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RESEARCH ARTICLE

Career calling climate: The development and validation of a scale for a new construct

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Abstract
Having a sense of calling toward one's work has key benefits for both the employee and the employer. Yet, little is known about whether and what kind of work climate facilitates employees' senses of calling, hindering efforts toward positive changes from managers and organizations. This research introduces the concept of 'career calling climate' and describes the development of a scale (i.e., Career Calling Climate Scale) to measure the level of support that a work unit provides for its employees' pursuit of a calling. We established the scale's validity and reliability using survey responses from participants of various occupations and age. To provide evidence of its predictive validity, we examined career calling climate's relation with career callings using a sample of 189 healthcare employees nested in 34 work units. Results suggested that career calling climate predicted individuals' career callings. Implications for theory and practice are discussed.

Keywords: Career calling climate; career calling; scale development; work climate

Throughout the past two decades, management researchers have extensively examined the idea of work as a calling, particularly with respect to its work-related consequences, including better job performance (Zhu, Chen, Wang, Wang, Johnson, & Jin, 2021), higher job satisfaction, lower turnover intentions (Chen, May, Schwoerer, & Augelli, 2018), better career outcomes (Cho & Jiang, 2021), and a more committed (Duffy, Dik, & Steger, 2011) and engaged workforce (Hirschi, 2012). While the work-related consequences of callings have been widely examined, we know relatively little about work-related antecedents of callings.

The imbalance of research on the work-related antecedents and consequences of callings is not surprising given the common *assumption* that adults' senses of calling are unchanging. Some scholars, however, challenge this notion and propose that a calling can change over time even in an individual's adulthood. For instance, Buis, Ferguson, and Briscoe (2019) proposed a theoretical framework on how individuals' sense of calling may be affected by coworkers and group norms. Another study by Dobrow and Heller (2015) found that individuals' senses of calling gradually decreased during early adulthood, a time that included high school, college and the first few years of employment. The authors also found that an individual's *social environment* (e.g., involvement with other like-minded people) predicted his or her sense of calling. However, the *work environment* and its relationship to callings have been examined by only a few studies. For example, Rawat and Nadavulakere (2015) found that work discretion as reported by individual childcare center teachers moderated the relationship between callings and contextual performance. Along similar lines, Chen et al. (2018) found that law enforcement employees' perceptions of the psychological safety and the procedural justice within their organization

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moderated how callings were associated with job satisfaction and turnover intentions. Though these studies shed some light on the relationships between callings and work climates, they share a few issues that obscure the understanding of the relationship. First, they used *individual* perceptions of work climates instead of *actual* work climates, which are defined as *shared* perceptions of workplace policies, procedures, and practices (Schneider, Salvaggio, & Subirats, 2002). One should not assume that work climates affect callings the same way individual perceptions of work climates do; doing so constitutes an ecological fallacy. Second, these studies focused on the interaction between callings and these perceptions of work context as influences on outcomes, while overlooking the potential of work context to influence one's sense of calling. In other words, they still assumed callings to be unchanging.

The scarcity of studies on how work climates can influence callings is a glaring discrepancy in the literature as it implies to managers that management policies and practices have no impact on employees' callings. Conversely, research has shown that an individual's sense of calling tends to decrease during the first few years of work (Dobrow & Heller, 2015), likely due to a lack of support from their employer (Duffy, Douglass, Gensmer, England, & Kim, 2018). To help nurture employees' senses of calling at work and contribute to this literature, this research introduces and develops a measure for the concept of a *career calling climate*, which deals with the shared perceptions of the extent to which a work unit supports employees' pursuit of career callings. A formal definition is offered in the next section. This is the inaugural piece of research to study career calling from a work climate perspective. As discussed earlier, while existing research supports benefits associated with high senses of career calling, it lacks attention to whether and how work climate may support and foster callings. The absence of a work climate construct pertaining to callings hinders future research on the influences of callings beyond the individual-level. This is particularly problematic given how common individuals work in teams and how important influences at the team- and the organization-level are in shaping one's senses of calling through altering one's perception of Person-Environment (P-E) fit (Buis, Ferguson, & Briscoe, 2019; Duffy et al., 2018). By conceptualizing a career calling climate, this paper provides the foundation for researchers to illuminate the workplace antecedents of career callings and the means for managers to more reliably capture the state of their work climate with respect to support for callings. Senses of calling may be a critical factor for success for organizations in some industries. Such organizations include hospitals, universities, police and fire departments, non-profit organizations, and other organizations whose long-term success depends in part on the commitment and engaged leadership of key professional employees. The conceptualization and measurement of a career calling climate is the first step in gaining a better understanding of these potential relations.

In the sections below, we define the career calling climate construct, conceptualize it at the unit-level (team/group), and theoretically establish its dimensions. Then, we develop and validate the career calling climate scale using subject matter experts and two samples of working adults. Next, to establish the construct as a unit-level phenomenon, we collect data from employees embedded in work units and examine whether its unit-level conceptualization is justified by data. Finally, we discuss the theoretical and the practical implications for this construct and scale.

Career calling climate

A career calling

A career calling is defined as a *meaningful beckoning toward work activities that are morally, socially, and personally significant* (Rosso, Dekas, & Wrzesniewski, 2010). Unlike the 'modern' definitions of calling that emphasize the inner drive to personal fulfillment (e.g., Dobrow & Tosti-Kharas, 2011) or the 'neoclassic' definitions that stress the devotion to a societal or divine duty (e.g., Bunderson & Thompson, 2009; Dik & Duffy, 2009), this definition encompasses both

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personal and social significance as necessary elements of a calling. Consistent with Bunderson and Thompson (2009), we argue that the term 'calling' suggests a 'caller' and thus is not purely internally-focused. The experience of a calling is both 'personally fulfilling and has worldly impact' (Rosso, Dekas, & Wrzesniewski, 2010: 99). The nature of a calling, then, is a sense of beckoning, the feeling that one is drawn to pursue a line of work from which meaning and purpose derive. This line of work, at least in the mind of the individual, needs to be morally right, socially important, and have a deep personal connection. It is this combination of self-fulfillment, societal usefulness, and the feeling of being drawn to a line of work that differentiates callings from closely related concepts such as meaningful work (May, Gilson, & Harter, 2004) and prosocial motivation (Grant & Berg, 2011). In this manuscript, we use the terms 'callings' and 'senses of calling' interchangeably.

A career calling climate

Work climate, in general, is defined as the 'shared perceptions of and the meaning attached to, the policies, practices, and procedures employees experience and the behaviors they observe getting rewarded, and that are supported and expected' (Schneider, Ehrhart, & Macey, 2013: 262). First, different from a 'psychological climate' which can be captured by summing or averaging individual reactions, a work climate is a shared perception among individuals in a work unit, existing only with a degree of consensus. Second, distinct from organizational culture, work climate is a facet-specific construct (Kuenzi & Schminke, 2009) such as ethical climate (Cullen, Victor, & Bronson, 1993) and empowerment climate (Seibert, Silver, & Randolph, 2004). Consistent with the literature on work climates and rooted in career callings research, a ***career calling climate*** is defined as *shared perceptions regarding the extent to which a work unit encourages employees to pursue their calling, removes barriers so that employees can better pursue their calling, and recognizes those employees who strive to pursue their calling.*

First, an organizational work unit with a high level of career calling climate encourages employees to live out their calling at work. Recent qualitative work on physicians' callings (Bott, Duffy, Borges, Braun, Jordan, & Marino, 2017) found that the strength of individuals' callings was sustained by interacting with like-minded others at work. Among those with whom an individual interacts at work, one's supervisor plays a vital role. For instance, a manager may communicate to employees during work meetings that helping customers is a top priority. Alternatively, that manager may endorse the idea that helping customers is secondary to making profits. These two messages will likely affect the level of the career calling climate. Managers can shape a career calling climate not only through formal communications but also in casual conversations. For example, a manager may share stories about how the line of work is part of his or her early life passion or how he/she developed a deep and personal connection with the given line of work. Such conversations, albeit subtle, suggest to employees what is normal and expected, and they are an important element of the work climate conveyed through social learning (Bandura, 1989).

Second, work units with a high level of career calling climate provide employees sufficient autonomy, remove barriers and provide needed resources so that individuals can effectively pursue their career callings. Work autonomy has been shown to be key for individuals to align their work with their calling (Hirschi, Keller, & Spurk, 2018). In fact, individuals engage in job crafting at work to experience more meaningfulness (Wrzesniewski & Dutton, 2001) and to align with what they feel called to do (Schabram & Maitlis, 2017). Thus, work units with a higher level of career calling climate allow employees the necessary autonomy and latitude to spend more time on tasks that resonate with them and that are personally meaningful. Bott et al. (2017) found that spending more time with patients helped physicians maintain their senses of calling. In addition to allowing autonomy, work units with higher career calling climate ensure that employees have the tools and resources to make a difference through their work. Those with a calling experience a moral obligation toward the supposed beneficiaries of their work

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(Bunderson & Thompson, 2009) and thus could be particularly frustrated if they lack what they need to do their job. Therefore, work units with a high level of career calling climate give employees what they need to make a difference and fulfill their senses of calling.

Third, work units with a high level of career calling climate recognize employees who try hard to fulfill their callings. Due to the lack of research between workplace rewards and callings, we draw on self-determination theory (SDT) to explicate this element of a career calling climate. SDT (Gagné & Deci, 2005) posits that human motivation exists on a continuum from completely extrinsically focused to completely internally focused, ranging from nonintentional to compliance, self-control, conscious valuing, synthesis-with-self, and finally to inherent interest and enjoyment (Ryan & Deci, 2000). The types of motivation behind individuals with strong senses of calling are synthesis-with-self or inherent enjoyment. These more intrinsic motivations could be undermined by strong extrinsic rewards (Deci, Koestner, & Ryan, 1999). Therefore, the primarily intrinsically focused rewards are needed in a work unit in order to recognize individuals who strive to pursue their calling. Honoring an employee, who through his or her work has a positive impact, by personally conversing about the good deeds they have achieved for their beneficiaries or sharing via e-mail an employee's story about having a deep connection with his or her work are two examples of such rewards. Extrinsic rewards such as money or vacations can also be employed to recognize employees who strive to fulfill their callings, but should be complementary to more intrinsic means. In addition, because employees with a strong calling see their line of work as a niche (Bunderson & Thompson, 2009), a work unit should recognize individuals who actively develop and refine their talents and gifts in order to experience a stronger sense of niche or specialization within their job. When employees who try hard to answer their callings are properly recognized, the work unit sends a clear message to employees about its work climate.

Fourth, it is important to note that the type of callings that are relevant to career calling climate are those that fall within the realm of work, directly related to the individual's profession. For instance, a doctor's calling to serve patients and cure diseases is relevant; another doctor's calling to be a professional guitar player is not. Career calling climate is concerned with whether the work-relevant calling is encouraged and supported in an organization. Individual callings that fall outside work are beyond the scope of this paper. Along the similar lines, individuals who perceive a calling but have not yet live it out (Duffy & Autin, 2013) is not a primary concern of the career calling climate. Those individuals could be high school or college students who have simply not yet joined the workforce or working adults who are unable to enter the occupation that they feel called to do due to barriers in access (Duffy et al., 2018). The individuals who career calling climate concerns with are those who perceive an occupational calling and are living it out, at least partly, in their current line of work.

Fifth, career calling climate is a *shared* perception rather than a perception of any individual; thus, career calling climate is a *unit-level* construct. In organizational research, 'level' refers to the unit in which a construct manifests itself (Klein & Kozlowski, 2000) and typically pertains to one of the following: the individual, the work unit or team, or the organization. A career calling climate exists at work-unit level and is about the shared perceptions among employees. These perceptions are likely to be shared for the following three reasons. First, employees in the same work unit share the same goals and strategies (Jones & James, 1979), which suggests to employees how important personal and prosocial actions are in their work unit. Therefore, shared goals and strategies can result in relatively homogenous perceptions of career calling climate. Second, employees in the same work unit share the same manager. This tends to create a unique experience for employees in the same unit. In addition, managers often have some latitude in applying the organizational policies in their own unit (Kozlowski & Doherty, 1989) and they may filter organizational information and influence its interpretation (Katz & Kahn, 1966). Managers who themselves have a strong sense of calling might use their managerial discretion to encourage employees to satisfy their own senses of personal and prosocial callings and actions. Finally, a high level of

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social interaction among employees in the same work unit tends to create a more homogenous view of policies, practices, and expectations (Klein, Conn, Smith, & Sorra, 2001).

Sixth and finally, it may be noteworthy to point out that career calling climate has *not* been defined as the corresponding higher-level isomorphic construct of individual career callings. Two constructs, one at the individual level and the other at the unit level, are isomorphic when they are defined by shared content and are distinguished by only their referent points (individual vs. unit) (Tay, Woo, & Vermunt, 2014). The very definition of career callings indicates that the calling experience is deeply personal and therefore not transferable to the work unit. In fact, we argue that career callings do not exist at, and thus will not aggregate to, the unit level. We maintain that, although a certain degree of sharedness among coworkers should be expected because variation in callings is a function of individuals' social environment (Dobrow & Heller, 2015), the within-group agreement in callings is not sufficient to justify its use at the unit level.

Differentiation from related constructs

To demonstrate the uniqueness of a career calling climate, we reviewed the extant literature and identified four constructs, two at the individual-level and two at the unit-level, that have conceptual overlap with the focal construct. Below we discuss how career calling climate is distinct from prosocial motivation, work meaningfulness, ethical climate, and spiritual climate, respectively.

Prosocial motivation describes the desire of an individual to promote the interests of other people (Batson, 1987). Although it is often an important motive behind individuals' senses of calling (Dik & Duffy, 2009), the desire to benefit others does not capture the support individuals receive from their work unit to sustain or strengthen such motivation. An employee with strong prosocial motivation might work in a place where employees are given few or no opportunity to work for the interest of others. Conversely, an employee who is not motivated by benefiting others might be employed in a work unit that allows considerable autonomy to fulfill prosocial work goals.

Work meaningfulness is defined as the value of an individual's work goal judged in relation to his or her own ideals (May, Gilson, & Harter, 2004). It is a psychological state that individuals who live out their calling often experience (Hirschi, 2012). Career calling climate differs from work meaningfulness in two major ways. First, career calling climate, which pertains to the support from the work unit for employees' pursuit of work-related callings, is theoretically an antecedent of work meaningfulness. For instance, by allowing employees autonomy to spend more time on work tasks that resonate with them, work unit likely helps employees experience more meaningfulness at work. Second, career calling climate is a unit-level construct and therefore a characteristic of the work unit whereas work meaningfulness is a psychological state of the individual. The latter is irrelevant to the level of support an employee receives.

Ethical climate refers to shared perceptions regarding organizational policies, procedures, and practices with moral consequences (Victor & Cullen, 1988). It influences what issues are considered morally pertinent and affects what behaviors are regarded morally acceptable (Cullen, Victor, & Bronson, 1993). The social responsibility climate, a type of ethical climate within the ethical climate theory (Martin & Cullen, 2006), has theoretical overlap with the career calling climate as both stress the value of caring for the interests of the society. However, career calling climate is distinct from the social responsibility climate as the former also requires the work unit to support employees' desire to develop, maintain, or strengthen their niche at work. A work unit with a high level of career calling climate encourages employees to develop their niche and provide them with the structure and autonomy needed to sustain this personal connection with their work. This is not a necessary element in the social responsibility climate as it is concerned with the extent to which customers or public's interests are the primarily motivation for making ethical decisions (Martin & Cullen, 2006).

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Spiritual climate refers to the shared perceptions of individuals regarding the sense of harmony at work with self, co-workers, the social and the natural environment (Pandey, Gupta, & Arora, 2009). Although both the spiritual climate and the career calling climate stress the pursuit of personally meaningful work, the two climates operate from different perspectives. Career calling climate is concerned with the *process* of support that individuals receive, such as positive supervisor attitudes and work autonomy, in their pursuit of personally meaningful work; whereas a spiritual climate is concerned with the *outcome* of such support, the meaningfulness experienced in their workplaces. In addition, the spiritual climate includes elements that emphasize harmony with coworkers such as showing concerns toward their family life and harmony with the natural environment such as reducing wastage at work (Pandey, Gupta, & Arora, 2009). These elements are not part of the career calling climate construct.

Dimensionality of career calling climate

As discussed above, a career calling is defined as a meaningful beckoning toward work activities that are morally, socially, and personally significant (Rosso, Dekas, & Wrzesniewski, 2010). Therefore, for a work unit to support calling is to help individual employees sustain the belief that their work is personally, morally, and socially significant. By this definition, both career calling and career calling climates are multi-faceted. Next, we discuss and define the two dimensions of a career calling climate.

First, individuals with a calling believe that their work is socially important and morally correct. This *prosocial* orientation to do what is right, to help others, and to make a difference is a strong belief among those with a calling (Dik, Eldridge, Steger, & Duffy, 2012). Work units with a high career calling climate reinforce this belief through policies, procedures, and practices. Therefore, the first dimension of career calling climate is the support for prosocial significance, defined as 'shared perceptions regarding the extent to which a work unit provides encouragement, removes barriers, and recognizes those employees pursuing a sense of *prosocial significance at work*.' Second, individuals with a calling believe that their line of work is *personally* significant and meaningful, to the extent that it is part of their life's purpose (Hall & Chandler, 2005). Many individuals with a calling have deep, personal connections with their line of work. The uniqueness of such connections is the hallmark of a calling (Rosso, Dekas, & Wrzesniewski, 2010). A work unit that is supportive of individuals' callings encourages employees to find ways to satisfy this inner need. Thus, the second dimension of career calling climate is to support a sense of personal significance at work, defined as 'shared perceptions regarding the extent to which a work unit provides encouragement, removes barriers, and recognizes those employees pursuing a sense of *personal significance at work*.'

Third, it is important to note that *both* the personal and the prosocial dimensions are necessary as eliminating one dimension will significantly restrict the conceptual domain of the construct. Each sub-dimension of a truly multi-dimensional construct needs to add unique facets to the conceptual domain of the construct and cannot be substituted by another dimension (MacKenzie, Podsakoff, & Podsakoff, 2011). This is true for career calling climate because a work unit that, for instance, stresses only work that makes a difference for society has a social responsibility climate (Martin & Cullen, 2006) but not necessarily a career calling climate unless the unit also encourages employees to relate personally to their work. Both dimensions are defining characteristics of a career calling climate and are not interchangeable. Such conceptualization of career calling climate is also consistent with the definition of career callings employed in this paper (Rosso, Dekas, & Wrzesniewski, 2010).

Scale development

A theory-driven approach has been adopted to develop the items that measure the construct of a career calling climate. We followed the five steps suggested in Hinkin (1998) to develop and examine the scale.

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Item creation

First, the operational definitions of a career calling climate and its two dimensions were used to create the initial items. Following a deductive approach, the authors of this research developed eighteen items, after reviewing the extant literature on career calling and work climates. Specifically, nine items were created for each dimension ($9 \times 2 = 18$ total initial items) and three items were created for each aspect of a dimension. During this process, suggestions from Clark and Watson (1995) were followed to ensure that the items created cover the major content areas. Specifically, the initial pool was broader and more comprehensive than the target construct and the items were carefully worded. Items were worded using 'individuals' 'our work unit' or 'our supervisor' to reflect the referent-shift consensus model on which career calling climate is based (Chan, 1998) and to emphasize group homogeneity rather than individual differences (Klein, Dansereau, & Hall, 1994). The following principles were also followed: using simple straightforward language that is appropriate to the reading level of the targeted population (Clark & Watson, 1995), not mixing items that assess behavior with items that assess affect (Harrison & McLaughlin, 1993), and avoiding 'double-barreled' items (Hinkin, 1995, 1998). Next, information from eight preliminary phone interviews with employees about the organizational contexts helped us determine the appropriateness of the items. Following that, this pool of items was reviewed for face-validity by four subject matter experts who were professors in a major research university in the Midwestern US, who have experience with item creation and scale development and are familiar with the construct of career calling climate. The initial eighteen items are listed in Appendix A.

The content validity study

Content validity check

Content validity refers to 'the degree to which items in an instrument reflect the content universe to which the instrument will be generalized' (Straub, Boudreau, & Gefen, 2004: 424). To test whether each item generated in the previous step is reflective of career calling climate, we followed the method suggested by Hinkin and Tracey (1999) and used by Yao, Wu, and Yang (2008) to demonstrate the content validity of our measure. Hinkin and Tracey (1999) suggested a sample size of 50 participants with sufficient intellectual ability to complete the task. Working adults were recruited online via Amazon's Mechanical Turk (MTurk) to complete this task. MTurk (www.mturk.com) is a crowdsourcing marketplace that allows researchers to recruit study participants relatively inexpensively. Research has shown that participants from MTurk are significantly more demographically diverse than American college samples and the data obtained are as reliable as those obtained using other more traditional methods (Buhrmester, Kwang, & Gosling, 2011). Following the convention in studies with internet samples, we incorporated 'attention check' questions. A sample attention check question used is 'there are 12 months in a year.' Subjects who answered attention check questions incorrectly were excluded from the final sample, which consisted of 53 working adults: 60% female, 75% with a bachelor's degree or higher, and average age 40 years.

The subjects filled out an online survey that contained the definitions of the two dimensions of career calling climate and their items. They rated each of the 18 career calling climate items on the extent to which they believed the item reflected the two dimensions of career calling climate. The rating scale consisted of 1 (not at all), 2 (slightly), 3 (somewhat), 4 (mostly), and 5 (completely). The items were randomly ordered for each respondent.

To demonstrate content validity, the following criteria were used. First, we calculated the percentage of respondents who rated an item as representative of its intended dimension (mostly or completely). Items that fewer than 70% of the respondents rated as representative of the intended dimension were dropped. As a result, five items were dropped. We used a slightly more lenient 70% as the cutoff instead of 75% as suggested in Hinkin (1998) to lessen the impact of random

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errors due to the relatively small sample size employed for this task. Second, we conducted a one-way ANOVA of repeated measures to examine whether the mean score of a specific item on one dimension was significantly different from that on the other dimension. Items that passed this test represented one dimension significantly better than the other. All but one of the remaining thirteen items passed this test. Third, and finally, to ensure content validity in that the entire content domain of career calling climate is covered, we made sure that at least one item for each aspect within a dimension was kept. Specifically, item #17 which passed the first test but not the ANOVA test was retained because it was the best item (based on the above two criteria) of the initial three items that represent the extent to which a work unit *recognizes* those employees who strive to pursue a sense of prosocial significance (See Appendix A for details). These procedures resulted in the retention of thirteen of the initial eighteen items.

The construct validity study

Factor structure examination

Next, we used MTurk to collect additional data to evaluate the factor structure, convergent and discriminant validities, and internal consistency of the retained thirteen items of the career calling climate scale. To ensure that the sample represents the population of interest for the construct of career calling climate, we recruited only respondents with prior or current work experience and excluded those without a supervisor or coworker. Respondents who did not pass the attention check questions were also excluded. The final sample for the construct validity study consisted of 306 respondents all of whom have prior work experience. Among them 59% were female and 57% held an undergraduate degree or higher. The average age was 34 years. The sample size was appropriate since the item-to-response ratio exceeds 1:10 (Schwab, 1980).

Exploratory factor analysis (EFA)

An EFA was conducted to understand the factor structure of the thirteen-item career calling climate scale. Following the recommendation outlined by Hinkin and Tracey (1999), we used Common Factor Analysis (i.e., principal axis factor analysis) instead of Principal Component Analysis because a hypothetical causal model underlying the data is assumed (Ford, MacCallum, & Tait, 1986). After careful examination of the eigenvalues and the scree plot as well as of the underlying theory of career calling climate, two factors were retained through the EFA. Next, a Promax rotation (Oblique) (Hendrickson & White, 1964) was conducted to obtain factor loadings because it allows the underlying factors to be correlated, consistent with the theory underlying career calling climate. All thirteen items had reasonably high loadings on its respective factor, ranging from .49 to .89 (See Table 1). Following the suggestion that items with factor loadings greater than .40 on their intended factor be retained (Hinkin & Tracey, 1999), we retained all thirteen items.

Confirmatory factor analysis (CFA)

With an exploratory factor analysis, one cannot quantify the goodness of fit of the factor structure (Long, 1983). Therefore, we conducted a CFA as recommended by Hinkin and Tracey (1999) to assess the overall fit of the two-factor model to the data. The two-factor model showed good fit with the data, $x^2(64) = 153.98$, $p < .01$, Root Mean Square Error of Approximation (RMSEA) = .07, Comparative Fit Index (CFI) = .95, Tucker-Lewis Fit Index (TLI) = .94, and Standardized Root Mean Square Residual (SRMR) = .05. We then examined two alternative models, a one-factor model and a three-factor model to determine if the two-factor model best fit the data. The one-factor model, with all thirteen items loaded on a single factor, showed a poor fit with the data ($x^2(65) = 466.94$, $p < .01$, RMSEA = .14, CFI = .78, TLI = .74, and SRMR = .09). In the three-factor model, items that captured each aspect of a career calling climate (i.e., encouragement, barrier removal, and recognition) were grouped together and loaded onto the factor

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Table 1. Factor loadings for exploratory factor analysis with Promax rotation of career calling climate scale

Item no.	Items	Loading	
		Personal	Prosocial
1	Our supervisor encourages us to align our work with what feels personally meaningful.	**.58**	.20
2	Our supervisor encourages us to fulfill our early life passion through work.	**.63**	.18
3	In this work unit, individuals are given latitude to spend time on tasks that they feel are particularly meaningful.	**.84**	.01
4	Our work unit allows us freedom to work on tasks that resonate with us.	**.89**	−.04
5	Our work unit gives us autonomy to focus on work that we relate to the most.	**.86**	−.09
6	In this work unit, it is seen as commendable to develop a deep personal connection with your work.	**.51**	.25
7	Our work unit honors individuals who try hard to live out their life's purpose when they are at work.	**.62**	.24
8	Our supervisor urges us to make a positive social difference through our work.	.01	**.84**
9	Our supervisor encourages us to carry out work that benefits our community/society.	−.01	**.86**
10	Our supervisor emphasizes how our work helps others.	.00	**.74**
11	Our work unit removes barriers so that we can have a positive impact on the community/society.	.12	**.72**
12	Our work unit gives us what we need to make a positive impact on the community/society.	.08	**.76**
13	In this work unit, individuals who try the hardest to have a positive impact through their work are considered role models.	.19	**.49**

representing a respective aspect. The three-factor model also showed a poor fit with the data ($x^2(62) = 456.92$, $p < .01$, RMSEA = .14, CFI = .79, TLI = .73, and SRMR = .11). These results provided support for the two-factor model of career calling climate.

Reliability testing

The internal consistency of the scale was examined. Cronbach's alpha (Anderson & Gerbing, 1991) was calculated for all thirteen items as well as the ones that measured each dimension of career calling climate. The standardized Cronbach's alpha for the thirteen-item scale was .93. Cronbach's alpha for the personal significance dimension was .91 and that for the prosocial significance dimension was .90. These results indicated acceptably high internal consistency of the scale and its dimensions (Nunnally, 1978).

Convergent and discriminant validity

To establish convergent and discriminant validity, we examined the focal scale's relationship with measures of other constructs to show that it correlates with scales that capture potentially related constructs and does not correlate with those that measure dissimilar constructs, thus helping to establish the nomological network for career calling climate. Theoretically, the prosocial significance dimension of career calling climate should be positively correlated with the social responsibility ethical climate (Cullen, Victor, & Bronson, 1993; Victor & Cullen, 1988) since both emphasize making a difference for others and society. The personal significance dimension

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should be positively correlated with the meaningful work aspect of the spiritual climate (Pandey, Gupta, & Arora, 2009) because both climate constructs address the experience of meaningfulness at work. We tested, using the sample for construct validity study (306 participants), whether measures of these two climate constructs (See Appendix B for items) were correlated with the career calling climate scale by calculating Pearson correlation coefficients. As expected, the personal significance dimension was positively correlated with the meaningful work aspect of the spiritual climate ($r = .67$, $p < .01$) and the prosocial significance dimension was positively correlated with the social responsibility ethical climate ($r = .59$ $p < .01$).

To provide evidence for discriminant validity, we examined career calling climate's correlation with the company profit ethical climate (Cullen, Victor, & Bronson, 1993; Victor & Cullen, 1988). A work climate that emphasizes company profit tends to marginalize the importance of personal and prosocial meaningfulness at work and should be negatively associated with the climate for career calling. Consistent with this prediction, career calling climate was negatively correlated with the company profit ethical climate ($r = -.16$, $p < .01$). To show further evidence of discriminant validity, we conducted Fornell–Larcker test and calculated the average variance explained (AVE) values for the career calling climate scale and its two dimensions. Specifically, the AVE value for the career calling climate was .69, greater than the cutoff value of .50 suggested by Fornell and Larcker (1981). The AVE values for the personal and the prosocial significance dimensions were .83 and .81 respectively, greater than the squared correlations that either dimension had with related constructs such as the social responsibility ethical climate and the spiritual climate. Taken together, these analyses support the conclusion that the thirteen-item career calling climate scale has reasonable levels of convergent and discriminant validity.

Predictive validity study: theory and hypotheses

In the previous section, we described the development and initial validation of the career calling climate scale. In this section, we conduct a predictive validity study to provide additional evidence for the construct validity by examining the degree to which the perception of career calling climate is shared among individuals working in the same unit. This is necessary because a unit-level measure has 'no construct validity…in the absence of substantial within-unit agreement' (Klein et al., 2001: 4). With the following study, we test whether the level of within-unit agreement among individuals nested in work groups is sufficient to justify career calling climate as a unit-level phenomenon. We also investigate whether individual career callings can be statistically aggregated to form a unit-level construct. Finally, the study examines the theoretical basis for the relation expected between career calling climate and individual career callings.

Career calling climate and career calling

As outlined above, a career calling climate is the perceived supportiveness of a work unit for individuals' pursuit of their senses of personal and prosocial significance at work. Work units with a high level of career calling climate encourage individuals and provide them with what they need to carry out work that help others and therefore create more opportunities for individuals to fulfill their prosocial motivation. Given that individuals with a sense of calling are typically prosocially motivated (Bott et al., 2017; Dik & Duffy, 2009), a career calling climate should heighten the sense that one's line of work is indeed socially significant and thus be related to higher senses of calling experienced by individuals. In addition to fueling their prosocial motivation, work units with a high level of career calling climate also provide an incentive to individuals and give them autonomy to align their work with what feels personally meaningful and significant. In such work climates, individuals should show less hesitance to spend more time and energy on tasks that connect them to their sense of self and purpose, hence experiencing increased personal significance and higher sense of calling. Lastly, drawing on person-group (PG) fit theory (Kristof-Brown,

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Zimmerman, & Johnson, 2005), individuals with strong senses of calling in a strong career calling climate unit will have a better value-based PG fit with the work unit and thus less likely to leave the work unit (Seong & Kristof-Brown, 2012). In the long term, this will likely result in the work units with a high level of career calling climate having more individuals with stronger senses of calling. Given the above discussion, we propose that:

H1: The career calling climate will be positively associated with individuals' callings.

Method

Sample and data collection

To test the hypothesis, we recruited study participants from multiple sites. One is a large academic health center located in the Midwestern United States. In this organization, one department consisting of 16 divisions and more than 260 physicians and faculty members agreed to participate in the research by completing our questionnaire. The questionnaire was designed and administered through an online survey design software (Qualtrics.com). Three days prior to the launch of the survey, a flyer explaining the purpose of the survey and how the data would be used was distributed through email to potential participants. Hyperlinks to the online survey were sent to the individuals' work email addresses. 108 surveys were begun; 100 were partially or fully completed. The response rate was approximately 38%.

In addition to the participants from the academic health center, employees of clinics and small-size hospitals located in rural and rural-urban regions of a Midwestern U.S. state were recruited. Recruitment emails were sent to administrators through rural healthcare networks. Thirteen clinics and hospitals agreed to participate. Following that, a link to the online questionnaire was sent via email to the contact person of each participating clinic or hospital and was then forwarded to the employees in the organization. Employee occupations included physicians, nurse practitioners, physician assistants, registered nurses, lab technicians, and hospital administrators and staff. Of 256 surveys begun, 225 were partially or fully completed.

The two data sets were combined into one set consisting of 325 individuals who all worked in healthcare settings. Work units were identified. Consistent with prior research, a work unit was defined as three or more individuals who share the same hierarchical supervisor (González-Romá, Peiró, & Tordera, 2002). Using this criterion, 34 work units (10 units from the 1st site and 24 from the 2nd site) from 10 different organizations were identified in the data. The number of work units is larger than the minimum number recommended (30 units) in Kreft and De Leeuw (1998). The average unit size was between 5 and 6 individuals and ranged from 3 to 19. The final sample consisted of 189 individuals. Of them, 81 (43%) were physicians, 62 (33%) were nurses, nurse practitioners, or physician assistants, 9 (5%) are radiation or lab technicians, 37 (20%) are other positions including hospital staff members and administrators. Approximately 70% were female. The average age was 41 years.

Measures

Career calling climate

The 13-item career calling climate scale developed and initially validated as part of this research was used. See Appendix A for the complete 13 items. Standardized Cronbach alpha for the scale was .96, indicating a good internal consistency.

Career calling

Career calling was measured using the Brief Calling Scale (BCS) developed and validated by Dik et al. (2012). This measure has been widely used (Hirschi, Keller, & Spurk, 2018) and found to be positively associated with other measures of calling. The scale consists of two items: 'I have a

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calling to my current line of work' and 'I have a good understanding of my calling as it applies to my career.' The standardized Cronbach's alpha was .90 for this sample.

Control variables

Since career calling climate has been conceptualized at the unit level instead of the organization level, we controlled for the *organization* that an individual works in by creating nine dummy variables (the number of organizations minus one). This fixed effect approach is preferred when one intends to control for, rather than explain, the organizational effect (Mohring, 2012). In addition, *age* was controlled for given its relation with calling shown in the previous studies (Chen et al., 2018; Dobrow, 2013). Individuals indicated which of the seven age groups they were in and the groups were coded from 1 to 7.

Results

Data aggregation

Since career calling climate is conceptualized at the unit level of analysis but is measured using responses from individuals, sufficient within-unit agreement must be established to justify the use of aggregated individual responses to measure it (Klein, Dansereau, & Hall, 1994). In other words, individual responses must be sufficiently similar so that it is appropriate to treat the group as a whole with respect to its career calling climate. Following convention and previous research (Schneider, Salvaggio, & Subirats, 2002), we calculated the two interclass correlation coefficients ICC (1), ICC (2), and $r_{wg(j)}$. ICC (1) compares the variance existing between units and within units. ICC (2) captures 'the reliability of average ratings rather than the reliability of a single rating' (Bartko, 1976: 764). $r_{wg(j)}$ is a measure of interrater agreement and reflects 'whether scores furnished by judges are interchangeable or equivalent in terms of their absolute value' (LeBreton & Senter, 2008: 816). To calculate the ICC (1) and (2), we used the spreadsheet tool developed by Biemann, Cole, and Voelpel (2012). For career calling climate, ICC (1) is .29 and ICC (2) is .69. Although there is no absolute cut-off for these scores, we followed suggestions in previous research. James (1982) found that median ICC (1) value in the management literature is .12. For ICC (2), James, Demaree, and Wolf (1984) suggested the cutoff score of .60. The ICC scores of career calling climate are higher than these standards. The average $r_{wg(j)}$ for career calling climate was .85, higher than the cutoff suggested (.70) by Biemann, Cole, and Voelpel (2012). Finally, we calculated ICC(1) and ICC(2) for career calling to determine whether individual career callings can be statistically aggregated to form a unit-level construct. For career calling, ICC (1) equals .04 and ICC (2) equals .18, both lower than the cut-off values used in previous research. These results justified the conceptualization of career calling climate as a unit-level construct and provided evidence that individual career callings could not simply be aggregated to form a climate construct.

Hypothesis testing

Descriptive statistics and correlations among the study variables were examined (See Table 2). To test the hypotheses, we conducted Hierarchical Linear Modeling (HLM) using PROC MIXED procedure with Maximum Likelihood (ML) estimation method using SAS 9.4. HLM is used because it can account for the individual responses nested within groups, and hence not independent, which violates one of the assumptions in multiple regression. HLM takes into account the nestedness by employing a mixture model that can treat work units as random effects. Because the model that we proposed is a cross-level model without interaction terms, a random intercept and fixed slope model (RIFSM) was used (Aguinis, Gottfredson, & Culpepper, 2013).

H1 posited that career calling climate at the unit level will be positively associated with calling at the individual level. To test this cross-level effect, we followed convention and employed the

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Table 2. Descriptive statistics of study variables (mean, standard deviation, and correlations)

	M	SD	1	2	3
1. CCC-Individual level	3.67	.80	(.96)		
2. Career calling	4.40	.68	.10	(.90)	
3. Age group	3.20	1.16	−.06	.01	
4. Org-A	.43	.50	.18*	.15*	.10
5. Org-B	.03	.16	−.21**	.00	−.03
6. Org-C	.02	.13	.02	−.01	−.02
7. Org-D	.07	.26	−.23**	.01	.04
8. Org-E	.03	.18	−.03	−.06	−.25**
9. Org-F	.11	.31	−.22**	−.26**	−.04
10. Org-G	.04	.19	−.03	−.12	.04
11. Org-H	.05	.22	.12	.05	−.08
12. Org-I	.03	.18	−.15*	.12	−.01

CCC, Career Calling Climate.
Pearson Correlation Coefficients. Pairwise deletion. n ranges from 178 to 189. Correlation coefficient between any two organization control variables (#4—#12) is −1.00. Values on the diagonal in parentheses are Cronbach Alpha of internal consistency.
* $p \leq .05$ ** $p \leq .01$.

multiple-step method recommended by Aguinis, Gottfredson, and Culpepper (2013). Given the nature of the model being tested, we used HLM and followed the first two steps of the method in Aguinis, Gottfredson, and Culpepper (2013). In the first step, the null model that has no fixed effect predictors was examined to partition the variance of the dependent variable, calling, at both the individual and the unit levels. The ICC score indicated that approximately 1.3% of the variance of calling could be attributed to unit-level variables. In the next step, the random intercept model with fixed effect predictors was examined. As expected, career calling climate significantly predicted calling ($\beta = .27$, $p = .05$), supporting H1 (see Table 3 for details).

Discussion

Integration with previous literature & future research directions

Scale development studies

Through the content validity study and the construct validity study, a 13-item survey instrument was developed to measure the concept of a career calling climate with two dimensions. Consistent with the definition of career calling climate and based on the literature on work-related predictors of calling, this scale emphasized supervisory attitude and support, autonomy, and recognition, the aspects of organizational life that best reflect the supportiveness of a work unit for individuals' pursuits of calling at work. Admittedly, there are numerous aspects of organizational life, and some aspects not emphasized in this scale might also support individuals' callings. For instance, future research should examine if coworkers' senses of calling are related to the career calling climate of a work unit. Future research should also examine more fully how different types of rewards may affect employees' career callings.

The career calling climate scale also demonstrated discriminant and convergent validity. The fact that the prosocial significance dimension correlated positively with the social responsibility climate (Victor & Cullen, 1988) suggests that socially responsible employers were more likely to be perceived as being supportive to individuals' pursuits of socially important work. Taken together with the finding that the prosocial significance dimension correlated negatively with

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Table 3. Results of multilevel modeling analysis predicting career calling

	Model	
Variable	Null	Random intercept and fixed slope
Intercept (Level 1)	4.41** (.06)	3.37** (.58)
Control variables:		
Age		−.01 (.04)
Organization – A		.17 (.13)
Organization – B		.33 (.36)
Organization – C		−.04 (.39)
Organization – D		.24 (.25)
Organization – E		−.15 (.30)
Organization – F		−.30 (.21)
Organization – G		−.30 (.27)
Organization – H		.10 (.23)
Organization – I		.68* (.31)
Career calling climate (Level 2)		.27* (.14)
Variance components		
Within-unit (Level 1) variance	.45	.41
Intercept (Level 2) variance	.01	.00
Additional information		
ICC	.01	

ML, maximum likelihood estimation.
Level 1 $N = 189$ and Level 2 $N = 34$. Values in parentheses are standard errors; * $p \leq .05$ ** $p \leq .01$.

the company profit climate (Victor & Cullen, 1988), there is evidence that individuals may view career calling climate through a moral lens even if morality is not an explicit part of its definition. Such a conclusion is consistent with the conceptualization of calling as a meaningful beckoning toward personally, socially, and *morally* significant work (Rosso, Dekas, & Wrzesniewski, 2010). Future research may examine whether ethical climates at the unit or organization level predict career calling climate at the unit level in order to shed additional light on the relations between these two types of climate.

The other dimension of career calling climate, the personal significance dimension, was found to correlate positively with the meaningful work aspect of the spiritual climate measure (Pandey, Gupta, & Arora, 2009). This is consistent with the conceptualization of career calling climate as these two climate constructs share a similar element in personal meaningful work but differ in scope and emphasis. The last finding from the construct validity study was that the personal significance dimension was negatively associated with a company profit climate (Victor & Cullen, 1988). This indicated that organizations that had a more exclusive focus on profit were more likely to be less aware of individual employees' needs and desires to do personally meaningful work. Overall, these findings suggest that the focus on responsibilities toward stakeholders and individually meaningful work are related to supporting individuals' senses of calling at work, while the focus on company profit appeared to run counter to it. Taken together, the scale development studies provided the initial evidence that the 13-item instrument developed to measure career calling climate is an appropriate operationalization of the construct.

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Predictive validity study

First of all, the conceptualization of a career calling climate as a unit-level construct was supported by statistics such as ICCs and $r_{wg(j)}$. This is a critical step because one would commit an ecological fallacy and draw invalid conclusions had the data not conform to the level of analysis that a construct is theorized at (Klein, Dansereau, & Hall, 1994). Consistent with the theorization that group members are homogeneous with respect to their perception of career calling climate, results of this research justified the use of aggregation of individual-level data to capture the construct. The new climate construct did reflect the 'sharedness' among individual perceptions instead of simply the average of the perceptions.

After statistically establishing career calling climate as a unit-level variable, we examined its relation to individual calling. H1 was supported since career calling climate significantly predicted calling after controlling for age and organization. Although the analysis was conducted with cross-sectional data and we cannot infer causality, the reverse logic that stronger senses of individual calling would lead to stronger support for calling from the work unit seems less plausible, as any one employee's impact on work climate is usually limited (Schneider, Ehrhart, & Macey, 2013). Despite that, a manager, who typically sets goals and allocates resources, might influence the unit's career calling climate according to his/her own sense of calling. While this study does not investigate managers' calling, future research should examine whether the individual calling of a manager has impact on the career calling climate. Nonetheless, the finding that career calling climate predicted individuals' senses of calling was the first piece of evidence in organizations that supported the 'dynamic' model of calling proposed by Dobrow (2013). Contrary to the common belief that calling was 'found' or 'discovered', she argued that calling was developed and might be affected by one's social environment. Dobrow found support for the model by tracking music students from high school to college and to early career, although it is still unclear whether and what kind of work environment could influence individuals' senses of calling. A few other studies have examined calling and work climate perceptions such as psychological safety (Chen et al., 2018) and work discretion (Rawat & Nadavulakere, 2015), but the authors examined work climates as moderators and did not attempt to conceptualize the type of work climate that was supportive of individuals' callings. Therefore, the finding that career calling climate was positively associated with calling was critical in understanding whether and how individuals' senses of calling could develop or diminish as a response to their work environment. Future research should employ a longitudinal design to investigate the timeline within which individuals' senses of calling develop or diminish as a response to the changing levels of career calling climate. Personality traits and other individual differences may also affect an individual's response to high or low levels of career calling climate at work.

General discussion

Although prior research has suggested that employees' social and work environment can shape their senses of calling (Dobrow & Heller, 2015; Duffy et al., 2018), no study has attempted to empirically examine the influence of work climates on employees' callings. This research is the initial one to fill this void by introducing the construct of a career calling climate, which captures the level of support that a work unit provides for its employees' pursuit of a calling. Conceptualized at the work-unit level, career calling climate expands the research on callings beyond the individual-level to provide a better understanding of how factors at the work-unit level might contribute to the development and the maintenance of one's senses of calling. This is a key step forward for research on callings as many previous studies have largely ignored the effect of the work environment (Thompson & Bunderson, 2019). Findings of this research showed that, given the right environment including supportive supervisory attitudes, necessary autonomy, and appropriate recognition, working adults' senses of calling might still develop.

In addition, we theorized career calling climate as a shared perception of support for a sense calling by the work unit, rather than a shared sense of calling itself. This way of conceptualization

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is based on prior research findings regarding the variability of callings across individuals within the same occupation and organization (e.g., Chen et al., 2018; Rawat & Nadavulakere, 2015). This conceptualization is consistent with the data as various statistics showed that individuals' senses of calling within a work unit were not sufficiently similar to emerge to form a new unit-level construct. Researchers interested in multi-level theories of callings should take note on the finding that while individuals' senses of calling varied, their perceptions on the support for callings were homogeneous. Finally, this research developed a measurement scale for a career calling climate. Tested using multiple samples, the scale was reliable and valid, demonstrating convergent, discriminant, and predictive validity. The development of the scale enables researchers to systematically capture the work-unit level influences on callings, paving the way for the design of possible interventions.

Managerial implications

This research also has implications for management practitioners. The finding that employees' senses of calling might be strengthened or weakened depending on the work climate suggests a new perspective in viewing career callings in the workplace. To reap the benefits of a 'called' workforce, including increased work engagement (Hirschi, 2012), satisfaction from work (Chen et al., 2018), and willingness to sacrifice for work (Bunderson & Thompson, 2009), managers need to carefully examine the career calling climate of the work unit. To simply identify and recruit individuals whose callings align with the organization's line of work, as previous research has suggested (Duffy et al., 2018), might not be sufficient. The present study suggests that the unit that encourages, recognizes, and provides necessary autonomy for employees' callings can help develop or, at the minimum, maintain their sense of calling. To accomplish this goal, managers may consider using the Career Calling Climate Scale developed in this study to assess the supportiveness toward callings in their organizations. This scale was validated with working adults in nested groups and consists merely thirteen items for the convenience of use.

Strengths and limitations

The research has the following major strengths. First, through the conceptualization of a career calling climate, this study contributed substantially to the existing literature. Career calling climate is the first concept to combine elements in the work climates and career callings literatures, and it builds upon existing theories and research findings in both literatures. Second, multiple studies were conducted to ensure the validity of the construct of career calling climate and the sound psychometric properties of the new measurement scale. Following the steps outlined in Hinkin (1998), rigorous procedures were followed to ensure the soundness of the career calling climate scale. This newly validated scale to measure career calling climate is a contribution to extant and future research. Third, survey responses from employees working in units and organizations were used in the predictive validity study. With this data, we were able to empirically establish career calling climate as a unit-level construct and examine its cross-level relation with an individual outcome while accounting for the nestedness of individual responses. Doing this contributed to the existing literature by demonstrating career calling climate's relation with individual career callings.

This research also has limitations. First, at the level of conceptualization, the construct of career calling climate is limited by the insufficient research on the antecedents of callings, especially among working adults beyond the initial stages of their career. There might be other aspects of organization life that can affect senses of calling that are not included in the concept of career calling climate. Second, the cross-sectional nature of the data used limits inferences of causality. Theories were the primary source of rationale in determining the direction of the relations in this study. Longitudinal data will be needed to confirm that the relations found in

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this study are causal in nature. Third, the relatively small number of work units (34) and individuals (189) used in the predictive validity study limited the statistical power to detect small effects and to test complex research models. Facing constraints specified by the organizations that allowed us to survey their employees, only a portion of individuals were matched with their work units. Third, the measurement used for calling was brief. This was due to the number of survey items required by the organization in order to balance the benefits of this research with cost and employee response time. Fourth and finally, though samples used for the scale development studies consist of individuals working in a wide range of jobs, the sample for the predictive study includes only those employed in the healthcare industry (e.g., physicians, nurses, staff members among others). This limits the generalizability of the findings. Future research should examine whether career calling climate is a viable unit-level construct for individuals working in other industries. Nevertheless, we believe that this research contributes to the emerging literature on career callings in organizations and how supervisors can best support it.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/jmo.2023.16.

Conflict of interest. The authors declare none.

References

Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management*, *39*(6), 1490–1528. doi: 10.1177/0149206313478188

Anderson, J. C., & Gerbing, D. W. (1991). Predicting the performance of measures in a confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology*, *76*(5), 732–740. doi: 10.1037/0021-9010.76.5.732

Bandura, A. (1989). Human agency in social cognitive theory. *American psychologist*, *44*(9), 1175–1184. doi: 10.1037/0003-066X.44.9.1175

Bartko, J. J. (1976). On various intraclass correlation reliability coefficients. *Psychological bulletin*, *83*(5), 762–765. doi: 10.1037/0033-2909.83.5.762

Batson, C. D. (1987). Prosocial motivation: Is it ever truly altruistic? In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 65–122). New York: Academic Press.

Biemann, T., Cole, M. S., & Voelpel, S. (2012). Within-group agreement: On the use (and misuse) of rWG and rWG (J) in leadership research and some best practice guidelines. *The Leadership Quarterly*, *23*(1), 66–80. doi: 10.1016/j.leaqua.2011.11.006

Bott, E. M., Duffy, R. D., Borges, N. J., Braun, T. L., Jordan, K. P., & Marino, J. F. (2017). Called to medicine: Physicians' experiences of career calling. *The Career Development Quarterly*, *65*(2), 113–130. doi: 10.1002/cdq.12086

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on psychological science*, *6*(1), 3–5. doi: 10.1177/1745691610393980

Buis, B. C., Ferguson, A. J., & Briscoe, J. P. (2019). Finding the "I" in "Team": The role of groups in an individual's pursuit of calling. *Journal of Vocational Behavior*, *114*, 88–99. doi: 10.1016/j.jvb.2019.02.009

Bunderson, J. S., & Thompson, J. A. (2009). The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work. *Administrative Science Quarterly*, *54*(1), 32–57. doi: 10.2189/asqu.2009.54.1.32

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology*, *83*(2), 234–246. doi: 10.1037/0021-9010.83.2.234

Chen, J., May, D. R., Schwoerer, C. E., & Augelli, B. (2018). Exploring the boundaries of career calling: The moderating roles of procedural justice and psychological safety. *Journal of Career Development*, *45*(2), 103–116. doi: 10.1177/0894845316671214

Cho, Y., & Jiang, W. Y. (2021). If you do what you love, will the money follow? How work orientation impacts objective career outcomes via managerial (Mis) perceptions. *Academy of Management Journal*, *65*(4), 1353–1382. doi: 10.5465/amj.2020.0841

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, *7*(3), 309–319. doi: 10.1037/1040-3590.7.3.309

Cullen, J. B., Victor, B., & Bronson, J. W. (1993). The ethical climate questionnaire: An assessment of its development and validity. *Psychological Reports*, *73*(2), 667–674. doi: 10.2466/pr0.1993.73.2.667

Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological bulletin*, *125*(6), 627–668. doi: 10.1037/0033-2909.125.6.627

Dik, B. J., & Duffy, R. D. (2009). Calling and vocation at work definitions and prospects for research and practice. *The Counseling Psychologist*, *37*(3), 424–450. doi: 10.1177/0011000008316430

https://doi.org/10.1017/jmo.2023.16 Published online by Cambridge University Press

Dik, B. J., Eldridge, B. M., Steger, M. F., & Duffy, R. D. (2012). Development and validation of the calling and vocation questionnaire (CVQ) and brief calling scale (BCS). *Journal of Career Assessment*, *20*(3), 242–263. doi: 10.1177/1069072711434410

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

Dobrow, S., & Heller, D. (2015). Follow your heart or your head? A longitudinal study of the facilitating role of calling and ability in the pursuit of a challenging career. *Journal of Applied Psychology*, *100*(3), 695–712. doi: 10.1037/a0038011

Dobrow, S. R., & Tosti-Kharas, J. (2011). Calling: The development of a scale measure. *Personnel Psychology*, *64*(4), 1001–1049. doi: 10.1111/j.1744-6570.2011.01234.x

Duffy, R. D., & Autin, K. L. (2013). Disentangling the link between perceiving a calling and living a calling. *Journal of Counseling Psychology*, *60*, 219–227. doi: 10.1037/a0031934

Duffy, R. D., Dik, B. J., & Steger, M. F. (2011). Calling and work-related outcomes: Career commitment as a mediator. *Journal of Vocational Behavior*, *78*(2), 210–218. doi: 10.1016/j.jvb.2010.09.013

Duffy, R. D., Douglass, R. P., Gensmer, N. P., England, J. W., & Kim, H. J. (2018). An initial examination of the work as calling theory. *Journal of Counseling Psychology*, *65*(4), 423–439. doi: 10.1037/cou0000276

Ford, J. K., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology*, *39*(2), 291–314. doi: 10.1111/j.1744-6570.1986.tb00583.x

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, *18*, 382–388. doi: 10.2307/3150980

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*(4), 331–362. doi: 10.1002/job.322

González-Romá, V., Peiró, J. M., & Tordera, N. (2002). An examination of the antecedents and moderator influences of climate strength. *Journal of Applied Psychology*, *87*(3), 465–473. doi: 10.1037/0021-9010.87.3.465

Grant, A. M., & Berg, J. M. (2011). Prosocial motivation at work: When, why, and how making a difference makes a difference. In K. Cameron & G. Spreitzer (Eds.), *Handbook of positive organizational scholarship* (pp. 28–44). New York, NY: Oxford University Press.

Hall, D. T., & Chandler, D. E. (2005). Psychological success: When the career is a calling. *Journal of Organizational Behavior*, *26*(2), 155–176. doi: 10.1002/job.301

Harrison, D. A., & McLaughlin, M. E. (1993). Cognitive processes in self-report responses: Tests of item context effects in work attitude measures. *Journal of Applied Psychology*, *78*(1), 129–140. doi: 10.1037/0021-9010.78.1.129

Hendrickson, A. E., & White, P. O. (1964). Promax: A quick method for rotation to oblique simple structure. *British Journal of Mathematical and Statistical Psychology*, *17*(1), 65–70. doi: 10.1111/j.2044-8317.1964.tb00244.x

Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, *21*(5), 967–988. doi: 10.1177/014920639502100509

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104–121. doi: 10.1177/109442819800100106

Hinkin, T. R., & Tracey, J. B. (1999). An analysis of variance approach to content validation. *Organizational Research Methods*, *2*(2), 175–186. doi: 10.1177/109442819922004

Hirschi, A. (2012). Callings and work engagement: Moderated mediation model of work meaningfulness, occupational identity, and occupational self-efficacy. *Journal of Counseling Psychology*, *59*(3), 479–485. doi: 10.1037/a0028949

Hirschi, A., Keller, A. C., & Spurk, D. M. (2018). Living one's calling: Job resources as a link between having and living a calling. *Journal of Vocational Behavior*, *106*, 1–10. doi: 10.1016/j.jvb.2017.12.001

James, L. R. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of Applied Psychology*, *67*(2), 219–229. doi: 10.1037/0021-9010.67.2.219

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, *69*(1), 85–98. doi: 10.1037/0021-9010.69.1.85

Jones, A. P., & James, L. R. (1979). Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. *Organizational Behavior and Human Performance*, *23*(2), 201–250. doi: 10.1016/0030-5073(79)90056-4

Katz, D., & Kahn, R. L. (1966). *The social psychology of organizations*. New York: Wiley.

Klein, K. J., Conn, A. B., Smith, D. B., & Sorra, J. S. (2001). Is everyone in agreement? An exploration of within-group agreement in employee perceptions of the work environment. *Journal of Applied Psychology*, *86*(1), 3–16. doi: 10.1037/0021-9010.86.1.3

Klein, K. J., Dansereau, F., & Hall, R. J. (1994). Levels issues in theory development, data collection, and analysis. *Academy of Management Review*, *19*(2), 195–229. doi: 10.5465/amr.1994.9410210745

Klein, K. J., & Kozlowski, S. W. (2000). *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*. San Francisco: Jossey-Bass.

Kozlowski, S. W., & Doherty, M. L. (1989). Integration of climate and leadership: Examination of a neglected issue. *Journal of Applied Psychology*, *74*(4), 546–553. doi: 10.1037/0021-9010.74.4.546

https://doi.org/10.1017/jmo.2023.16 Published online by Cambridge University Press

Kreft, I. G., & De Leeuw, J. (1998). *Introducing multilevel modeling*. Thousand Oaks, CA: Sage.
Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*(2), 281–342. doi: 10.1111/j.1744-6570.2005.00672.x
Kuenzi, M., & Schminke, M. (2009). Assembling fragments into a lens: A review, critique, and proposed research agenda for the organizational work climate literature. *Journal of Management*, *35*(3), 634–717. doi: 10.1177/0149206308330559
LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods*, *11*(4), 815–852. doi: 10.1177/1094428106296642
Long, J. S. (1983). *Confirmatory factor analysis: A preface to LISREL*. Beverly Hills: Sage.
MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing techniques. *MIS Quarterly*, *35*(2), 293–334. doi: 10.2307/23044045
Martin, K. D., & Cullen, J. B. (2006). Continuities and extensions of ethical climate theory: A meta-analytic review. *Journal of Business Ethics*, *69*(2), 175–194. doi: 10.1007/s10551-006-9084-7
May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology*, *77*(1), 11–37. doi: 10.1348/096317904322915892
Mohring, K. (2012). The fixed effects approach as alternative to multilevel models for crossnational analyses (Working paper series). Cologne, Germany. GK SOCLIFE University.
Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.
Pandey, A., Gupta, R. K., & Arora, A. (2009). Spiritual climate of business organizations and its impact on customers' experience. *Journal of Business Ethics*, *88*(2), 313–332. doi: 10.1007/s10551-008-9965-z
Rawat, A., & Nadavulakere, S. (2015). Examining the outcomes of having a calling: Does context matter? *Journal of Business and Psychology*, *30*, 499–512. doi: 10.1007/s10869-014-9378-1
Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior*, *30*, 91–127. doi: 10.1016/j.riob.2010.09.001
Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54–67. doi: 10.1006/ceps.1999.1020
Schabram, K., & Maitlis, S. (2017). Negotiating the challenges of a calling: Emotion and enacted sensemaking in animal shelter work. *Academy of Management Journal*, *60*(2), 584–609. doi: 10.5465/amj.2013.0665
Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational climate and culture. *Annual Review of Psychology*, *64*, 361–388. doi: 10.1146/annurev-psych-113011-143809
Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: A new direction for climate research. *Journal of Applied Psychology*, *87*(2), 220–229. doi: 10.1037//0021-9010.87.2.220
Schwab, D. P. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior*, *2*(1), 3–43.
Seibert, S. E., Silver, S. R., & Randolph, W. A. (2004). Taking empowerment to the next level: A multiple-level model of empowerment, performance, and satisfaction. *Academy of Management Journal*, *47*(3), 332–349. doi: 10.5465/20159585
Seong, J. Y., & Kristof-Brown, A. L. (2012). Testing multidimensional models of person-group fit. *Journal of Managerial Psychology*, *27*(6), 536–556. doi: 10.1108/02683941211252419
Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *The Communications of the Association for Information Systems*, *13*(1), 380–427. doi: 10.17705/1CAIS.01324
Tay, L., Woo, S. E., & Vermunt, J. K. (2014). A conceptual and methodological framework for psychometric isomorphism: Validation of multilevel construct measures. *Organizational Research Methods*, *17*(1), 77–106. doi: 10.1177/1094428113517008
Thompson, J. A., & Bunderson, J. S. (2019). Research on work as a calling… and how to make it matter. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*, 421–443. doi: 10.1146/annurev-orgpsych-012218-015140
Victor, B., & Cullen, J. B. (1988). The organizational bases of ethical work climates. *Administrative Science Quarterly*, *33*(1), 101–125. doi: 10.2307/2392857
Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of Management. The Academy of Management Review*, *26*(2), 179–201. doi: 10.5465/amr.2001.4378011
Yao, G., Wu, C. H., & Yang, C. T. (2008). Examining the content validity of the WHOQOL-BREF from respondents' perspective by quantitative methods. *Social Indicators Research*, *85*(3), 483–498. doi: 10.1007/s11205-007-9112-8
Zhu, Y., Chen, T., Wang, J., Wang, M., Johnson, R. E., & Jin, Y. (2021). How critical activities within COVID-19 intensive care units increase nurses' daily occupational calling. *Journal of Applied Psychology*, *106*(1), 4–14. doi: doi:10.1037/apl0000853

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