals after an increase in their calling at T1 and T2 tend to get back or score below their average levels at T2 and T3, respectively. Although results from RI-

CLPM should be interpreted carefully (as non-significant coefficients could be due to limitations in sample size, number of waves, or statistical power) the findings from this study aligns with what has previously been observed: Calling is a dynamic construct that can change rapidly at the individual level (Vianello et al., 2020; Zhu et al., 2021). Notably, shifts in work or personal circumstances can influence individuals' perceptions of their calling, leading to observable negative correlations between consecutive time points. Possible situational changes might impact how individuals perceive their work as a calling, and our findings indicate such changes occur within a time lag of approximately 4 months. This suggests that the stability of the calling construct may not be as high as currently presumed (Duffy et al., 2014). Future studies interested in employing RI-CLPM will require very large sample sizes to achieve satisfactory power for detecting medium or large effects (Mulder, 2023).

Practical Implications

These results are particularly useful for performance evaluations, training and development opportunities in organizations. By understanding the underlying dynamics of this relation, we can devise strategies to cultivate career calling, ultimately enhancing career development programs and guidance counseling to better align individuals with vocations that resonate with their innate talents and passions. Furthermore, these discoveries carry implications for organizational strategies aimed at cultivating high-performance workplace cultures.

First, in the realm of performance evaluations, managers should emphasize the significance of performance assessment and constructive feedback in their organization. Assessing performance plays a pivotal role in nurturing a profound sense of calling among employees. By recognizing and appreciating the invaluable contributions made by employees to the organization, the employee is more likely to develop a calling, leading to positive and far reaching outcomes.

Second, companies should allocate resources to robust training and development programs aimed at enhancing employees' skills and capabilities. Improved task performance becomes a tangible result, and concurrently, employees develop a stronger connection to their work—a sense of calling—through the continuous growth facilitated by these programs.

Limitations and Future directions

While this study strives to provide insights into the relations between task performance, leader's calling and employee's calling, it is essential to acknowledge certain limitations that may impact the generalizability and depth of the findings.

First, this study primarily relies on a single method for evaluating employees' calling, performance and leader's calling, potentially introducing common method bias (Podsakoff et al., 2003). The exclusive use of one evaluation approach may limit the diversity of perspectives and overlook alternative dimensions, thereby influencing the overall accuracy and robustness of the performance assessment, as well as leader assessment.

A second limitation arises from the utilization of path analysis; instead of estimating latent variables based on their individual items, composite scores were employed. To enhance the rigor and depth of future investigations, it is recommended that researchers incorporate full SEMs into their methodology to account for measurement error.

A third limitation is the lack of specific measures capturing employees' perceptions of perceiving and living out their calling. The omission of these measures restricts the exploration of the nuanced relationship between a sense of calling and its tangible expression in daily work life. In light of these limitations, future research endeavors should consider employing diverse performance evaluation methods and incorporating nuanced measures of employees' perceptions of a calling. This approach would enhance the validity and applicability of findings across diverse organizational contexts, fostering a deeper understanding of the underlying processes at play.

An intriguing future direction revolves around understanding the boundary conditions for the interplay between performance and a sense of calling. Speculatively, it could be posited that lower levels of performance might act as a catalyst for identity dissonance among individuals, prompting a reevaluation of their vocational path. This potential link suggests that struggles in performance may delay or complicate the recognition of individuals' calling, as individuals struggle with questions regarding their professional identity. Unraveling these boundary conditions could provide valuable insights into the dynamic relations between performance and calling, shedding light on the nuanced factors that influence the journey towards recognizing and embracing a sense of calling in the workplace. Such investigations have the potential to inform tailored interventions and support mechanisms for individuals navigating the intersection of performance, identity, and calling.

Conclusion

In conclusion, this study's findings challenge conventional assumptions and provide insights into the relationship between leader's calling, employee's calling and task performance. They underscore the significance of task performance in influencing individuals' perceptions of their work as a calling. Further, these results suggest that leaders

are an important driver in the development of a calling. We will investigate their role in the next study.

The three most important ways to lead people are:

By example... By example... By example.

Albert Schweitzer

Chapter 3 Study 2⁵⁶ Calling in the Leader-Member Exchange: Individual and Team Level Effects

After establishing the causal relation between a leader's calling and employees calling in study 1 (Chapter 2), we wanted to investigate the leader's perspective as well. In this study we included the leader's self-reports of calling and not only the employees' perception of their leader's calling. To further understand the mechanisms between leadership and calling in study 2 we adopted a multilevel multisource framework.

Living a job as a calling is the ultimate subjective experience of career success (Hall & Chandler, 2005) and a desirable state for both individuals and organizations. Employees with a career calling feel a passion for their work, which is central to their identity and provides purpose in life. They feel that their work is useful to others or the society as a whole, and are willing to sacrifice other areas of life to keep being engaged in job-related activities (Vianello et al., 2018). Evidence shows that called employees are more satisfied, report higher well-being and perform better (e.g. Duffy et al., 2019; Lobene & Meade, 2013). Also, they feel less challenged by job demands and less likely to leave their organization (Esteves & Lopez, 2017; Vianello et al., 2022). Consequently, career calling is largely beneficial for employees and organizations. Yet, we know little about how a calling develops (Thompson & Bunderson, 2019), and even less about how organizations can foster it.

This study examines whether leaders—who represent external aspects of employees' work environment—can foster employees' calling. More precisely, we examine whether i) leader calling, ii) leader support and iii) leader-employee relationship shape employees' career calling. To this aim, we build on social exchange theory (Blau, 1964) to derive our research model according to which, employees' calling is higher when they experience their leaders to have a higher calling. Leaders with a higher calling are perceived as being more supportive, mainly due to their motivating and inspiring nature, which again enhances the leader-employee relationship. The latter then is assumed to directly increase employees' calling.

⁵Manuscript in preparation Gerdel et al., (2023)

⁶ Inspired by an Open Science Approach to research, all materials, data and analyses are openly accessible at <https://osf.io/b7g3k/>

This study contributes to existing research in three ways. First, we provide insights into whether employees' calling is fostered by a crucial aspect of most working environments, which in our case is the leader. In doing so, this study is among the first to identify external antecedents of career calling. Second, we examine pathways to explain *why* calling is fostered by leaders. Therefore, this study also contributes to the understanding of the mechanisms underneath the development of a calling. Third, we provide insights into *how* career calling can be fostered and thus offer organizational strategies to manage it. Notably, as we focus on external antecedents of calling, these mechanisms represent malleable aspects which can be shaped by others.

How does a leader's calling relate to employees' calling?

Among the different theoretical approaches which are used to explain how employees are affected by leaders, social exchange theory provides a particularly powerful and frequently used framework (Cropanzano & Mitchell, 2005). According to social exchange theory, when two individuals engage in a series of interactions, obligations are created on each side (Blau, 1964). These obligations commonly translate into specific thoughts, behaviors or reactions which are expressed towards the other person. For instance, and in the sense of a beneficial social exchange, when leaders compliment the work of employees in a spontaneous office chat, then it is likely that the employees feel the social obligation to beneficially comment on the leaders' work in return. This obligation motivates employees to react accordingly, which is why they might respond by back-complimenting their leader, for example, on the recently finished project. The obligation-based exchange of social commodities portrays the idea of reciprocity as a central mechanism in social exchange theory (Gouldner, 1960). Importantly for this study, it also demonstrates that employees are influenced by their leaders not only through economic exchanges but also due to reciprocal relationships (Blau, 1964).

Social exchange theory and its mechanism of reciprocity have been successfully used to explain different employee behaviors. For example, it was shown that employees reciprocate high-quality relationships with their leaders by 'going the extra mile' and doing more than formally expected (Nohe & Hertel, 2017). Additionally, employees reply to empowering leaders by sharing more of their knowledge because they feel the need to compensate for the enhanced support they receive from the leader (Wu & Parker, 2017). Finally, employees are likely to show continuous improvement effort to reciprocate the trust given by an empowering leader and thus contribute to maintaining a balanced social

exchange (Khattak et al., 2020). In essence, reciprocity is a strong mechanism for why employees feel, act and behave in certain ways.

Indeed, empirical evidence supports the reciprocity-motivated spillover between leaders and employees with regard to emotional aspects (e.g. Sears & Holmvall, 2010) and even more latent characteristics such as psychological capital (e.g. Chen et al., 2019). Xie and colleagues (2019) offered preliminary findings indicating that the intensity of a calling has the potential to extend from a leader to their employees. Therefore, we suggest the following:

Hypothesis 1: Leader's career calling positively relates to their employees' career calling.

Perceived Leader Support as a mediator

Working with a 'called' leader is commonly regarded as something positive because it sets free inspiration, engagement and positive emotions in employees (Cain et al., 2018; relatedly see Tee, 2015). Notably, when employees derive inspiration, engagement and positive emotions from interacting with a leader they also feel a sense of support coming from this leader. For instance, employees report higher supervisor support when they regard their leaders as more inspirational (Liaw et al., 2010) or when they experience more positive emotions at work with them (Little et al., 2017). Similar findings were reported for different occupational contexts and even in longitudinal research settings (De Clercq et al., 2019; Vandenberghe et al., 2019). Transferring these findings to the context of career calling suggests that employees who work for leaders with a higher calling ought to experience a higher level of support from these leaders which roots in the inspiration, positive emotion and engagement derived from interacting with the leaders. Based on this reasoning and the respective empirical findings the following hypothesis is stated:

Hypothesis 2: Perceived leader's calling is positively related with perceived leader support.

Notably, employees who feel supported by their leader might develop a higher career calling for themselves. The reasons are twofold. First, perceived support empowers employees and provides them with the freedom to pursue their personal interests and strengths. Pursuing one's own interests and strengths facilitates the development of a calling for why employees who feel more supported should also develop a higher calling. This

notion was initially promoted by both quantitative (Li et al., 2021) and qualitative research (Lemke, 2021) showing that those who perceive more support report higher career calling.

Second, employees might also express higher calling because they reciprocate the support they receive from the ‘called’ leader. This second argument builds on assumptions of social exchange theory (Blau, 1964), according to which positive behavior – like expressing a calling – and its relational consequences strengthen the reciprocity between two people. In essence, higher called leaders are perceived as giving more support. Employees are likely to show higher career calling to reciprocate the support given by called leaders in order to contribute to a balanced social exchange with them. According to this logic, an indirect link between leader’s calling and employee’s calling via perceived leader support is assumed. In line with our argumentation, we state the following hypotheses:

Hypothesis 3: Perceived leader support directly fosters the employees’ career calling.

Hypothesis 4: Perceived leader support mediates the link between perceived leaders’ calling and employees’ calling.

Leader-Member Exchange Quality as a mediator

The leader-employee relationship is a powerful component of working environments as it can unleash but also conceal employees’ hidden potential (e.g. Young et al., 2021). Leader-employee relationship is most prominently tied to the leader-member exchange framework (LMX; Graen & Uhl-Bien, 1995). In light of it, we distinguish between low quality relationships which are based on mere economic exchanges and high-quality relationships driven by social exchange processes (Liden, et al., 1997). We argue that when employees work with a highly called leader they experience a better leader-employee relationship. This argument is based on the rationale that leaders with higher career calling behave in a way that is considered positively because it sets free inspiration, engagement and positive affect (Cain et al., 2018; relatedly see Tee, 2015). It is exactly those aspects that are, among others, known as antecedents of higher-quality leader-employee relationships (Dulebohn et al., 2013; Nahrgang & Seo, 2015). Thus, we assume that leaders who are perceived as having a higher calling maintain better relationships with their employees. This hypothesis has been proposed in the past but it is still untested (e.g., Young et al., 2021).

Hypothesis 5: Perceived leader’s calling is positively related with leader-member exchange.

For employees, a high-quality relationship with their own leader brings numerous advantages such as role clarity, personal satisfaction or perceived fairness at work (Dulebohn et al., 2012). Particularly relevant for this study is the circumstance that when employees are in a higher-quality relationship with their leaders, they feel more empowered and are thought to become more self-reflective (Dulebohn et al., 2012; Gardner et al., 2019). Thus, they think more about their own action, strength and purpose and become more confident in representing their personal passions. Introspection is, in fact, key for discerning one's career calling (Hall & Chandler, 2005). In that regard, Hanan et al. (2021) reported that higher-quality leader-employee relationships relate to employees' career calling while Zhang and Jin (2019) observed that employees' calling is higher when they feel empowered through interpersonal relationships. Thus, we assume that employees working in a higher-quality relationship with their leaders develop a higher career calling as they feel more empowered and freer to nurture their personal interests and passions. This should reflect on a direct link between leader-employee relationship quality and employee career calling which is stated in the hypothesis below.

We also assume that the quality of the leader-employee relationship mediates the link between a leaders' career calling and an employee's calling based on social exchange theory: A good leader-member relation satisfies a basic need in employees, who are then pushed toward reciprocating the leader and returning to their leaders with a positive, passionate, and purposeful work orientation. Giving and receiving passion and meaning in a relationship fosters the beneficial exchange between leaders and employees, which should transfer to higher-quality relationships between them. It is then this higher-quality relationship which again empowers employees and provides them with the nourishing ground to find their own career calling. Consequently, it is argued that the quality of the leader-employee relationship mediates the link between a leader's calling and an employee's calling.

Hypothesis 6: The quality of the leader-employee relationship directly fosters the employees' career calling.

Hypothesis 7: The quality of the leader-employee relationship mediates the link between leaders' career calling and employees' calling.

Perceived leader support and Leader-Member Exchange: a serial mediation

Both the leader's perceived support and the quality of the leader-employee relationship are supposed to explain why employees working for higher called leaders

perceive a higher career calling. Importantly, the support that the employee perceives from the leader and the quality of the leader-employee relationship are not entirely independent of each other. In fact, empirical findings support the notion that perceived leader support goes hand in hand with a higher-quality leader-employee relationship even when examined in long-term settings (e.g. Eisenberger et al., 2014) or when tested on different levels including the individual, group and organizational one (Henderson et al., 2009). Positive leader behaviors – like giving support – add to the interpersonal exchange relationship between leaders and employees and in turn strengthen the reciprocity that is needed to build up high-quality relationships. In essence, when leaders support their employees more strongly, the obligation to reciprocate this behavior will grow on the employees' side, resulting in more favorable behavior directed towards the leaders. In accordance with social exchange theory, ongoing reciprocity in a positive sense will result in a high-quality relationship between leaders and the employees (Blau, 1964). Therefore, the following is assumed:

Hypothesis 8: Perceived leader support directly enhances the quality of the leader-employee relationship.

Finally, and accounting for the circumstance that the perceived leader support and the quality of the leader-employee relationship are interdependent, a serial mediation is assumed when explaining how employees' career calling is affected by the leaders' calling. In that regard, it is important to keep in mind that working with 'called' leaders triggers engagement, excitement and positive emotions in employees, which in turn create a feeling of emotional support (Ruvalcaba-Romero et al., 2017). It is then this feeling of being supported which nourishes the quality of the employees' relationship with the leaders. In essence, employees who feel supported by their leaders also experience the relationship with their leader to be of higher quality (Eisenberger et al., 2014). This higher quality of the leader-employee relationship might work like a facilitator and empowers employees as well as provides them with the nourishing ground to find their calling.

Hypothesis 9: The relation between perceived leader's calling and employee's calling is serially mediated by perceived leader support and leader-member exchange.

The present study

In study 2 we aim to shed more light on the mechanisms between leader's calling and employee's calling. More precisely, we address the question of whether and how the calling of employees relates to their *leaders' calling, to the support they get from their leaders, and*

to employee's relationships with their leader by investigating data at the individual and team level. In essence, this study examines whether and how i) leader calling, ii) leader support and iii) leader-employee relationship shape employees' career calling. Specifically, we will look at the direct effects of leader calling, leader support and leader-member exchange on employee's calling and the indirect effects of leader support and leader-member exchange on the relation between perceived leader's calling and employee's calling. By examining the effects not only at the individual level but also at the team level, we gain a more comprehensive understanding of the concept of a team's calling. This involves exploring the potential correlation between a leader's calling and the collective calling of the team, as well as the mechanisms through which it shapes the team's sense of purpose, notably through team support and the Leader-Member Exchange (LMX) within the team. Delving into calling at the team level provides valuable insights into the ways in which a leader's calling can exert influence on the overall collective calling of the team. For this reason we investigate both perceived leader's calling as reported by the employee, and self-reported leader's calling at the team level.

Procedure

The study is a multi-source and multi-level, cross-sectional design. We collected data in five Italian organizations from leaders and their team members over the course of one year. Data was collected using an online survey, which was sent out to 1284 employees. An invitation Email signed by the CEO of each organization was meant to motivate employees to take part in the survey. Participation was voluntary. It was guaranteed that personal data would not be passed on to a third party and all employees consented for their data to be used for research purposes. The average time to complete the online survey was 20 minutes.

Participants

We ran a Monte Carlo simulation to estimate the required sample size to detect a mediation effect of .40 in a multilevel SEM framework. Parameter estimates that were needed to run the simulations were obtained in a pilot study (report available here: <https://osf.io/rw7um/>). Results showed that with a sample size of 280 participants (140 teams with an average cluster size of 2) power exceeded .95 to detect main effects and .80 to detect indirect effects.

Of the 1284 employees (either leaders or followers) who were approached, 633 fully completed the online survey, yielding a response rate of 49.3%. Among the 1284 employees, 180 (either leaders or followers) did not fill out the survey but were evaluated by their team

members, hence the dataset is composed of 813 persons (157 leaders and 656 followers) with information coming from 633 participants. On average, one leader had four followers.

All 633 employees worked for one out of five Italian organizations. 47.3% of them were male whereas 50.9% were female, 0.6% were non-binary or third gender and 1.3% did not report their gender. Participants were on average 36.5 years old ($SD = 11.46$), worked in the respective organization for 8.47 years ($SD = 8.44$), reported a mean working time of 35.86 hours per week ($SD = 10.38$) and were on average with the same leader for 3 years and 5 months ($SD = 4.07$).

Overall, participants held a relatively high level of education. While 31.8% held a university degree, 47.1% reported a high school degree, 11.7% completed middle school and 9.4% percent had specific vocational training as their highest educational background. Their working fields were diverse, with 45.3% working in Sales and Service, while 9.8% had a background in Production and the remaining participants worked either in the field of Purchase, Logistics, Administration, Quality Control or Customer Service.

Measures

The online survey encompassed different questionnaires which were all administered in Italian. Employee's rated their calling, their need for calling, their task and contextual performance, their leader's calling and their leader's performance. Further they evaluated their relationship, their trust, their perceived support and their dyadic interaction with their supervisor. Leader's rated their calling, their performance, their employee's calling, their employee's performance and their relationship with their employees. In the current study employee's calling, leader's calling, perceived leader's calling, leader-member exchange, and perceived supervisor support will be discussed. A complete list of the variables assessed in the questionnaire can be found on OSF <https://osf.io/xgtdy/>.

Employee's and Leader's Calling

Employees and leaders rated their career calling, which was measured with the Unified Multidimensional Calling Scale (UMCS-28; Vianello et al., 2018). The following sample items specify the construct of career calling: "I am passionate about my work", "I believe that I have been called to pursue my current line of work" and "My work helps me live out my life's purpose". All items were rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The mean of all 28 items was used as a compound score to measure employee and leader calling. In this study, the reliability of the compound score on calling was checked using Cronbach's Alpha ($\alpha = .96$).

Perceived Leader's Calling

Employees rated their leaders' level of career calling through answering all items of the Unified Multidimensional Calling Scale-7 (UMCS-7; Gerdel et al., 2022). The following sample items specify the idea of perceived leader calling: "My supervisor is passionate about his/her work" and "My supervisor's work gives meaning to his/her life". Items were completed on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The average score of all 7 items was used as a compound score and yielded a Cronbach Alpha of .88, supporting its internal consistency.

Leader-Member Exchange

The quality of the leader-employee relationship was assessed through the Leader-Member Social Exchange Scale (LMSX; Bernerth et al., 2007). The following are example items thereof: "My supervisor and I have a two-way exchange relationship" and "My efforts are reciprocated by my supervisor". All 8 items were rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and their compound score was used for the analyses. In this study the Cronbach Alpha value was .95.

Perceived Supervisor Support

Perceived leader support was measured with the 4-item Perceived Supervisor Support Scale (PSS; Rhoades et al., 2001). Sample items are: "My supervisor cares about my opinions" and "My supervisor strongly considers my goals and values". Items were rated on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and a compound score was used for the analyses. In this study, the Cronbach Alpha value of the compound score was .88.

Statistical approach

Multilevel structural equation modeling (MSEM; Preacher et al., 2010) was used to test our serial mediation model and the hypotheses depicted in Figure 2. In the mediation model, employee's calling was the dependent variable, perceived leader's calling was the independent variable, perceived leader support was the first mediator and leader-employee relationship quality was the second mediator variable. MSEM was preferred over other methods as it allows analyzing the mediation model of interest using latent variables at both the individual level and the team level. This is particularly important because we collected information from leaders and followers who are not independent but nested within teams. Hence, it is recommended to decompose the variance among employees *within teams* from the variance that exists *across* teams. This was done by using MSEM in Mplus (version 8.7,

Muthén & Muthén, 2017) which allowed for 1) separating effects that occur within teams and across teams and 2) for testing for multiple serial mediation using latent variables (Preacher et al., 2010). Consequently, the results separately describe findings for both effects that occur for employees within one and across different teams. Figure 8 illustrates this multilevel design.

Before conducting the mediation analyses, we followed West and colleagues (1995) and visually inspected the histograms of all variables to check whether all variables used in the model can be assumed distributed normally. Skewness and kurtosis values ranged between -.74 and 1.14. We also checked for the presence of common method bias by investigating the systematic influence of the common scaling approach in our data (Spector & Brannick, 2010). Following Fuller et al. (2016) a single-factor test was applied: We studied all items conjointly in a confirmatory single-factor analysis. In such a model, all items accounted for 32% of the variance in the single latent factor, which is assumed to represent the common source variance. As Podsakoff and Organ's (1986) threshold of 50% explained variance was not exceeded, we concluded there was no need to account for common method bias in this study.

We employed the Bayes estimator in Mplus because it performs better than ML when the dataset includes a smaller number of clusters (Muthén & Asparouhov, 2012). We report Bayesian credible intervals (CrI; Muthén & Asparouhov, 2012) because they are more precise than confidence intervals when the sampling distribution is asymmetric. CrI can be interpreted in the same way as confidence intervals: A 90% CrI means that there is a 90% chance that the true (unknown) population value is within the interval, given the evidence provided by the observed data.

Due to the nested design, every hypothesis was tested on both the individual and team level. Consequently, for each hypothesis two parameter estimates are provided in Figure 7 and Table 11, one for the individual level and one for the team level. First, the parameter estimates for testing the hypotheses on the individual level are shown and subsequently those for testing the hypotheses at the team level are summarized. When testing the hypotheses with MSEM, we followed Preacher et al. (2010) and freed the paths for all effects and tested them simultaneously. Although results showed strong evidence in favor of our key serial mediation hypothesis (H9), some team-level parameters in the model had relatively large standard errors given our sample size and team-level variance. Although the estimates of the standard errors were not large enough to be considered aberrant, large standard errors might be due to a small number of teams, low ICC, and/or a very high correlation between PSS and

LMX at the team level (Hox & Maas, 2001). Hence, we decided to estimate two different MSEM models that investigate the impact of each mediator separately and to report the results of the serial mediation in a Web Supplement (https://osf.io/f4p96/?view_only=c7a05a6cae674305ae94e6724044600d). Separate models for PSS (Model 1) and LMX (Model 2) led to more precise team-level estimates, suggesting that large standard errors in the most complex model were due to very high correlation between PSS and LMX at the team level.

Results

Descriptive statistics, Cronbach's alpha values, bivariate intercorrelations, and intraclass correlation coefficients (ICCs) of all study variables can be found in Table 10. Scale scores showed good to very good internal consistencies. The bivariate correlations among the study variables were all positive and significant and varied between .35 (Perceived Leader Calling*Leader-employee relationship quality) and .75 (Perceived Leader Support*Leader-employee relationship quality). Finally, ICCs were computed in a random intercept model with leaders' calling being the independent variable and employees' calling, perceived leader support and leader-employee relationship quality being the dependent variables or mediators. Hence the ICCs represent an estimate of the proportion of total variance in the outcome variable (i.e. calling) due to differences among teams. In brief, ICCs ranged from .14 (Employees' Calling) to .34 (Perceived Leader's Calling), indicating that group membership (i.e. working for the same leader) explained the least amount of variance in employee's self-ratings of career calling while it explained the largest amount of variance in the employees' ratings of the leader's calling.

Table 10

Means, Standard Deviations, ICC, Bivariate Correlations and Cronbach's Alpha for Studied Variables

Variables	<i>M</i>	<i>SD</i>	<i>ICC</i>	1	2	3	4	5
1. Perceived Leader's calling	3.64	.69	.34	.88				
2. Employee's calling	3.2	.68	.14	.38*	.96			
3. Leader-Member Exchange	3.5	.81	.16	.35*	.27*	.95		
4. Perceived Leader Support	3.86	.77	.17	.39*	.27*	.75*	.88	
5. Leader's Calling	3.52	.56	-	-	-	-	-	-

Note. Cronbach Alpha values are displayed in Italics in the main diagonal. Due to the nested structure of the data, correlations between Leader's calling and the other variables cannot be provided.

* $p < .01$

Test of the mediation effects of LMX and PSS at the individual level

In support of hypotheses 1, 2 and 5, we found moderate to high positive and direct relations between perceived leader's calling, perceived leader support, leader-employee relationship quality and employee's calling. Parameter estimates are summarized in Table 11 and Figure 8, which is separated into individual effects at the bottom and between effects at the top for model 1 (PSS as mediator, Panel A) and model 2 (LMX as mediator, Panel B). Thus, employees who perceive their leaders to be more strongly called toward their job also experience more leader support, report a higher-quality relationship with their leaders and report being more called themselves. In support of hypothesis 3 and 6, we found moderate positive and direct relations between employee's calling and leader-employee relationship quality as well as perceived leader support. Hence, those who judge the relationship with their leader to be of higher quality and those who feel more strongly supported by their leader report higher career calling toward their own jobs. Finally, we found support for the mediation effects of perceived leader support and leader-employee relationship quality on the relation between leaders' calling and followers' calling (Hypotheses 4 and 7). Mediation effects are reliable but small in size (indirect effect $\text{perceived leader calling} \rightarrow \text{PSS} \rightarrow \text{employee calling} = .06$, 90% CrI [.02, .10]; indirect effect $\text{perceived leader calling} \rightarrow \text{LMX} \rightarrow \text{employee calling} = .07$, 90% CrI [.04, .11]). This means that employees' calling is influenced by leaders' calling to the extent that

highly called leaders are also perceived as more supportive and to the extent that employees feel their relation with their leader is of high quality. At the individual level, all hypotheses are supported.

Test of the mediation effects of LMX and PSS at the team level

At the team level, the same research questions have a slightly different meaning: They help to answer the question of whether and how the average career calling of an entire team is - directly and indirectly - affected by their leader's calling when accounting for individual effects. At the team level, individual variation and independent dyadic effects of each leader on each employee are sorted out. Parameter estimates are summarized in Table 11 and Figure 8 at the top of Panel A and B for model 1 and model 2.

In support of hypotheses 1 and 2 at the team level, in model 1 (mediator = PSS), we observed positive and significant relations between perceived leader's calling, perceived leader support and employee's calling. The effect of a leader's calling on PSS is .29 while on employee's calling it is .27. Thus, the average calling within a team and the average PSS of this team are directly affected by their leader's calling. In support of hypotheses 1 and 5 at the team level, in model 2 (mediator = LMX), we found a positive significant relation between leader's calling, leader-employee relationship quality and employee's calling. The effect of a leader's calling on LMX is .36 and on employees' calling it is .38. Consequently, the average calling of a team and the average leader-employee relationship quality are increased by their leader's calling. Hence, teams who perceive their leader to be called, report higher average career calling. Further, teams who report higher perceived leader's calling, judge the relationship with their leader to be of higher quality and feel more strongly supported by their leader. Hypotheses 3, 4, 6 and 7 at the team level were not supported and therefore no mediation effects were found.

Table 11

Parameter Estimates of the Direct and Indirect Effects on Employee's Calling for Model 1 and Model 2 at the Individual and Team Levels

Effect	Standardized estimate	Unstandardized estimate	SE	90% CrI	
				<i>LL</i>	<i>UL</i>
Individual level					
Model 1 (PSS)					
PLC → EmpCal	.32	.37	.05	.24	.40
PLC → PSS	.41	.50	.04	.34	.48
PSS → EmpCal	.12	.11	.05	.04	.20
PLC → PSS → EmpCal		.06	.03	.02	.10
Individual level					
Model 2 (LMX)					
PLC → EmpCal	.31	.34	.06	.23	.31
PLC → LMX	.36	.47	.06	.29	.43
LMX → EmpCal	.18	.16	.04	.10	.26
PLC → LMX → EmpCal		.07	.02	.04	.11
Team level					
Model 1 (PSS)					
LCal → PLC	.27	1.37	.5	-.53	.95
PLC → EmpCal	.29	.20	.19	-.006	.62
PLC → PSS	.33	.26	.15	.07	.56

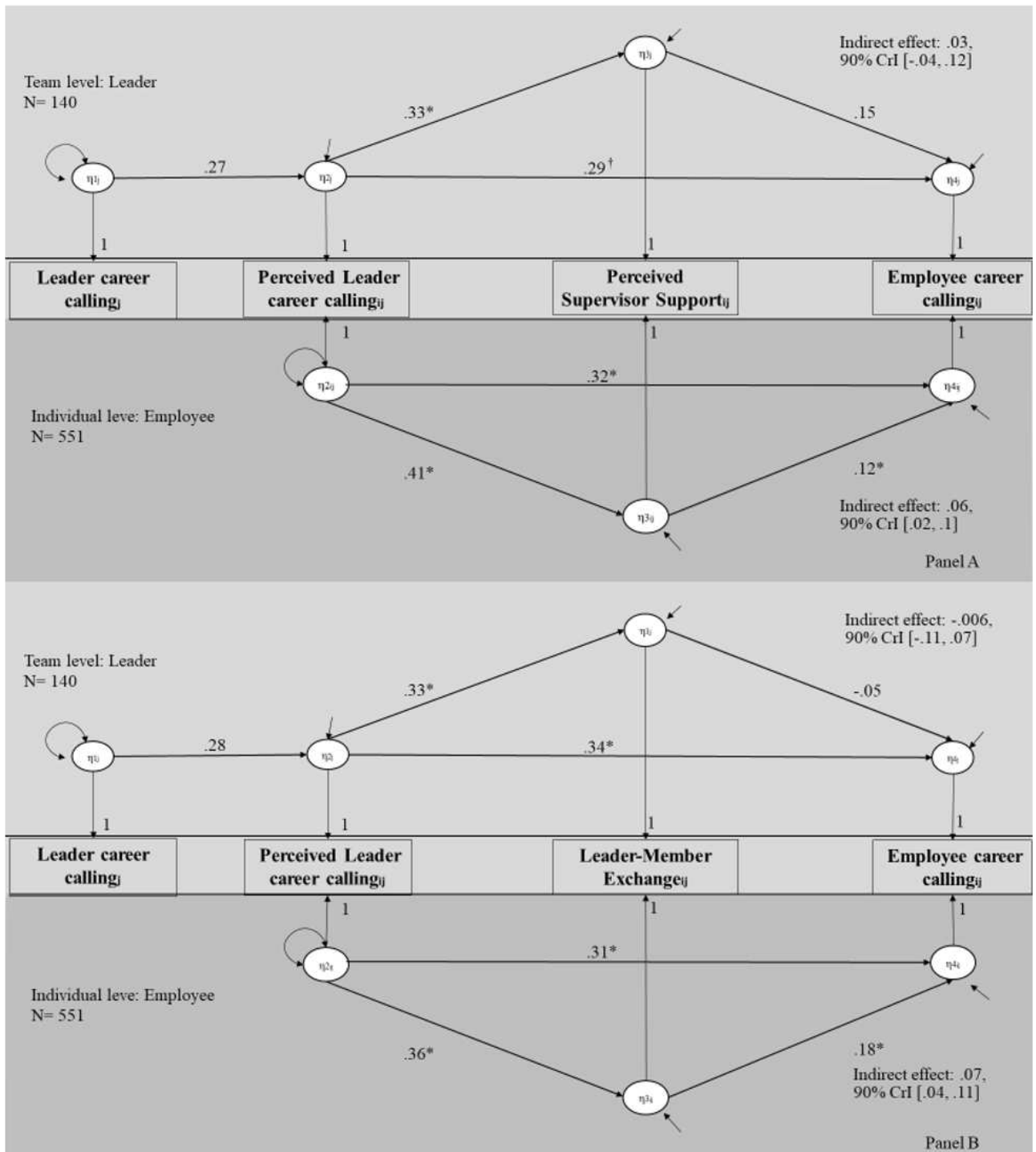
Table 11 (continued)

Effect	Standardized estimate	Unstandardized estimate	SE	90% CrI	
				<i>LL</i>	<i>UL</i>
PSS → EmpCal	.15	.12	.20	-.22	.47
PLC → PSS → EmpCal		.03	.05	-.04	.12
Team level					
Model 2 (LMX)					
LCal → PLC	.28	1.42	.35	-.52	.95
PLC → EmpCal	.34	.24	.03	.04	.70
PLC → LMX	.33	.26	.16	.04	.57
LMX → EmpCal	-.05	-.04	.22	-.42	.31
PLC → LMX → EmpCal		-.006	.05	-.09	.06

Note. CrI = Credible interval; LL = lower limit; UL = upper limit; LCal = Leader Calling; PLC = Perceived Leader's calling; EmpCal = Employee's self-reported calling; LMX = Leader-Member Exchange; PSS = Perceived supervisor support.

Figure 8

Parameter Estimates of the Multilevel Structural Equation Models Testing Hypotheses at the Team and Individual Levels, separately for Supervisors' Support (Panel A) and Leader-Member Exchange (Panel B).



Note. Coefficients are standardized. Model is saturated (df=0); number of free parameters in the model: 15.

[†] $p \leq .10$, * $p < .05$

Discussion

In this study, we observed that leaders influence followers' calling, and that, at the individual level, this process is partially mediated by the extent to which followers feel supported and in a good relationship with their leaders. Our contribution is four-folded. First, we provided initial evidence on environmental antecedents of employee's calling. Second, this study reveals insights on the underlying mechanisms through which these environmental antecedents affect calling. Third, the multi-level setting provides insights on whether career callings are driven by similar factors at the individual or team level. Finally, this study adds to leadership research shedding light on how critical aspects of a called leader facilitates a called team and how a called leader is more supportive and establishes higher quality relations with their followers.

With respect to the first contribution, we show that employees report a higher calling when they work for a leader who is also more called, when they feel more supported by their supervisor and when they experience a higher-quality relationship with their immediate leader. As these aspects resemble important factors of any working environment, we conclude that the working environment offers relevant antecedents of employees' calling. More precisely, we show leader-related aspects of the working environment are key antecedents of employees' calling. If leaders are more likely to sacrifice time towards their job, persevere in their job, show passion and in general are more positive towards the job, it is likely that the employees will reciprocate with the same facets, to the benefit of both the individuals and the team. These findings add to the scarce knowledge on where a calling comes from (Thompson & Bunderson, 2019), and on the organizational processes that can promote its development. Further, they add evidence to previous studies showing that calling spills over in organizations from leaders to followers (Xie et al., 2019). In that regard, previous findings demonstrated that job satisfaction, vocational self-clarity, attachment to the career domain and high-quality mentoring also directly relate to a person's calling (e.g.: Duffy, Douglass, et al., 2014; Duffy, Allan, et al., 2014; Dobrow, 2013; Dalla Rosa et al., 2019; Ensher & Ehrhardt, 2022). To investigate how calling spills over from leaders to followers, and to further understand how a calling emerges, future studies will require longitudinal analyses that track experiences with callings over time.

Regarding the second contribution, this study extends previous knowledge on the spill-over effect by showing that it is mediated by the extent to which employees feel supported by their leaders and by the extent to which they are involved in a high quality relation with their leaders. Previously, the spill-over of calling in organizations was

interpreted using the social learning theory. For instance, Xie and colleagues (2019) argued that employees who have called leaders are more likely to identify their leaders as role models and emulate their behavior. Our results suggest that role modeling can only account for the direct part of the spill-over process. The indirect mechanisms behind the spill-over, although smaller than the direct one, is better explained by reciprocation processes. Being part of the same social system, a leader's calling relates to employees' calling through social exchanges and part of the trickle-down effect only occurs if the employee feels supported or in a good exchange relationship. In such a situation, leaders might help employees in understanding their callings, their roles, and they might provide coaching and support teamwork (Lemke, 2021). Leader-employee interactions are key for the development of a calling, and organizations might want to foster support and LMX to increase calling.

The third contribution refers to the fact that this study presents separate findings for the individual and team level. We observe team effects that go beyond the mere sum of team members' contribution. Thus, not only the individual but also the average calling of an entire team is influenced by how called a leader appears. Across teams, called leaders are seen as more supportive and establish higher-quality relations with their employees, which enhances the average level of calling in a working team. Indeed, Wrzesniewski (2003) observed that teams with higher calling reported higher levels of team identification and argued that a calling may play a role in workgroup functioning. Our results support this view: The beneficial effect of a leader's calling can extend beyond the individual.

At the team level, individuals are drawn to those who possess qualities that are perceived as desirable. The similarity-attraction theory argues that individuals form relationships with others who have similar levels of attractiveness and social desirability (Byrne et al., 1966). Homogeneous teams work well together because of their shared characteristics, thereby increasing team cohesion (Gully et al., 2012). In a called team there is likely a consensus on how to approach work: When team members share a sense of calling, they are more likely to feel a sense of shared purpose and identity, which can strengthen the bonds between team members and enhance team cohesion.

Mediation effects are present at the individual level but absent at the team level. Either in teams direct effects are only present, or other mediators might be taken into account in the future. It is possible that leaders' calling impacts team's calling through specific task-related teamwork processes, like knowledge sharing among team members or task complexity. If the team shares the same ideas and works on similar tasks with similar complexity, team cohesion is likely to be higher and thus increase the spillover from leader's

calling to the team's calling. It seems likely that team level mediators or moderators are more relevant to account for the relationship between leader's calling and average employees' calling rather than LMX or a general sense of perceived supervisor support in the team.

Finally, this study adds to leadership research and reveals valuable insights: First, it shows that the perception of a leader plays a central role in the influence that a leader might exert on employees. Since in this study leaders' calling was measured by the perception of their employees, the findings contribute to so-called follower-centric leadership approaches which argue that the effects of leaders not only depend on the leaders' action but also on the followers' perception (Bergner et al., 2022; Brown, 2018). Second, we showed that called leaders are perceived as being more supportive and establishing high quality exchange relations at the team level. Leaders who view their role as a calling are likely to demonstrate enhanced leadership qualities, inspire their teams, and make positive contributions to the organizational culture (Esteves et al., 2018). Consequently, an examination of leaders' calling in future research endeavors can serve as valuable input for refining and informing leadership development programs.

Practical implications

Practical implications of the results of this study seem particularly relevant for organizations that can deliberately develop employees' career calling as a part of their personnel policies. So far, the literature was relatively silent to leaders or human resource managers that were interested in developing a sense of calling among their employees, who were left with little guidance. Our study can help them make decisions that tend to foster a sense of calling because called leaders in teams can help nurturing a calling in an organization. Managers would want to hire leaders already high in calling and teach them how to express their calling. For example, leaders might want to engage in sense-making activities in a team by expressing their passion towards their job and share positive emotions regarding their career (Cain et al., 2018). As suggested by Reed and colleagues (2022), feedback from the external environment like the supervisor, becomes an input for reflecting on the quality of one's work and work skills which may help in understanding to better perceive a calling. Further, team leaders would want to promote positive leader-member relationships and engage in supportive actions in a team. Creating work environments that favors the development of a calling would benefit both the individual and the organization (e.g., Dalla Rosa et al., 2019; Vianello et al., 2022).

Limitations and Future directions

The results of the current study need to be considered in light of some limitations. Longitudinal precedence between leaders calling, PSS and LMX cannot be established due to the cross-sectional nature of these data. In this study, we assumed a leader's calling to be an antecedent of PSS and LMX. However, the opposite might also be true: Leader-member relations might influence their leader's calling. We did not assume this direction of causality because it is less likely that individuals influence their leader. This lies in the reasoning that power is asymmetric, and roles and shared expectations want the leader to influence followers (Junker & Van Dick, 2014). Future studies should adopt experimental or longitudinal study designs to test whether LMX precedes or follows leader's calling over time.

A second limitation in the current study is that we could not test a serial mediation effect that turned out to be unreliable at the team level, due to a small number of teams, low ICC and a very high correlation between those two variables at the team level (for an overview refer to: <https://osf.io/z3qsu>). Future studies are invited to employ team-level measures that clarify the distinctions between LMX and PSS. The more support employees receive from their leaders, the better they evaluate the relationship with them (Eisenberger et al., 2014). Even though this is a frequently stated assumption, it is surprisingly little examined (e.g., Eisenberger et al., 2014). Thus, leaders' perceived support and the leader-employee relationship should be considered conjointly when explaining how leaders' calling spills over to employees. Doing so provides a more fine-grained picture on how the perception of leaders may enhance employees' career calling.

Conclusion

In this study, we proposed evidence that helps explain how calling spills over to the organization. We also showed that calling in leaders is related with leadership effectiveness, and that positive outcomes of a called leader are both present at the individual and team levels. This study suggests that a leader's career calling is positively related to employee's career calling and that this relation is mediated by PSS and LMX at the individual level. According to social exchange theory, employees reciprocate with their own calling when they perceive their leader to be called, they perceive their leader to be more supportive and they perceive a better quality relationship with their leader. Identifying the settings in which calling can develop in work organizations has important theoretical and practical implications. As differences in the effect of calling across settings are observed, a clearer

understanding of the proper use of calling in selection and human resource management practices may be developed.

General Discussion

Across a longitudinal study and a multilevel study, we found evidence that perceived task performance fosters the development of a calling, and that perceived leaders' calling spills over to individuals' calling, both at the individual and team levels. However, the influence on employees is channeled through their individual perception of leaders' calling. Specifically, the influence of leaders' calling on employees is mediated through their individual perception of leaders' calling, with no mediation occurring at the team level. The effect of perceived leader calling is partially mediated by the extent to which employees perceive their relation with the leader to be of high quality and by the extent to which they feel supported in their job.

Task performance and leader's calling predicts employee's calling one year later

In Study 1, we established the direction of causality among employees' task performance, perceived leader's calling, and employee's calling. Contrary to common conceptions, which generally assume that a sense of calling positively influences task performance, we found that the opposite is true. In contrast to common beliefs and theoretical predictions (Duffy et al., 2018), our findings reveal that a calling might not be an orientation toward a specific job or domain that is discerned rather early in life and then guide career choices and foster positive outcomes. It might be that calling is an arrival, rather than a starting point. These results are in line with the conception of calling as the ultimate subjective experience of career success (Hall et al., 2005). In the first study, we also established the direction of the relation in the trickle-down effect between leader's calling and employees calling (Xie et al., 2019), in order to set the ground for our second study. We observed that employees who perceive their leader as being called to their job are, in turn, more likely to experience a sense of calling themselves. On the contrary, the effect of employees' calling on leaders' calling is null or trivial.

These results might seem incompatible with the WCT, which predicts that calling fosters performance. Yet, this incongruence might be solved by adding self-perceptions of performance in the theory as a retro-active mechanism that contribute to the development of the perception of having a calling. Performance in the WCT might be seen as a behavior, which could be task-related (i.e., productivity) or indicative of employees' interpersonal skills (i.e., teamwork, and organizational citizenship behaviors; Abraham et al., 2001). We measured self-reported performance, a perception of individuals' performance, which might be better positioned as a predictor of having a calling. Future studies are encouraged to

investigate the temporal relation between calling and different measures of performance, encompassing performance-related behaviors at work, self-reports and managers' ratings of performance.

Both findings contribute to the understanding that the working environment significantly influences the development of a calling (Wrzesniewski, 2012). First, employees' actions at work, as reflected in task performance, can serve as a feedback mechanism. Performing well, indicates proficiency in their role which functions as positive feedback, subsequently fostering the belief that they are called to their job. It might be that leaders contribute to this process by providing feedback, thereby playing a crucial role in shaping an employee's work identity. The combination of feedback from employees' task performance and the input from their leaders might validate their competence and guide employees in understanding the alignment between their abilities and their work identity (Bloom et al., 2021; Reed et al., 2022). This input offers insights into various methods for exerting effort, or enhancing self-reflective understanding to better develop a sense of calling. Exploring a leader's integration into external feedback, it is plausible that ongoing evaluations from the environment play a pivotal role in fostering a continuous development of individuals' sense of purpose. This dynamic appraisal process serves as a catalyst for the development and deepening of an individual's sense of calling, highlighting the interplay between personal performance, external feedback, and the ongoing development of one's work identity (Reed et al., 2022).

Leader-Member Exchange and perceived supervisor support explain relation between leader's calling and employee's calling at the individual level

In a situation in which little is known about how the individual and the environment interact in the development of a calling, we conducted study 2 to understand the role of a leader. We focused on leader-member exchange and support from the leader because these are two external predictors that shape employees' work environment (e.g., Wrzesniewski, 2012; Demerouti et al., 2001; Kwon & Kim, 2020). In line with the social exchange theory, the results show that leader's calling spills over to employees' calling through leader-member exchange and perceived supervisor support at the individual level. This finding is significant, highlighting that employees can be directly impacted by their leaders, particularly when they experience support and engage in a high-quality exchange relationship. Leaders who have a strong sense of calling provide more support and engage in high-quality interactions with their employees, highlighting the influence a called leader can have on its team members.

Interestingly, leaders' calling does not only spill over at the individual level but also at the team level. Examining this relation not only at the individual level but also at the team level reveals that when leaders have a sense of purpose, the collective sense of purpose within a team tends to rise. This prompts inquiries about how leaders can exert influence on team members, especially considering that Leader-Member Exchange (LMX) and Perceived Supervisor Support (PSS) did not fully explain the link between a leader's sense of calling and the corresponding sense of calling among team members. It is evident that we only hit the surface of the complex and largely unexplored process of how a calling is developed. One possible line of research could be to investigate whether distinct leadership behaviors are associated with a heightened sense of calling within the team. By identifying which leaders' functions among mentoring, empowering, or rewarding their teams might contribute more significantly to enhancing the team's shared sense of calling, and understanding the differential effects of these leadership behaviors, research could add nuanced insights to the existing body of knowledge on leadership dynamics, offering practical implications for optimizing team cohesion and motivation. If, for example, the research identifies that mentoring has a particularly strong influence on enhancing a team's shared sense of calling, organizations and leaders could prioritize mentoring programs or strategies to strengthen team cohesion and motivation. Leaders who embody a strong sense of calling often engage in mentorship behaviors (Dalla Rosa et al., 2019). This involves providing guidance, support, and coaching to team members. A leader acting as a mentor could share personal insights related to their calling, helping team members connect their individual roles to a broader sense of purpose within the team and organization. Further, leaders with a strong calling are adept at articulating their values and principles, which is in line with transformational leadership (Esteves et al., 2018). They effectively convey a compelling vision aligned with the team's objectives, emphasizing the shared values that underlie the team's purpose (Avolio & Gardner, 2005). This could assist team members in grasping how their work aligns with these values, fostering a sense of meaning and coherence.

Moreover, investigating how the team's internal dynamics, such as collaboration and cohesion, play a role in amplifying or diminishing the impact of a leader's sense of calling at the team level is of interest. Understanding how team members interact and support each other in relation to the leader's calling is crucial. Team cohesion refers to the degree of unity and solidarity among team members (Gully et al., 2012). Cohesion creates a supportive environment where individuals feel a sense of belonging and shared commitment. In such a context, a leader's calling might become a unifying force, reinforcing the team's sense of

purpose and strengthening the emotional bonds among team members. Future research could investigate how team dynamics impact the influence of a leader's calling.

These findings collectively emphasize the critical role of effective leadership, interpersonal relationships, and individual performance in shaping employees' calling behaviors. Organizations can leverage this knowledge to tailor leadership development programs, enhance team dynamics, and optimize task structures to promote a culture of open communication and collaboration. Ultimately, by understanding and acting upon these insights, organizations can foster a more engaged, efficient, and interconnected workforce, leading to improved organizational success.

Towards the understanding of the development of a calling

Drawing on both our studies and prior evidence on the environmental predictors of a calling, we can say that a calling is rather developed through time and experiences than discovered. Subsequent studies should further explore some unresolved queries. If callings are indeed an outcome influenced by environmental factors, it would be wise to focus research on the developmental processes of callings. For instance, should one initially gain a comprehensive understanding of one's meaning in life before developing a calling? The persistent question revolves around the specific steps that precede and succeed in the process of developing a calling (Hall & Chandler, 2005; Elangovan et al., 2010). Although individuals with a calling connect their work to meaningfulness, only called individuals approach work originating from a source external to the self (Dik & Duffy, 2009), known as transcendent summons.

The transcendent summons part might play a role in understanding how individuals develop their calling. The concept of the transcendent summons introduces the idea that there is a profound and beyond-the-surface element that holds significance in the process of individuals developing their calling (Dik & Duffy, 2009). It implies that there may be more than just tangible or observable factors at play, suggesting the existence of deeper, possibly spiritual or purpose-driven dimensions (Bunderson & Thompson, 2009). Elaborating on this notion involves exploring the factors beyond immediate awareness that influence individuals' sense of calling. This could include a sense of higher purpose, spiritual beliefs, or a profound connection to a particular work that goes beyond conventional explanations. Comprehending the transcendent summons component necessitates delving into the intricacies of how individuals develop a calling, considering elements that may not be immediately evident in day-to-day observations and therefore take time to develop.

In the routine of their daily professional activities, individuals find themselves navigating a path that can lead them towards their calling (Hall & Chandler, 2005). This journey is significantly influenced by the surrounding organizational and environmental factors, which play a pivotal role in shaping their perception of this path. For example, within the structured framework of their jobs, individuals often immerse themselves in the exploration of their innate talents and abilities (Bunderson & Thompson, 2009). This exploration is not merely a series of tasks but might be a profound journey of the development of a calling. As individuals perform their duties, they encounter various challenges and opportunities that allow them to showcase their skills (Dobrow & Heller, 2015). The feedback they receive, whether positive or constructive, could serve as a guidepost, reinforcing their competence in their respective roles, helping them to understand their callings.

Aligned with a narrative model of authoring a professional identity, individuals who are on a journey towards understanding their calling can be on a *personal authenticity path*, meaning they are exploring their true self, or *professional legitimacy path*, in which they form a connection between their professional identity and their accomplishments because they progress and experience positive outcomes in their roles (Bloom et al., 2021). Whereas individuals who are on a personal authenticity path might be more likely to experience only one calling, individuals on a professional legitimacy path, develop multiple callings through experimentation. External forces may introduce new challenges or opportunities, necessitating adaptation and evolution in individuals' approaches to their work. The ability to navigate these external influences effectively becomes an integral part of the journey toward one's destiny. In either case the fusion between understanding one's identity and work can lead to the development of a calling.

But what happens to individuals' callings if they are not immediately finding their purpose? In such cases, the journey towards discovering one's calling may involve periods of reflection, adaptation, and continued exploration (Elangovan et al., 2010). It becomes a dynamic process where individuals, despite not having immediate clarity on their life's purpose, may still engage in experiences, learnings, and personal growth that contribute to the eventual revelation of their calling. The timing of this realization can vary for each person, and the journey itself becomes a meaningful part of the overall narrative. It underscores the idea that the development of a calling is not always instantaneous; rather, it is an evolving and often complex journey towards aligning one's purpose with their professional and personal pursuits (Dalla Rosa et al., 2023; Dobrow & Heller, 2015). An interesting direction

for future research would be for example: do people have less meaning if they do not exploit their callings?

Another unresolved question pertains to the timing of a calling development. The fundamental question revolves around whether we are inherently born with a calling that requires discovery, or if it is an ongoing process, evolving as we develop our calling over time. Empirical evidence supports the notion that a calling development is not stable. In adolescence, individuals already begin to form preliminary notions about their callings, based on their experiences (Praskova et al., 2015). This calling crashes during the college to work transition (Dalla Rosa et al., 2023), which might be related to the fact that the job does not meet students' expectations. Our research underscores that the external environment has a significant impact on the development of a calling. Therefore, it is important for future research to delve into strategies and factors that can empower newcomers to amplify their sense of calling during the college-to-work transition. For example, it might be good for individuals to maintain a realistic understanding of their roles and responsibilities. This requires an ongoing assessment of their skills, strengths, and areas for improvement. By aligning their expectations with the actual demands of the job, individuals can reduce the likelihood of disappointment and frustration (Demerouti et al., 2001). Fostering a calling is an ongoing process that requires continuous reflection and adjustment (Hall & Chandler, 2005). Newcomers should periodically assess their values, goals, and aspirations in the context of their work. Regular self-reflection allows individuals to recalibrate their sense of purpose, ensuring that it remains aligned with their evolving personal and professional identity (Reed et al., 2022).

In summary, conducting future research that explores how individuals develop a calling is paramount for advancing theoretical frameworks in the field. Such research endeavors hold the potential to contribute significantly to the development of new models or frameworks that can comprehensively capture the dynamics of a leader's personal sense of calling and its influence on employees' positive work outcomes. Understanding the process through which individuals develop a calling is foundational for refining existing theories and developing more nuanced perspectives on the intersection of personal purpose and professional engagement. By unraveling the underlying factors, psychological mechanisms, and contextual elements that contribute to the formation of a calling, researchers can build a solid theoretical foundation.

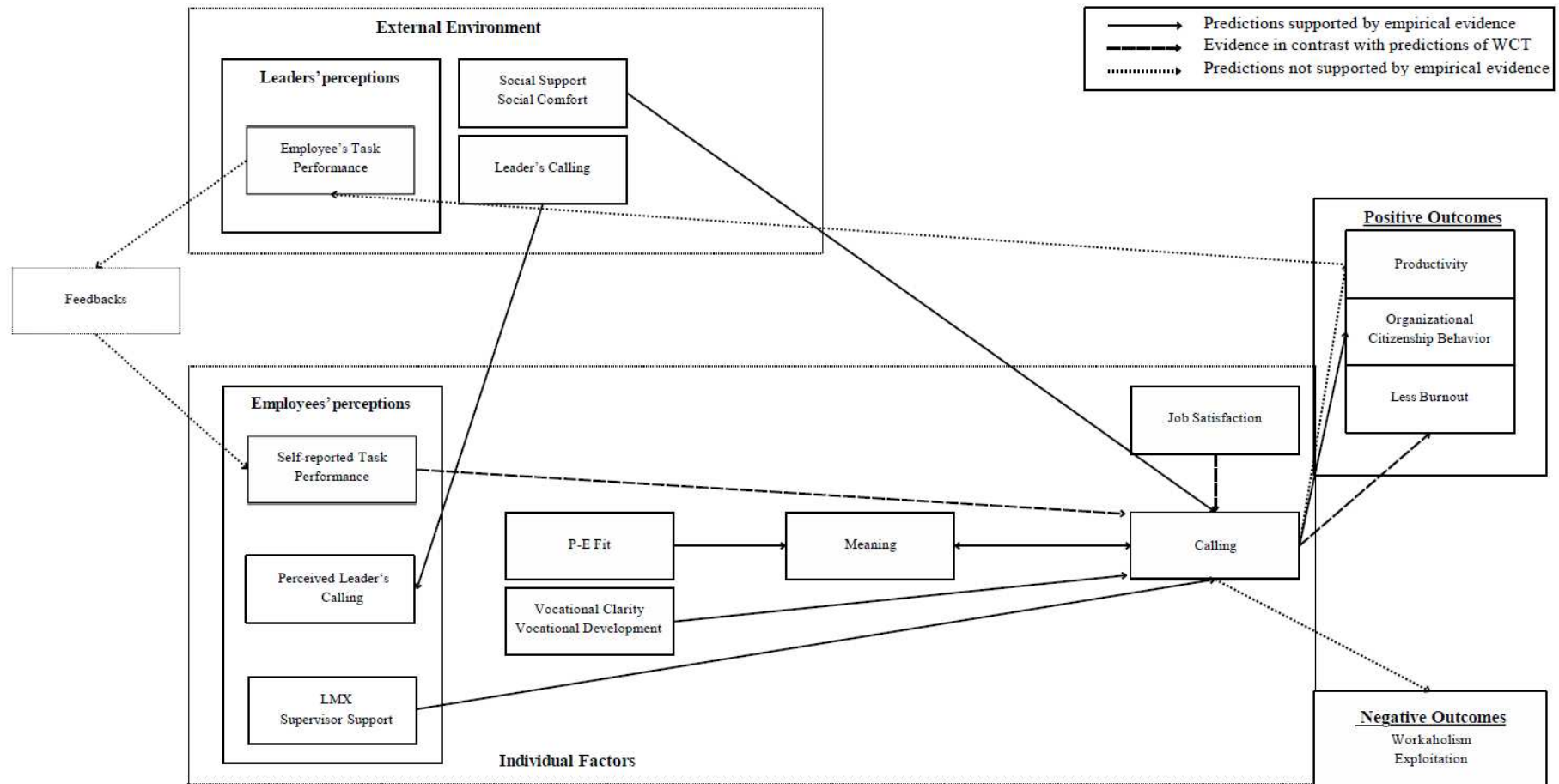
A comprehensive developmental theory of a calling

So far there exists no explicit theory that discusses how a calling develops. The common assumption is that a calling comes first and is discovered, which then leads to beneficial outcomes for the employee. As summarized in the WCT (Duffy et al., 2018), perceiving a calling leads to living out a calling which might lead to improved job performance. The path between perceiving and living out a calling is mediated by person-environment fit, work meaning and career commitment. However, a missing part in this theory is how individuals come to develop their perception of having a calling. The two studies conducted within this research suggest that a calling can be influenced by a leader and previous research showed that a calling is influenced by mentors and social support (Dalla Rosa et al., 2019; Ensher & Ehrhardt, 2022). Taken together, there is substantial evidence that the social environment provides multiple predictors of the development of a calling. Identifying and comprehending how the interaction between the individual and the environment works can help in building a theory on the development of a calling. This theory should be consistent with empirically validated propositions on individual processes that are provided by the WCT. Additionally, it should incorporate propositions detailing the development of a calling in response to external influences.

The model, illustrated in Figure 9, comprises two primary components: individual factors and environmental factors. We frame calling as an outcome and subsequently introduce antecedent conditions for the development of a calling.

Figure 9

Developmental Theory of a Calling (DTC)



Note. P-E fit = Person-Environment fit; LMX = Leader-Member Exchange; WCT = Work as a Calling Theory (Duffy et al., 2018). Vocational clarity and vocational development refer to: clarity of professional identity, work volition, personal growth initiative, career planning and career decidedness.

First, we propose to add external environmental factors to the development of an employee's calling which in our case is the leader. Our rationale is rooted in the substantial impact that leaders exert on their employees, a phenomenon well-documented in various studies (Junker, & van Dick, 2014). Evidence demonstrates that a leader's own sense of calling can significantly increase the calling perceived by their employees (Xie et al., 2019). Thus, we recommend introducing a leader's calling as a predictive factor influencing an individual's perception of their leader's calling.

Second, we suggest considering the leader-employee relationship (LMX) and the support perceived by the leader (PSS) as predictors of calling. Both have been identified as mediators in the connection between perceived leader's calling and an employee's calling. We posit that these relational factors play a pivotal role in shaping the development of a calling.

Third, we propose to distinguish between behavior that might be a source of performance (e.g.: productivity, organizational citizenship behaviors), leader's perception of employees' performance (typically measured by managers' ratings during performance appraisal) and individuals' perceptions of their own performance. The impact of a sense of calling on positive behavior is not straightforward. There is mixed evidence regarding whether individuals with a calling exhibit higher productivity, studies indicate a moderate relationship ($r = .24$; Park et al., 2016), while Vianello et al. (2022) did not find a significant association. On the other hand, research shows that having a calling is correlated with increased safety behaviors ($r = .58$; Liu et al., 2019). Furthermore, there is substantial evidence supporting the idea that a sense of calling enhances organizational citizenship behavior (e.g., Park et al., 2016; Jang, 2021; Xie et al., 2017).

To gain a deeper understanding on the relation between a calling and positive behaviors, further research is needed, making it a compelling and promising area for future exploration. For instance, how does behavior which might be a source of performance lead to self-reported task performance? Adding self-perceptions of performance in the theory as retro-active mechanisms might contribute to the development of a calling.

Thus, we propose a feedback loop, similar to performance appraisal processes (Levy & Williams, 2004). The outcomes of individuals' calling, such as positive behavior, can be assessed by the leader. When leaders evaluate an employee's task performance, they use a wide set of employees' behaviors as a source of information. These behaviors could be task-related or indicative of employees' interpersonal skills, such as teamwork, and organizational citizenship behaviors, including acts of altruism (Abraham et al., 2001).

Subsequently, leaders form their own assessment of employees' performance, shaping the feedback provided to the employees. Research suggests a connection between feedback and a sense of calling (Hu et al., 2018). This feedback works as one of the many mediators of the interaction between individuals and their environment. Feedback from the leader can provide individuals with insights into their competence and effectiveness in their roles, aiding them in the evaluation of their own performance. Consequently, this self-awareness, driven by performance outcomes, could contribute to an increase in a calling (Hall & Chandler, 2005).

Positioning self-reported task performance as an antecedent provides an integration among many previous theoretical accounts of the development of a calling (Bunderson & Thompson, 2009; Hall & Chandler, 2005; Reed et al., 2022). Within the professional realm, task performance assumes a pivotal role, offering individuals insights into their accomplishments and fostering a deeper connection to their work domain (Hall & Chandler, 2005). Consequently, we suggest that an individual's proficiency in task execution becomes a factor for the development of a sense of calling. Future research endeavors should focus on empirically testing the parts of the proposed model that are still untested, aiming to refine our understanding of the role of task performance and its specific placement within the framework. An area worth exploring is the potential mediating role of self-reported task performance on the relation between feedback and individuals' calling.

Fourth, we suggest retaining meaning as a predictor of calling in the model, given its demonstrated predictive value and reciprocal relationship with a calling (refer to Table 2). Additionally, we uphold Person-Environment fit as a predictor of meaning in the model, suggesting that alignment influences individuals' perception of meaning in their occupations (Duffy et al., 2019). A higher alignment between person-environment fit and individual meaning may enhance the likelihood of developing a calling. This proposition remains untested as of now.

Furthermore, our review of longitudinal evidence (Table 2) suggests that a calling is not only an outcome of meaning. Calling is also influenced by vocational clarity and vocational development. Consequently, these two factors should not be overlooked as predictors of calling within the model. The question of whether vocational development and vocational clarity should be positioned before or after P-E fit is still an open question. Additionally, social comfort and social support are predictors of a calling and should be added as environmental predictors of a calling.

In summary, we present a developmental theory of a calling that challenges the traditional notion that a calling precedes and is discovered, resulting in positive outcomes for employees. Empirical evidence suggests that task performance and leaders' calling can be a predictor of a calling, indicating a potential later development of a calling. This observation aligns with longitudinal reviews and studies within the research, highlighting that a calling emerges as an outcome of factors like meaning, vocational clarity, and vocational development. The proposed adjustments aim to enhance our understanding of the complex dynamics involved in the development of a calling, particularly by emphasizing the role of the work environment and the temporal relationship between task performance and a calling.

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Appendix A

Appendix A provides a concise overview of supplementary analyses performed on Study 1, as outlined in Chapter 2.

First, we conducted an attrition analysis for employee calling, perceived leader's calling, and task performance to examine whether there were significant differences in means between participants who remained in the study and those who dropped out. Out of 285 participants, 89 dropped out at T2 and at T3. No significant differences were observed when comparing means for employee's calling (Table 1), perceived leader's calling (Table 2), and task performance (Table 3) between participants who remained in the study and those who dropped out at either T2 or T3. Additionally, we used full information maximum likelihood as an estimator for missing data, which works accurately if there is no strong selective attrition (Little, 2013).

Table 1

Comparison of Mean Differences Between Participants Who Completed the Study and Those Who Dropped Out for Employee's Calling

Attrition status	<i>N</i>	Employee's Calling	<i>t</i> (<i>df</i>)	<i>p</i>	Cohen's <i>d</i>
Participants who completed all waves	87	3.69 (.91)			
Dropped out at T2	73	3.63 (.77)	-1.12(158)	.27	-.18
Dropped out at T3	16	3.61 (.65)	-.37(101)	.71	-.10

Note. Total number of participants for each wave: T1 = 260, T2 = 160, T3 = 103. Standard deviations are presented in parentheses.

Table 2

Comparison of Mean Differences Between Participants Who Completed the Study and Those Who Dropped Out for Perceived Leader's calling

Attrition status	<i>N</i>	Perceived Leader's Calling	<i>t</i> (<i>df</i>)	<i>p</i>	Cohen's <i>d</i>
Participants who completed all waves	87	3.87 (.93)			
Dropped out at T2	73	3.82 (.89)	-.56(158)	.57	-.09
Dropped out at T3	16	3.98 (.71)	-.46(101)	.71	.13

Note. Total number of participants for each wave: T1 = 260, T2 = 160, T3 = 103. Standard deviations are presented in parentheses.

Table 3

Comparison of Mean Differences Between Participants Who Completed the Study and Those Who Dropped Out for Task Performance

Attrition status	<i>N</i>	Task Performance	<i>t</i> (<i>df</i>)	<i>p</i>	Cohen's <i>d</i>
Participants who completed all waves	87	4.72 (.51)			
Dropped out at T2	73	4.63 (.59)	-.85(158)	.40	-.14
Dropped out at T3	16	4.52 (.50)	-1.22(101)	.15	-.39

Note. Total number of participants for each wave: T1 = 260, T2 = 160, T3 = 103. Standard deviations are presented in parentheses.

Second, to test the structural equation models in our cross-lagged path analysis we compared different measurement models using confirmatory factor analysis (CFA) and estimated measurement invariance. We assessed model fit using the Chi-Square Test of close fit (χ^2), the Comparative Fit Index (CFI), the Root Mean Squared Error of Approximation (RMSEA), and the Standardized Root Mean Squared Residuals (SRMR) according to the guidelines proposed by Weston and Gore (2006). Good fit was established when fit statistics for the CFA reached the following criteria: CFI .95; RMSEA .06; SRMR .08. The maximum-likelihood approach with the robust standard error was used for the CFA and measurement invariance testing. No correlations between residuals were estimated. All data was used and all analyses were performed using the lavaan package (v0.6-7; Rosseel, 2012) in R.

Measurement invariance across waves was tested at three levels by comparing a series of nested models. The following three levels of invariance were tested: configural (the same item must load onto the same latent factor), metric (equal factor loadings), and scalar (equal item intercepts). To achieve identifiability and establish the metric of the latent factor in the configural model, factor mean and variance were fixed at 1.0. When the χ^2 test of close fit was significant ($p < .05$), we looked at fit indexes using thresholds suggested by Chen (2007). Hence, metric and scalar invariance was rejected with a change $\geq .010$ in CFI, supplemented by a change $\geq .015$ in RMSEA or a change $\geq .030$ ($\geq .010$ for scalar) in SRMR. Modification indices were used to identify the parameters that violated the measurement invariance restrictions (Byrne et al., 1989).

For the CFA for employee's calling we specified and estimated a model for each wave in which all seven items loaded onto a single latent factor. Identification was achieved by constraining the factor variance to 1. Table 4 shows that the first-order model showed excellent fit to the data at T1, T2 and T3.

To test for measurement invariance, we compared a configural model to a metric model, and a metric model to a scalar model. The fit for the configural model was poor because correlations between items were constrained at zero. This means the model only considered relations that passed through latent factors, leaving out unexplained variability in the data. This restricts the model's capacity to comprehensively represent the connections between items, thereby contributing to the overall poor fit observed in the configural model. Since we used composite scores in our analysis we were interested in whether factor loadings are the same across waves. Constraining loadings to be equal across groups did not result in a relevant decrease in fit, so metric invariance can be accepted. Adding constraints of equality across waves on item intercepts did not result in a relative decrease in fit, so scalar invariance can be accepted.

For the confirmatory factor analysis for perceived leader's calling we specified and estimated a model for each wave in which all seven items loaded onto a single latent factor. Identification was achieved by constraining the factor variance to 1. Table 5 shows that the first-order model showed excellent fit to the data at T1, T2 and T3.

To test for measurement invariance, we compared a configural model to a metric model. Similar to the preceding model, the fit for the configural model was poor because correlations between items were constrained at zero. Since we used composite scores in our analysis we were interested in whether factor loadings are the same across waves. Constraining loadings to be equal across groups did not result in a relevant decrease in fit, so

metric invariance can be accepted. Adding constraints of equality across waves on item intercepts did not result in a relative decrease in fit, so scalar invariance can be accepted.

For the confirmatory factor analysis for task performance we specified and estimated a model for each wave in which all four items loaded onto a single latent factor. Identification was achieved by constraining the factor variance to 1. Table 6 shows that the first-order model showed excellent fit to the data at T1, T2 and T3.

To test for measurement invariance, we compared a configural model to a metric model. The fit for the configural model was acceptable. Since we used composite scores in our analysis we were interested in whether factor loadings are the same across waves. Constraining loadings to be equal across groups did result in a relevant decrease in fit, indicating that metric invariance cannot be accepted. The loading of item 1 exhibited non-invariance across waves, prompting our decision to exclude item 1 for each wave. Upon re-running the cross-lagged path analysis between task performance and employee's calling, the results remained consistent. Thus, we can confidently assert that performance at T1 and T2 predicts calling at T2 and T3, respectively (Table 7). Adding constraints of equality across waves on item intercepts did not result in a relative decrease in fit, so scalar invariance can be accepted.

Table 4*CFA for Each Wave and Measurement Invariance Tests for Employee's Calling*

Model	χ^2	df	χ^2/df	CFI	RMSEA	95% CI		SRMR	$\Delta \chi^2$	Δdf	p	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$	
						LL	UL								
Time 1	38.96	14	2.78	.96	.09	.06	.13	.05							
Time 2	16.47	14	.29	.99	.04	0	.11	.05							
Time 3	21.48	14	1.53	.96	.08	0	.15	.06							
Configural	574.54	186	3.09	.76	.09	.08	.1	.11							
Metric	601.63	201	2.99	.75	.09	.08	.1	.16	27.09	15	.03	-.01	0		-.05
Scalar	631.83	215	2.94	.75	.09	.08	.1	.16	30.19	14	0	0	0		0

Note. Thresholds for accepting non-invariance: ΔCFI .010, supplemented by $\Delta RMSEA$.015 or $\Delta SRMR$.030. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual.

Table 5*CFA for Each Wave and Measurement Invariance Tests for Perceived Leader's Calling*

Model	χ^2	df	χ^2/df	CFI	RMSEA	95% CI		SRMR	$\Delta \chi^2$	Δdf	p	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$	
						LL	UL								
Time 1	68.36	14	4.88	.93	.15	.11	.18	.05							
Time 2	57.35	14	4.1	.92	.16	.12	.21	.06							
Time 3	30.45	14	2.18	.96	.12	.06	.18	.05							
Configural	481.68	187	2.58	.87	.08	.07	.09	.1							
Metric	490.93	201	2.44	.87	.08	.07	.08	.14	9.23	14	.81	0	0		-.04
Scalar	516.39	215	2.4	.87	.07	.07	.08	.14	25.46	14	.03	0	-.01		0

Note. Thresholds for accepting non-invariance: ΔCFI .010, supplemented by $\Delta RMSEA$.015 or $\Delta SRMR$.030. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual.

Table 6*CFA for Each Wave and Measurement Invariance Tests for Task Performance*

Model	χ^2	df	χ^2/df	CFI	RMSEA	95% CI		SRMR	$\Delta \chi^2$	Δdf	p	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$	
						LL	UL								
Time 1	5.282	2	2.74	.99	.08	.02	.15	.03							
Time 2	.45	2	.22	1	0	0	0	.01							
Time 3	1.43	2	.71	1	0	0	.23	.01							
Configural	123.923	52	2.38	.93	.08	.06	.1	.08							
Metric	329.2	61	5.4	.68	.15	.13	.17	.88	205.28	9	0	.25	-.07	-.08	
Scalar	352.95	69	5.12	.68	.14	.13	.16	.9	23.75	8	0	0	-.01	.02	

Note. Thresholds for accepting non-invariance: ΔCFI .010, supplemented by $\Delta RMSEA$.015 or $\Delta SRMR$.030. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root-mean-square residual.

Table 7

Fit Indices for Path Models for Hypothesis 1: Autoregressive Model, Causal Structural Models and Fully Cross-lagged Model for Employee's Calling and Employee's Task performance with Item 1 Removed

Model	χ^2	df	χ^2/df	CFI	RMSEA	95% CI		SRMR	$\Delta \chi^2$	Δdf	p	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$	Model comparison	
						LL	UL									
Model 1 - Autoregressive	14.97	7	2.14	.97	.06	.02	.11	.07								
Model 2 - Calling as a predictor	14.08	5	2.82	.97	.08	.03	.12	.06	.89	2	.64	0	.02	-.01		Model 1 vs. Model 2
Model 3 - Calling as an outcome	8.77	5	1.75	.98	.05	0	.11	.04	6.2	2	.05	.01	-.01	-.03		Model 1 vs. Model 3
Model 4 - Reciprocal	8.07	3	2.69	.98	.08	.01	.12	.04	.71	2	.7	0	-.03	0		Model 3 vs. Model 4

Note. Acceptable fit was defined by the following criteria: $RMSEA \leq .06$, $SRMR \leq .08$, $CFI \geq .95$ (Hu & Bentler, 1999). All differences were computed subtracting the less parsimonious model from the most parsimonious model (e.g. Model 1 - Model 2). Hence, negative differences in CFI indicate that the less parsimonious model is a better fit, whereas positive differences in RMSEA and SRMS indicate that the less parsimonious model is a better fit. Differences in CFI greater than .01 (Chen, 2007; Cheung & Rensvold, 1999) greater than .015 in RMSEA (Chen, 2007), and greater than .01 in SRMR (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).