

Calling:  
The Development of a Scale Measure

Shoshana R. Dobrow  
Schools of Business  
Fordham University  
1790 Broadway, Suite 1314  
New York, NY 10019  
Email: shasa.dobrow@gmail.com

Jennifer Tosti-Kharas  
College of Business  
San Francisco State University  
1600 Holloway Avenue  
San Francisco, CA 94132  
Email: jtosi@sfsu.edu

Accepted for publication in *Personnel Psychology*

Acknowledgments: We thank Justin Berg, Marya Besharov, Dawn Chandler, D. Lance Ferris, Yoav Ganzach, Adam Grant, Mike Pratt, Brent Rosso, Jeff Thompson, Amy Wrzesniewski, and participants in the May Meaning Meeting 2010 for their invaluable comments in shaping the ideas in this manuscript. We are grateful to associate editor Bradford Bell and two anonymous reviewers for their insights and recommendations.

## Calling: The Development of a Scale Measure

## Abstract

This study clarifies the definition of calling—a consuming, meaningful passion people experience toward a domain—and develops a 12-item scale measure of calling. Drawing on multi-wave longitudinal, two-wave longitudinal, and cross-sectional data from 1,500 participants (2,278 observations) in four separate domains, music, art, business, and management, we demonstrate the scale’s reliability and unidimensional structure across contexts and over time. We establish the scale’s convergent validity and discriminant validity. We determine criterion-related validity through the scale’s relationship to satisfaction with the calling domain, career-related self-efficacy, clarity of professional identity, career insight, attending a calling-oriented college program, professional pursuit of the calling domain, and differences across the four domains. We discuss implications of this reliable, valid measure for theory and research on calling, meaning of work, and careers.

*Keywords:* calling, meaning of work, construct validation, measurement, longitudinal

Organizational scholars have argued convincingly for the significance of understanding individuals' attitudes toward and perceptions of the work they do (for reviews, see Pratt & Ashforth, 2003; Wrzesniewski, 2003). Of particular interest to scholars and practitioners alike is how people find deep meaning in their work. This deep meaning may be characterized as a *calling* people can feel toward their work (Wrzesniewski, 2003). Positive work, career, and general life outcomes accrue to people who experience their work as a calling (Duffy & Sedlacek, 2007; Peterson, Park, Hall, & Seligman, 2009; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997).

What does a calling look like? Interviews with members of the New York Philharmonic, a leading United States professional orchestra, shed light on strong callings in the domain of music, particularly on the paths that led them to become professional musicians and the role music plays in their lives. For instance, a bass player in the orchestra articulated his experiences of a strong calling:

“Oh, I never said, ‘I'm going to be a professional bass player.’ The career choice was music, which was a lifelong passion. . . . Music is not like a 9-to-5 job where you turn the switch off and say ok, now I'm on personal time. What I know about music is that it engrosses you and encompasses you—no matter where I go, I'm thinking about music.” (Nissen, 2001)

In response to being asked explicitly whether he viewed “playing the violin as [his] work, or as something more—as a calling,” the concertmaster of the orchestra responded: “. . . my religion is the music. It's a way of life—it totally envelops your life. I would hope that I would move people and not just dazzle them. You can elevate people's souls, and psyches, with music” (Nissen, 2001). Both of these musicians highlight the consuming, meaningful, passionate characteristics of calling that will be explored in this study in the domain of music as well as in three other domains.

Research on calling has become increasingly important in recent years. As scholars note, “A new interest in the idea of vocation and calling—even though these terms may not be used—is emerging as people search for more humane and meaningful ways to understand their work lives” (Weiss, Skelley, Hall, & Haughey, 2003, p. 6). Likewise, writers in the popular press pay considerable attention to the notion of calling (e.g., Dreher, 2008; Finney & Dasch, 1998; Leider & Shapiro, 2001; Levoy, 1997; Novak, 1996) and encourage readers to believe “finding one’s calling” leads to extraordinarily positive outcomes in life. Accordingly, the idea of “finding” or “having” a calling has captivated public attention.<sup>1</sup> Thus understanding calling constitutes an important step toward addressing the question of how individuals seek and derive meaning from work, and more broadly, from life (Frankl, 1959).

As an indication of the growing interest in calling research, scholars have made various attempts to define calling (Berg, Grant, & Johnson, 2010; Bunderson & Thompson, 2009; Dik & Duffy, 2009; Wrzesniewski, et al., 1997) and to measure it (Bunderson & Thompson, 2009; Wrzesniewski, et al., 1997). However, research on calling has not yet established a clear definition or valid scale measure (Rosso, Dekas, & Wrzesniewski, 2010). Existing definitions of calling have been highly context-specific or based in qualitative research, or both, which limits the consistency of the calling construct across studies, as well as its potential to generalize to other domains. The lack of a valid scale measure means scholars cannot reliably relate calling to other constructs or assess calling over time. In sum, the absence of a precise definition and scale measure of calling has limited the advancement of empirical research on calling.

In this study, we clarify the definition and develop a new, robust measure of calling. First, consistent with prior research, we define calling as a consuming, meaningful passion people experience toward a domain (e.g., Berg, et al., 2010; Wrzesniewski, et al., 1997). Next,

we present a 12-item calling scale that can be adapted for use in any domain, including work and non-work contexts. To establish this new measure, we subjected this scale to the full range of tests the scale development literature recommends, including establishing reliability and convergent, discriminant, and criterion-related validity (DeVellis, 2003; Ferris, Brown, Berry, & Lian, 2008; Hinkin, 1998). We base our results on survey data from 1,500 individuals from four samples: a 7-year, 4-wave longitudinal study in the music domain, a 6-week, 2-wave longitudinal study in the art domain, and two single-wave studies in the general business domain and in the management domain. We chose these four domains to cross-validate our results and establish the scale's generalizability.

This paper extends existing research in several ways. It establishes a definition of calling that attempts to reconcile differing perspectives in the literature concerning what does and does not constitute a calling. It presents a scale that advances research on calling and, more broadly, on the meaning of work by providing a reliable, valid, and flexible tool for use in empirical research. In addition to facilitating academic research on calling, this scale may be useful in practical, self-assessment contexts both for individuals making career decisions and for career counselors. Further, our criterion-related validity analyses provide novel insight into the relationship between calling and career outcomes.

### **Defining Calling**

The notion of people viewing their work as a calling dates back several centuries in the literature. In the sixteenth century, Martin Luther articulated the idea that work could be God's calling, a view Max Weber popularized three centuries later (Luther, 1883; M. Weber, 1930). Sociologist Robert Bellah and colleagues (1985, 1996) later included calling as one of three general orientations people have toward their work, along with job and career. Each orientation

describes a different type of meaning people can seek from their work. For those with job orientations, work is about extrinsic rewards, such as pay, and is not a central part of identity. For those with career orientations, work is about gaining power or prestige, advancing through an organizational hierarchy, and being challenged by work. By contrast, those with calling orientations find their work to be “morally inseparable from [their] life,” intrinsically rewarding, personally fulfilling, and central to identity (Bellah, et al., 1996, p. 66). Work orientations describe people’s orientations toward work in a general sense, rather than toward their current jobs. Wrzesniewski et al. (1997) built on this research to present work orientations, including calling orientation, as a construct for use in the organizational psychology literature.

Additional conceptualizations of constructs referred to as “calling” exist, yet their content varies considerably. Calling, considered the highest level of subjective career success, can be the work one views as one’s purpose in life (Hall & Chandler, 2005). Another view distinguishes “neoclassical calling” from Luther and Weber’s “classical” conceptualization where a calling is related to fulfilling God’s destiny (Bunderson & Thompson, 2009). According to the neoclassical view, “one’s calling is that place in the occupational division of labor in society that one feels destined to fill by virtue of particular gifts, talents, and/or idiosyncratic life opportunities” (Bunderson & Thompson, 2009, p. 38). Yet another view of calling locates the source of calling outside the individual such that people are pulled toward a particular type of work (Dik & Duffy, 2009; Duffy & Sedlacek, 2007; Hunter, Dik, & Banning, 2010). In this view, calling is described as “a transcendent summons . . . to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness and that holds other-oriented values and goals as primary sources of motivation” (Dik & Duffy, 2009, p. 427). Another study asked participants themselves to define calling (Hunter, et al., 2010). College students’ responses

fell into three categories: (1) calling is a guiding force in one's life; (2) calling is connected to personal fit, well-being, and meaning; and (3) "having" a calling leads to positive altruistic outcomes for society.

In sum, the literature on calling is characterized by a "lack of a consensus definition of the term" (Hunter, et al., 2010, p. 178). These previous definitions differ in their views of what a calling is or where it exists. Calling can be an *orientation* toward work (Wrzesniewski, et al., 1997), the *work* itself (Hall & Chandler, 2005), a *place* in the occupational division of labor (Bunderson & Thompson, 2009), or an *external pull* to pursue a particular career path (Dik & Duffy, 2009; Duffy & Sedlacek, 2007). In this study, we build upon these distinctions and commonalities to develop a clear, concise definition of calling.

We define calling as a consuming, meaningful passion people experience toward a domain. Individuals experiencing a strong calling are likely to feel their involvement in the calling domain is consuming, for example, feeling they were destined to do this type of work and could not imagine doing anything else (Bunderson & Thompson, 2009), like the New York Philharmonic bassist quoted above. People likely feel their involvement in the calling domain is central to their identity, a view consistent with research on work engagement (Csikszentmihalyi, 1990; Kahn, 1990; May, Gilson, & Harter, 1999), job involvement (Kanungo, 1982), flow (Csikszentmihalyi, 1990; Kahn, 1990; May, et al., 1999), and work orientations (Wrzesniewski, et al., 1997). In addition, people are likely to feel passionate about being involved in the calling domain, as suggested by research findings associating calling with zest for life and job satisfaction (Peterson, et al., 2009; Wrzesniewski, et al., 1997). People are also likely to feel their involvement in the calling domain is meaningful—that is, that their involvement is "experienced as particularly significant and holding more positive meaning" than less meaningful activities

(Rosso, et al., 2010, p. 95), consistent with how the New York Philharmonic concertmaster's description of music merges with religious or spiritual meaning. Some calling researchers define meaningful involvement as involvement that benefits society as a whole (e.g., Duffy & Sedlacek, 2007; Wrzesniewski, et al., 1997). However, we use a broader definition of meaningful involvement, such that it is determined subjectively by the individual and can include benefiting themselves, their families, and/or society (Hall & Chandler, 2005).

Several additional aspects characterize the definition of calling. First, calling is directed toward a particular domain, such as music, architecture, business, or law, rather than toward work in general (as in Wrzesniewski et al.'s (1997) definition). Previous definitions of calling generally focus on calling either as a psychological construct or an objective or external construct, such as an occupation, a dictate from an external source, or a niche in society. We define calling as a primarily psychological construct, which is therefore subjective and internal (Berg et al., 2010; Wrzesniewski et al., 1997); calling is not a proxy for an objective or external construct. However, our definition considers that a calling is directed toward an external construct, the domain, and thus takes into account the relationship between the internal and the external.

Second, calling is not binary, such that people "have" or "do not have" a calling, but rather spans a continuum from weaker to stronger callings. Most research on calling uses binary language (i.e., people "have" a calling) even though the measures are continuous (Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski, 1999). Third and finally, one might not necessarily feel a strong calling toward *work*; rather, calling domains can include occupations, volunteer efforts, family, or more abstract concepts such as "sustainable business" or "social justice." Previous research has considered calling solely in the context of work and



career (Bunderson & Thompson, 2009; Hall & Chandler, 2005; Wrzesniewski, 1999). In fact, one does not need to be involved in the domain to feel a strong calling toward it; thus people may experience unanswered callings (Berg, et al., 2010). In addition, people may feel a calling toward the domain they are currently aspiring to access, as in the case of students. To summarize, the definition of calling we present builds upon, but is distinct from, previous definitions.

### **Using and Measuring Calling**

In addition to conceptualizing what experiencing a calling means, theoretical and empirical research on calling has associated calling with numerous other constructs related to work, career, and general life. In the context of work, scholars have explored the theoretical relationship between calling and several psychological constructs, including job crafting (Wrzesniewski & Dutton, 2001), psychological contracts at work (Thompson & Bunderson, 2003), and work generativity (Grant & Wade-Benzoni, 2009). Empirical research demonstrates a positive relationship between calling and psychological constructs such as job satisfaction (Peterson, et al., 2009; Wrzesniewski, et al., 1997), a willingness to sacrifice and perceived organizational duty (Bunderson & Thompson, 2009), and fostering tension between personal and social identities in challenging occupations (i.e., creating “identity demands”) (Kreiner, Hollensbe, & Sheep, 2006), while also finding a positive relationship with behavioral outcomes such as fewer missed days of work (Wrzesniewski, et al., 1997). In the context of careers, scholars have considered calling’s theoretical relationship to career success (Hall & Chandler, 2005) and self-set standards for career evaluation (Heslin, 2005), and its empirical relationship to career development constructs such as decidedness, comfort, self-clarity, and choice-work salience (Duffy & Sedlacek, 2007). Lastly, in the context of general life characteristics,

theoretical research has explored the relationship between calling and best self actualization (Roberts, Dutton, Spreitzer, Heaphy, & Quinn, 2005) and strength of character (Wright & Goodstein, 2007). Empirical research has documented positive relationships between calling and life satisfaction, better health (Peterson, et al., 2009; Wrzesniewski, et al., 1997), zest, and enthusiasm (Peterson, et al., 2009). On the whole, extant research on calling has consistently related calling to positive work, career, and general life outcomes.

In addition, scholars have presented several meaning-of-work constructs that relate to, yet are distinguishable from, calling (Duffy & Sedlacek, 2007; Hall & Chandler, 2005; Peterson, et al., 2009; Wrzesniewski, et al., 1997). Meaningfulness is a core aspect of calling, which differentiates it from several conceptually related constructs that do not include meaningfulness in their definitions, including career insight (Day & Allen, 2004; London, 1983), intrinsic motivation (Amabile, Hill, Hennessey, & Tighe, 1994; Wrzesniewski, et al., 1997), job satisfaction (Peterson, et al., 2009; Wrzesniewski, et al., 1997), work engagement (Kahn, 1990; Schaufeli, Bakker, & Salanova, 2006), and job involvement (Kanungo, 1982). Yet research has not *empirically* distinguished calling from these constructs. Research streams on the empirical relationship between calling and work, career, and general life outcomes and on the relationship between calling and other meaning-of-work constructs would benefit from an accurate, reliable calling measure.

The focus of previous empirical research on calling was to *use* measures of calling to build theory—for example, in relation to career outcomes or in relation to the job and career orientations—rather than to establish the construct’s validity (Schwab, 1980). No previous research on calling, to our knowledge, has followed the full process for establishing a new measure outlined in the scale development literature, including establishing reliability as well as

convergent, discriminant, and criterion-related validity (DeVellis, 2003; Ferris, et al., 2008; Hinkin, 1998; Schwab, 1980). Scholars have noted that a top priority for the advancement of research on calling is the development of psychometrically robust measures: “Of the few studies that have assessed calling or vocation empirically, none did so with instruments supported by strong evidence for reliability and validity” (Dik & Duffy, 2009, p. 436).

Moreover, the research designs used to examine calling have typically employed a single context and/or an inductive, qualitative approach, which limits generalizability. These designs have been cross-sectional, thus limiting applicability to careers, which are dynamic and longitudinal in nature (Hall, 2002). This approach also limits the causal inferences scholars can draw and introduces the potential for methodological confounds (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In sum, research on calling would benefit greatly from a reliable measurement instrument that generalizes across domains.

The existing empirical measures of calling come from three streams of research. Wrzesniewski et al. (1997) used two measures of calling orientation. First, participants read three paragraphs that described people who exemplified each of the three orientations: job, career, and calling. Then they rated the degree to which they were similar to each of these people. The highest-rated paragraph indicated participants’ orientation. Second, participants answered 18 true-false items that tapped into the job, career, and calling orientations. Of these items, 14 were designed to measure the job/calling orientation dimension, such that calling and job represent opposite ends of the same scale (i.e., high values indicate a calling orientation and low values indicate a job orientation). However, apart from factor analyses that differentiated the job/calling orientation from the career orientation, Wrzesniewski et al. (1997) did not present psychometric tests of the job/calling orientation scale. The scale measured calling orientation toward work in

general, not toward a specific domain.

Bunderson and Thompson (2009) created a 6-item, domain-specific calling scale to measure the “neoclassical” form of calling. They developed this scale inductively from a study of zookeepers, purposefully designing it to assess a particular type of calling in one specific occupational context. Further, the primary focus of the psychometric analyses on this scale was to distinguish it from and test it in relation to other constructs in the paper’s theoretical model. Perhaps as a result of the specificity of the context in which it was developed, the neoclassical calling scale emphasizes that work is a consuming passion that is part of one’s destiny. However, the scale does not capture the sense that work is meaningful. In fact, the authors included items from Wrzesniewski et al.’s (1997) calling orientation scale (e.g., “The work that I do makes the world a better place”) in a separate scale they labeled “work meaningfulness.”

Duffy and colleagues (Dik & Duffy, 2009; Duffy & Sedlacek, 2007) used two items from an unpublished paper to measure calling: “I have a calling to a particular kind of work” and “I have a good understanding of my calling as it applies to my career.” They did not report scale development analyses (Duffy & Sedlacek, 2007). The wording of these items allowed participants to answer in terms of their own definition of calling rather than in terms of the definition the researchers in the paper articulated (Duffy & Sedlacek, 2007). Thus a possible mismatch exists between the definition and measurement of the calling construct. Moreover, due to the potentially strong connotations of the word “calling,” some researchers opt not to ask participants explicitly about their callings (Dobrow, 2006; Wrzesniewski, et al., 1997), whereas others have documented the numerous ways people define calling (Hunter, et al., 2010).

### **Present Study**

The few extant empirical studies of calling use measures that have not been subjected to

full construct validity analyses. Our purpose in the present study is to develop a reliable and construct-valid measure of calling that can help advance research on calling. We designed this measure to be consistent with our definition of calling. To develop this measure, we followed the recommended steps for scale development and validation (DeVellis, 2003; Hinkin, 1998). In Phase 1, we generated a pool of potential items, and a panel of experts reviewed it for content validity. In Phase 2, we evaluated the new 12-item scale measure of calling for the psychometric properties of reliability, dimensionality, and stability. In Phase 3, we assessed the convergent and discriminant validity of the scale. Finally, in Phase 4, we examined the criterion-related validity of the scale. We replicated and cross-validated the findings reported in Phases 2 through 4 by using samples drawn from four different domains.

### **Phase 1: Item Generation and Reduction**

#### **Item Generation**

This initial phase of the study generated potential scale items from two sources that would reflect the definition of calling. First, we drew on literature on calling and calling-related constructs: calling orientation (Wrzesniewski, et al., 1997), intrinsic motivation (Amabile, et al., 1994; Deci & Ryan, 1985), flow (Csikszentmihalyi, 1990), and work engagement (Kahn, 1990; May, et al., 1999). Second, we utilized field data from interviews conducted in a sample in which we expected strong callings to be prominent and observable: classical musicians (Eisenhardt, 1989). We chose these musicians to represent a diversity of roles in the music domain, and included young amateurs, new and seasoned professionals (both part-time and full-time), instrumentalists, conductors, music teachers, professional orchestra administrators, and leaders of musical training programs. The first author conducted formal and informal interviews with dozens of musicians. The sample answered questions about topics related to their involvement in

music, such as their background in music, the reasons they became musicians, the role being a musician played in their lives, and what being a musician meant to them. An iterative process of reviewing the literature and these field interviews yielded an initial pool of 48 calling items.

Consistent with the domain-oriented nature of our definition of calling, we wrote the items using terminology specific to the music domain. For example, one item read, “I enjoy playing music more than anything else,” rather than a non-domain-oriented version of the same item: “I enjoy doing my work more than anything else.” All items were rated on a 7-point Likert-type agreement scale (1 = *strongly disagree*, 7 = *strongly agree*). We pretested the 48 calling items on students in an East Coast youth orchestra ( $N = 45$ ). Psychometric analyses conducted on the pretest data, including examining internal consistency reliability, factor structure, and discriminant validity from other scales (Campbell & Fiske, 1959), narrowed the pool to 28 items. At this stage, we also refined the wording for several items based on feedback from pretest participants and professional musicians.

### **Item Review**

Following DeVellis’ (2003) recommendation, we asked a panel of experts to review our pool of 28 items for content validity, or the extent to which our items reflected our definition of calling. This panel consisted of seven judges, all of whom were academics who had published research on the meaning of work, including several who had specifically researched calling. We asked the judges to rate each item with respect to its relevance to our definition of calling. Judges used a rating scale of high, moderate, or low relevance (DeVellis, 2003). In addition, we instructed them to comment on the clarity, conciseness, and wording of items. We retained the 15 items the majority of judges (i.e., at least four of seven judges, or 57%) rated as having “high” relevance to our definition of calling. We then examined the judges’ comments regarding the

clarity, conciseness, and wording of items and eliminated three additional items. We verified that the final set of items captured the entirety of our definition. Having developed a 12-item scale measure representative of the calling construct, we next examined the psychometric properties of the scale (see Appendix for a list of scale items).

## **Phase 2: Psychometric Properties of Scale**

### **Method**

**Participants and Procedure.** We conducted psychometric analyses on data from 1,500 individuals across four domain samples over time: music, art, general business, and management. We collected a total of 2,278 surveys. Each included the calling items as well as demographic questions and other measures for convergent, discriminant, and criterion-related validity purposes. See Table 1 for a complete overview of measures collected in each sample.

*Sample 1: Music.* Participants were individuals enrolled at two U.S. summer high school music programs in 2001. These two field sites are prestigious summer music programs that attract a concentrated number of talented high school musicians. As a result, this sample provides an “extreme” setting in which we were likely to find people experiencing a relatively strong calling toward music (Eisenhardt, 1989). We invited all students attending the summer programs to join the study. Those who agreed participated in a 7-year, 4-wave (2001-8) prospective longitudinal survey study ( $N = 590$ ).

The first data collection occurred at the beginning of the summer program (“Time 1,”  $n = 426$ ) and the second occurred six weeks later at the end of the summer program (“Time 2,”  $n = 342$ ). We invited individuals who had completed at least one of the Time 1 or Time 2 surveys and who provided contact information ( $n = 450$ ) to participate in the third survey (“Time 3”), which occurred 3 ½ years later ( $n = 306$ ; response rate = 68%). We invited all participants for

whom contact information was available ( $n = 410$ ) to participate in the fourth survey (“Time 4”), which occurred 3 ½ years after Time 3 ( $n = 262$ ; response rate = 64%). Participants advanced from high school into college into post-college life (e.g., graduate school, working) over the 7 years of the study. Across the four time points of the study, participants completed 1,336 surveys.

Twenty-two percent of the participants were male, 75% were Caucasian, and the mean age at the beginning of the study was 17.34 years ( $SD = .94$ ). At Time 1, 50% intended to pursue music professionally, 14% did not, and 36% were undecided.

*Sample 2: Art.* In addition to musicians, one of the two summer programs described in Sample 1 also trains talented actors, visual artists, dancers, and writers (collectively referred to here as “artists”). We invited all artists attending this summer program in 2001 to join the study. Those who agreed participated in a 6-week, 2-wave longitudinal survey study ( $N = 98$ ; 130 observations). This artist sample is similar to the musicians in Sample 1 in that it is an “extreme” setting in which we were likely to find people experiencing a relatively strong calling. However, the calling scale items for this sample are oriented toward a different domain: art. This change to the items extends the analyses into a separate but comparable context.

Twenty percent of the participants were male, 72% were Caucasian, and the mean age at the beginning of the study was 16.91 years ( $SD = .93$ ). At Time 1, 58% intended to pursue art professionally, 12% did not, and 30% were undecided.

*Sample 3: Business.* This sample consists of 571 business students, both undergraduate and graduate (MBA), from three East Coast U.S. universities. This business sample extends the analyses from Samples 1 and 2 by testing a third version of the calling items, oriented toward the domain of “business,” in a separate and dissimilar context. This approach enables us to examine



the generalizability of the scale across domains.

At two of the universities, participants were students in a core, required introductory management class ( $n = 427$ ). They came from 13 separate course sections in six different semesters. Participants completed the survey either online or on paper as part of a career development course module. At the third university, we recruited participants ( $n = 144$ ) from a career development course and via an email invitation sent to a random subset of students at the school. These participants completed the survey online.

Fifty-seven percent of these business participants were male, 71% were Caucasian, and the mean age was 22.95 years ( $SD = 4.83$ ). Of the MBA participants, 22% were part-time students and 78% were full-time students. Of the part-time MBA students, 56 (60%) reported working more than 35 hours per week and could be considered full-time working adults.

*Sample 4: Management.* In Sample 4, we extended Sample 3's general business domain into a common, specific business occupation: management. We collected data from 241 professional managers who were part of an online survey panel. All members of this sample reported being employed full-time (i.e., working at least 35 hours per week,  $M = 45.97$ ,  $SD = 6.99$ ), performing the majority of their work in an office environment, and managing at least three direct reports ( $M = 16.29$ ,  $SD = 21.33$ ). Further, respondents reported that they primarily considered themselves to be managers in their current jobs, rather than, for example, primarily engineers who also manage the work of others.

The managers sampled were 51% male, 78% Caucasian, and 43.66 years of age ( $SD = 8.73$ ), on average. Sixty-six percent were married, and the sample reported having one child living at home on average ( $SD = 1.12$ ). All had completed college degrees, and 47% had completed graduate programs, including 21% who received an MBA. Respondents had worked

in their current jobs for an average of 7.94 years ( $SD = 6.80$ ), and in the management occupation for an average of 10.10 years ( $SD = 6.19$ ).

**Measures.** We measured calling with the 12-item scale developed in Phase 1. We adapted items for each sample's domain, such that we worded musicians' items in terms of "music," artists' items in terms of "art" or "artistic specialty," business students' items in terms of "business," and the professional managers' items in terms of "being a manager." For instance, a sample item read, "Music/My artistic specialty/Business/Being a manager is always in my mind in some way."

## Results

**Reliability.** To assess reliability, we examined the coefficient alphas and average corrected item-total correlations of the 12 items. Because scale items must vary in order to covary, we assessed the means and standard deviations of the items as well (DeVellis, 2003). The coefficient alpha estimates of reliability were .88, .90, .90, and .94 in Samples 1 through 4, respectively, and remained stable over subsequent time periods in Samples 1 and 2. These reliability estimates are considered "very good" (DeVellis, 2003). Average corrected item-total correlations ranged from .41 to .73 across the samples (average item-total correlation = .63), which are sufficiently high. Item means ranged from 2.53 to 6.56 across samples (average  $M = 5.01$ ). Although these means were skewed toward the high end of the response scale, this finding is likely attributed to Samples 1 and 2 ( $M = 5.74$  and  $5.71$ , respectively), whose item means were significantly higher than those for Samples 3 and 4 ( $M = 4.21$  and  $4.37$ , respectively). Item means close to the midpoint of the response scale are desirable, as is the case for Sample 3 (DeVellis, 2003). In Phase 4, we discuss in detail the differences between samples. Standard deviations for the items ranged from .80 to 2.07 across samples (average  $SD = 1.43$ ), suggesting

acceptable variance for inclusion in the scale. Thus the results of our analyses indicate the 12-item calling scale is a reliable measure.

**Dimensionality.** We first examined the dimensionality of the calling scale by performing an exploratory factor analysis (EFA) using principal axis factoring and Promax rotation as recommended by Russell (2002). We examined the number of factors extracted with eigenvalues greater than or equal to one, which indicated two factors for Samples 1 and 2 and a single factor for Samples 3 and 4. Since the eigenvalue approach tends to overestimate the number of factors, we also used a scree test, which has been recommended by statisticians as being more accurate (Ferguson & Cox, 1993; Russell, 2002). The scree plots revealed a single factor in all four samples, which explained between 43% and 62% (average = 50%) of the total variance in the measure. All items had factor loadings of .40 or higher across samples.

We next performed a confirmatory factor analysis (CFA) using the EQS software program (Bentler, 1995). Based on both our underlying theory that the calling scale is unidimensional and the results of the EFA, we tested a model in which all 12 items loaded onto a single latent factor. To determine the model fit, we examined the comparative fit index (CFI) and standardized root mean-square residual (SRMR). Acceptable fit is evidenced by a CFI of .90 or higher and an SRMR of .08 or lower (Bentler, 1990). The results of the CFA indicate the data fit the model reasonably well. CFI statistics ranged from .87 to .91 (average CFI = .90) and SRMR statistics ranged from .06 to .07 (average SRMR = .06) across the samples and time periods. All items loaded significantly on the latent calling variable ( $p < .001$ ), and factor loadings ranged from .43 to .86 across the samples (average factor loading = .67). In summary, the results of the CFA supported a unidimensional calling factor comprised of 12 items across our four different samples and four time periods in Sample 1.

**Stability.** We assessed the stability of the calling scale in the short term (Time 1 to Time 2, 1.5 months) using Samples 1 and 2 and in the long term (Time 1 to Times 3 and 4, 3.5 years and 7 years, respectively) using Sample 1. We examined stability in two ways. First, we examined the correlations between Time 1 calling and calling at subsequent time periods. For Sample 1, calling at Time 1 was significantly correlated with calling at Time 2 ( $r = .83, p < .001$ ), Time 3 ( $r = .41, p < .001$ ), and Time 4 ( $r = .38, p < .001$ ). For Sample 2, calling at Time 1 was significantly correlated with calling at Time 2 ( $r = .86, p < .001$ ). Second, we calculated test-retest reliability by estimating the Spearman-Brown split-half reliability coefficient, where the items from Time 1 comprised the first half and the items from a later time period comprised the second half. The Spearman-Brown coefficient for Sample 1 was .90, .56, and .61 at Times 2, 3, and 4, respectively, and for Sample 2 was .93 at Time 2. A coefficient of .60 or higher is considered acceptable for exploratory research (Garson, 2011). Thus our calling measure showed evidence of stability in both the short and long terms.

### **Phase 3: Convergent and Discriminant Validity of Scale**

For the purpose of establishing convergent validity, we examine the relationship between calling and conceptually similar constructs, for which we expect positive correlations. For the purpose of establishing discriminant validity, we then examine the relationship between calling and conceptually dissimilar constructs, for which we expect low or null correlations (Campbell & Fiske, 1959; Hinkin, 1998).

The convergent validity analyses focused on the relationship between our calling measure and other recent measures of calling and conceptually related measures. We included the three existing measures of calling reviewed earlier. First, Wrzesniewski et al.'s (1997) calling orientation scale (hereafter referred to as "calling orientation") assesses the degree to which

people experience a calling orientation, defined as a view that work is inseparable from life, provides fulfillment, and is an end in itself. As this scale captures a relatively general calling orientation toward “work” or “job,” we expect a moderate positive correlation with our domain-specific calling scale; however, the two measures should remain differentiable. Second, we examined the relationship between our calling scale and Bunderson and Thompson’s (2009) measure of “neoclassical calling,” or the sense that people are performing the work they were destined to perform given their unique gifts and talents. The two scales contain a good amount of conceptual overlap, in terms of viewing the calling domain as a passion and fulfillment of a particular destiny. However, they differ in that the neoclassical calling measure does not represent calling as being meaningful, while our calling scale does. Thus, we expect the two scales to be positively correlated, yet differentiable. Finally, we tested the relationship between our calling scale and the measure of calling used by Duffy and Sedlacek (2007). This measure (which we will subsequently refer to as “self-defined 2-item calling”) is not based on a specific definition of calling, but rather uses the word “calling” to elicit participants’ own definitions; therefore, we expect that it will be positively related to, but separable from, our calling measure.

We included two additional constructs in our convergent validity analysis, work engagement and job involvement, because they are conceptually similar to calling. First, we assessed work engagement, defined as a “positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli, et al., 2006, p. 702). Being strongly engaged with one’s work means viewing work with energy and resilience in the face of obstacles, feeling a sense of pride and purpose in work, and being very focused and engrossed in work. While these sentiments are likely to be shared by those with a strong calling toward their work, work engagement does not capture the deep-seated passion or fulfillment of destiny that

typically characterize a strong calling (Bunderson & Thompson, 2009). Accordingly, work engagement and calling should be positively related, but distinct. Second, we examined the relationship between calling and job involvement, the belief that one's current job is central to life as a whole because it can fulfill one's current needs (Kanungo, 1982). Much like those with a strong calling, those who are heavily involved in their jobs are likely to view their jobs as meaningful and central to their identity (Brown, 1996). Thus, the two constructs are typically viewed as being positively related (Wrzesniewski, 2003). However, calling extends beyond the relative importance of one's job in life, including a sense of passion and deep satisfaction toward a domain, a broader set of possible areas than one's job, that is not captured in job involvement. As a result, meaning of work scholars view job involvement and calling as distinct constructs (Rosso et al., 2010; Wrzesniewski, 2003).

Our discriminant analyses first focused on the relationship between calling and Wrzesniewski et al.'s (1997) career orientation scale. In contrast to the calling orientation, the career orientation taps into the meaning people derive from obtaining power or prestige, from advancing through a job hierarchy, and from the challenge of the work (Wrzesniewski, et al., 1997). The calling and career orientations are defined as being orthogonal (Wrzesniewski, et al., 1997), yet we anticipate the consuming component of our definition of calling may relate to the drive to succeed that characterizes the career orientation. Thus we expect a low to moderate positive correlation between our calling scale and career orientation.

We examined the relationship between calling and motivation, both intrinsic and extrinsic. Individuals who are intrinsically motivated prefer work that affords them internal satisfactions, such as self-determination, competence, task involvement, curiosity, enjoyment, and interest. In contrast, individuals who are motivated by extrinsic factors are strongly affected

by competition, evaluation, recognition, money or other tangible incentives, and constraint by others. Individuals can be high or low in both categories (Amabile, et al., 1994). We expect calling to relate moderately to intrinsic motivation, due to both constructs' internal nature and, in particular, the similarity between the enjoyment aspect of intrinsic motivation and the passion aspect of calling (Wrzesniewski et al., 1997). We expect a low or null correlation between calling and extrinsic motivation due to the lack of conceptual overlap between their definitions.

Calling should be distinguishable from optimism, or holding positive expectations for one's future (Scheier, Carver, & Bridges, 1994). Researchers (e.g., Bellah, et al., 1985; Bunderson & Thompson, 2009; Hall & Chandler, 2005; Weiss, et al., 2003; Wrzesniewski, et al., 1997) and practitioners (e.g., Finney & Dasch, 1998; Leider & Shapiro, 2001) propose that "finding" one's calling is associated with approaching life with enthusiasm, satisfaction, positivity, and zest (Peterson, et al., 2009). As such, we expect individuals experiencing a strong calling to be more optimistic about their futures than those experiencing a weaker calling. However, although we expect a positive relationship between optimism and calling, optimism is not a substitute for calling.

Although calling's origin was religious, dating back several hundred years to the Protestant Reformation (Luther, 1883) and notably discussed in the sociological literature (M. Weber, 1930), calling is generally intended to be a secular construct in the organizational behavior and careers literatures (e.g., Bunderson & Thompson, 2009). In the present study, the "meaningful" aspect of our definition of calling is subjectively defined by the respondent, thus allowing for a religious connotation for individuals for whom this focus is relevant. Religiosity is not a necessary part of the construct's definition, however. Some scholars point to the religious or "sacred" nature of calling (Hunter, et al., 2010). Yet previous empirical work on calling has

not tested the relationship between calling and religiosity, defined as being part of any religious tradition rather than none. Since our calling scale was designed to be secular but to allow for religious connotations of meaningfulness, we expect the correlation between calling and religiosity to be low or null.

We do not expect variance in calling based on demographic characteristics. Although calling may decline within individuals over time (Dobrow, 2007), we expect calling to be unrelated to age as a between-individuals variable. We also expect calling to be unrelated to gender.

## **Method**

**Participants and Procedure.** Participants were the same ones introduced in Phase 2 as Samples 1 through 4. Table 1 displays an overview of measures used in each sample.

**Measures.** All items were measured on a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*), except where noted.

*Calling.* We measured calling with our 12-item scale, developed in Phase 1 (see Appendix), as well as three existing measures—calling orientation, neoclassical calling, and self-reported 2-item calling—which are described below.

*Calling orientation.* We used five of Wrzesniewski et al.'s (1997) high-loading calling orientation items. Participants rated items such as “I enjoy talking about my work to others” and “My work is one of the most important things in my life” (Cronbach’s alpha = .79 to .87 across data collections). Wrzesniewski et al. (1997) worded these calling orientation items in terms of “work” and “job,” and thus they tap into a general calling orientation.

We also created a version of Wrzesniewski et al.'s (1997) calling scale that we reworded to be oriented toward the domain in question, so as to better reflect our scale and definition of



calling. For example, “I enjoy talking about my work to others” became “I enjoy talking about music/art/business to others” (Cronbach’s alpha = .68 to .80 across data collections in Samples 1, 2, and 3).

*Neoclassical calling.* We used Bunderson and Thompson’s (2009) 6-item scale to assess neoclassical calling. Participants rated items such as “It sometimes feels like I was destined to do the work I do” and “My passion for the work I do goes back to my childhood” (Cronbach’s alpha = .92 in Sample 4).

*Self-defined 2-item calling.* We included the two items used by Duffy and Sedlacek (2007)—originally presented by Steger and Dik (2006)—that allow participants to use their own definition of calling: “I have a calling to a particular kind of work” and “I have a good understanding of my calling as it applies to my career” (Cronbach’s alpha = .90 in Sample 4).

*Work engagement.* We measured work engagement with the 9-item scale version of the Utrecht Work Engagement Scale (UWES-9) (Schaufeli, et al., 2006). Participants rated items such as “At my work, I feel bursting with energy” and “I feel happy when I am working intensely” (Cronbach’s alpha = .94 in Sample 4).

*Job involvement.* We used the 10-item scale developed by Kanungo (1982) to measure job involvement.<sup>2</sup> Sample items include, “The most important things that happen to me involve my present job” and “To me, my job is only a small part of who I am (*reverse-scored*)” (Cronbach’s alpha = .88 in Sample 4).

*Career orientation.* We used two of Wrzesniewski et al.’s (1997) high-loading career orientation items: “I expect to be in a higher level job in five years” and “I view my job as a stepping stone to other jobs” (Cronbach’s alpha = .39 to .71 across data collections).

*Intrinsic motivation.* We used eight of Amabile et al.’s (1994) high-loading intrinsic

motivation items, five from the challenge subscale and three from the enjoyment subscale.

Participants used a 4-point Likert scale (1 = *never* and 4 = *always or almost always true of me*) to rate such items as “It is important for me to have an outlet for self-expression” (enjoyment subscale) and “I enjoy tackling problems that are completely new to me” (challenge subscale) (Cronbach’s alpha for the intrinsic scale = .72 to .75 across data collections).

*Extrinsic motivation.* We used four of Amabile et al.’s (1994) high-loading extrinsic motivation items, two from the outward subscale and two from the compensation subscale. Participants used a 4-point Likert scale (1 = *never* and 4 = *always or almost always true of me*) to rate such items as “I am strongly motivated by the recognition I can earn from other people” (outward subscale) and “I am strongly motivated by the grades I can earn” (compensation subscale) (Cronbach’s alpha for the extrinsic scale = .66 to .69 across data collections).

*Optimism.* We used Scheier et al.’s (1994) 6-item measure of dispositional optimism. Sample items include, “In uncertain times, I usually expect the best” and “I’m always optimistic about my future” (Cronbach’s alpha = .83).

*Religiosity.* We used a measure of participants’ subjective assessment of the importance of religion in their lives (Koenig, McCullough, & Larson, 2001; Schieman, Nguyen, & Elliott, 2003; Schwartz & Huisman, 1995). Participants indicated the relative importance to them of seven aspects of life: music/art/business, school, extracurricular activities, leisure, work, religion, and family. In Samples 1 and 2, participants allocated 100 points among these seven aspects. The number of points allocated to religion constituted the measure of religiosity, such that a higher number indicates a higher degree of religiosity. In Sample 3, participants ranked the seven parts of life (7 = *most important*, 1 = *least important*). The rank assigned to religion constituted the measure of religiosity, such that a higher number again indicates a higher degree of religiosity. In

Sample 4, participants used a 7-point Likert scale (1 = *not at all religious*, 4 = *somewhat religious*, 7 = *very religious*) to rate a single item, “How religious, if at all, do you consider yourself to be?” (Schwartz & Huismans, 1995).

*Age.* We used participants’ year of birth as the measure of age.

*Gender.* Gender was coded as 1 = female and 0 = male.

**Analytic Strategy.** Although we expected our measure of calling to correlate with the variables we chose for our convergent and discriminant validity analyses, we wanted to establish that our measure was truly distinguishable from these other constructs. Therefore, following Ferris et al. (2008), we built our case for convergent and discriminant validity in the following ways. First, we examined the zero-order correlations between calling measured at Time 1 and the other constructs measured at Times 2 through 4, where applicable, as indicated in Table 1. This temporal separation serves to reduce common method biases that could arise from comparing measures drawn from the same survey (e.g., within Time 1 only) (Podsakoff, et al., 2003). Next, we tested any significant correlations via confirmatory factor analysis (CFA) to ensure the constructs were not convergent to the point of redundancy. The purpose of this test is to establish that a single-factor model in which the covariance between the latent factors for calling and the other construct is set to 1.0 does not provide a better fit to the data than a model in which the covariance is estimated. If the single-factor model fits the data better, as determined by a significant decrease in the chi-square statistic, then we have evidence that the two constructs are redundant (Anderson & Gerbing, 1988). Finally, we used the CFA results to perform an additional test for the redundancy of two constructs (Fornell & Larcker, 1981). This test involves calculating the average squared factor loading of each item on its respective latent construct and

comparing this statistic to the shared variance between the two constructs. If the average squared factor loadings are higher than the shared variance, then the two constructs are separable.

## Results

Tables 2, 3, 4, and 5 present the correlations between calling and the other variables in Samples 1, 2, 3, and 4, respectively. Our calling measure was significantly related to calling orientation<sup>3</sup> ( $r_s = .19, .27, \text{ and } .61$  in Samples 1, 3, and 4,  $p_s < .01, .001$  and  $.001$ , respectively), neoclassical calling ( $r = .59, p < .001$  in Sample 4), self-defined 2-item calling ( $r = .48, p < .001$  in Sample 4), work engagement ( $r = .58, p < .001$  in Sample 4), job involvement<sup>4</sup> ( $r = .68, p < .001$  in Sample 4), and career orientation ( $r_s = .22, .31, .28, \text{ and } .43$  in Samples 1 through 4,  $p_s < .001, .10, .001, \text{ and } .001$ , respectively). The results for intrinsic and extrinsic motivation differed by sample. Calling was significantly related to intrinsic motivation for musicians, artists, and managers ( $r_s = .28, .45 \text{ and } .39$  in Samples 1, 2 and 4,  $p_s < .001, .01, \text{ and } .001$ , respectively), but the correlation was not significant for those in business ( $r = .06, ns$  in Sample 3). Conversely, calling and extrinsic motivation were not related for the musician and artist samples ( $r_s = .09$  and  $.23$  in Samples 1 and 2, respectively, all  $p_s ns$ ), but were significantly related for the business and manager samples ( $r_s = .21$  and  $.51, p < .05$  and  $.001$ , respectively). Calling was unrelated to optimism ( $r = .02$  and  $.11$  in Samples 1 and 4, all  $p_s ns$ ), religiosity ( $r_s = .03, .10, \text{ and } -.05$  in Samples 1 through 3, all  $p_s ns$ ), gender ( $r_s = .03, -.15, -.08, \text{ and } -.11$  in Samples 1 through 4, all  $p_s ns$ ), and age ( $r_s = .07$  and  $.02$  in Samples 1 and 3, all  $p_s ns$ ). Calling and religiosity were positively and significantly related in Sample 4 ( $r = .24, p < .001$ ). Age was significantly, positively related to calling for Sample 2 ( $r = .31, p < .01$ ), and was negatively related to calling for Sample 4 ( $r = -.29, p < .001$ ). We present a summary of these convergent and discriminant validity results in Table 6.

We next tested the significant correlations described above—between our calling measure and eight other constructs, calling orientation, career orientation, intrinsic motivation (for Samples 1 and 4), extrinsic motivation (for Samples 3 and 4), and neoclassical calling, self-defined 2-item calling, work engagement, and job involvement (for Sample 4)—via confirmatory factor analysis to ensure the constructs are distinguishable. We excluded Sample 2 from this analysis because its sample size was too small to provide accurate estimates in CFA. For Sample 1, a two-factor model provided a better fit than a single-factor model for the pairing of calling with each of the other constructs: calling orientation,  $\Delta X^2(1, n = 164) = 382.67$ ; career orientation,  $\Delta X^2(1, n = 209) = 11.28$ ; and intrinsic motivation,  $\Delta X^2(1, n = 208) = 219.98$ , all  $ps < .001$ . The results were similar for Sample 3, where a two-factor model fit significantly better than a single-factor model for the pairing of calling with each of the other constructs: calling orientation,  $\Delta X^2(1, n = 153) = 171.60$ ; career orientation,  $\Delta X^2(1, n = 524) = 26.25$ ; and extrinsic motivation,  $\Delta X^2(1, n = 140) = 62.62$ , all  $ps < .001$ . Sample 4 further confirmed the discriminability of calling from existing measures and related constructs. A two-factor model significantly improved the fit of a single-factor model pairing calling with each of the following: calling orientation,  $\Delta X^2(1, n = 226) = 175.65$ ; neoclassical calling,  $\Delta X^2(1, n = 225) = 782.83$ ; self-defined 2-item calling,  $\Delta X^2(1, n = 229) = 184.71$ ; work engagement,  $\Delta X^2(1, n = 222) = 785.19$ ; job involvement,  $\Delta X^2(1, n = 222) = 501.30$ ; career orientation,  $\Delta X^2(1, n = 227) = 113.31$ ; intrinsic motivation,  $\Delta X^2(1, n = 221) = 429.08$ ; and extrinsic motivation,  $\Delta X^2(1, n = 227) = 648.68$ . Thus these analyses highlight that our calling measure is a construct distinct from calling orientation, neoclassical calling, self-defined 2-item calling, work engagement, job involvement, career orientation, intrinsic motivation, and extrinsic motivation.

We then tested further for construct redundancy via the test Fornell and Larcker (1981) recommend. The results were consistent with those of the CFA. For the pairing of our calling measure with each of the eight other constructs, the average of the squared factor loadings for each item on its respective construct was higher than the shared variance between the constructs (for calling and calling orientation, .40 vs. .11 for Sample 1, .45 vs. .15 for Sample 3, and .55 vs. .41 for Sample 4; for calling and neoclassical calling, .62 vs. .34 for Sample 4; for calling and self-defined 2-item calling, .62 vs. .25 for Sample 4; for calling and work engagement, .61 vs. .40; for calling and job involvement, .56 vs. .47; for calling and career orientation, .34 vs. .06 for Sample 1, .40 vs. .22 for Sample 3, and .60 vs. .26 for Sample 4; for calling and intrinsic motivation, .32 vs. .16 for Sample 1 and .52 vs. .14 for Sample 4; and for calling and extrinsic motivation, .36 vs. .03 for Sample 3 and .58 vs. .33 for Sample 4). These results support those of the CFA indicating calling is not redundant with any of these eight constructs.

Taken together, the results of Phase 3 demonstrate our measure of calling is convergent with, yet separable from, calling orientation,<sup>5</sup> neoclassical calling, self-defined 2-item calling, work engagement, job involvement,<sup>6</sup> career orientation, intrinsic motivation, and extrinsic motivation. Our calling scale is discriminant from optimism, religiosity, gender, and age. These findings therefore provide evidence of convergent and discriminant validity for our calling scale.

#### **Phase 4: Criterion-Related Validity**

This phase tests the criterion-related validity of our calling scale by examining the relationship between calling and career constructs with which calling should be theoretically related. Thus, we begin to establish calling within its nomological network (Cronbach & Meehl, 1955; Hinkin, 1998). Using career development as our guiding theory, we focused on connecting calling to a range of behavioral, cognitive, and affective variables that are salient to careers.

Specifically, we establish predictive validity by assessing the calling scale's ability to predict five sets of variables it should theoretically be able to predict: satisfaction, career-related self-efficacy, clarity of professional identity, career insight, and professional pursuit of the calling domain (both intentions and behaviors).

In Sample 1, we leverage our longitudinal data to investigate predictive validity over the long term. We test calling at Time 1 ("initial calling") as a predictor of theoretically related constructs at Times 3 and 4 (3.5 and 7 years later, respectively). We use the short-term longitudinal data of Sample 2 and the cross-sectional data of Samples 3 and 4 to corroborate the pattern of results found in the long-term longitudinal analyses. We then demonstrate that our calling scale explains variance in outcomes above and beyond existing measures of calling and closely related constructs: calling orientation, neoclassical calling, self-defined 2-item calling, work engagement, and job involvement. We also assess concurrent validity by investigating the degree to which the calling scale distinguishes between groups it should theoretically be able to distinguish between: Samples 1 and 2 (musicians and artists) vs. Samples 3 and 4 (business students and professional managers).

### **Satisfaction**

Wrzesniewski et al.'s (1997) calling orientation is positively related to job and work satisfaction (Peterson, et al., 2009; Wrzesniewski, et al., 1997). Previous research has not explored the relationship between calling and satisfaction with a domain, however. Given that our definition of calling describes positive sentiments toward a domain, including experiencing passion toward it, we expect individuals experiencing a higher calling to also experience higher satisfaction. Further, people with strong callings are likely to craft their jobs to enable fulfillment

of the calling (Berg, et al., 2010), so these individuals may succeed in creating situations in which they experience greater satisfaction with the domain.

*Hypothesis 1:* Calling will be positively related to satisfaction, even several years later.

### **Career-Related Self-Efficacy**

Career-related self-efficacy, a context-specific form of self-efficacy (Bandura, 1977), is the degree to which individuals believe they are capable of successfully managing their careers (Day & Allen, 2004; Higgins, Dobrow, & Chandler, 2008; Kossek, Roberts, Fisher, & Demarr, 1998). Four types of information sources—performance attainment, vicarious experiencing, verbal persuasion, and physiological states and reactions—determine self-efficacy beliefs (Van Vianen, 1999). Of these four, performance attainment, defined as “personal performance accomplishments” (Van Vianen, 1999, p. 642), is most salient for the hypothesized relationship between career-related self-efficacy and calling. Calling is conceptually distinct from objective performance but conceptually similar to the subjective experience of success in the calling domain (Dobrow, 2004; Hall & Chandler, 2005; Heslin, 2005), so we expect individuals experiencing a stronger calling toward a domain to also experience a higher level of career-related self-efficacy regarding their ability to enact a career in this domain.

*Hypothesis 2:* Calling will be positively related to career-related self-efficacy, even several years later.

### **Clarity of Professional Identity**

Our definition of calling includes experiencing one’s involvement in a domain as consuming. Further, the calling domain is likely to be central to an individual’s identity. Individuals with a strong calling therefore likely have a strong understanding of how their



involvement in the calling domain relates to their overall sense of who they are; that is, they have identity clarity. Similarly, calling is positively correlated with clarity of understanding one's interests (Duffy & Sedlacek, 2007). Thus we expect people with a stronger calling to not only identify more strongly with their professional role but to also experience a greater sense of clarity about their professional identity, defined as “the relatively stable and enduring constellation of attributes, beliefs, values, motives, and experiences in terms of which people define themselves in a professional role” (Ibarra, 1999, pp. 764-765; Schein, 1978).

*Hypothesis 3:* Calling will be positively related to clarity of professional identity, even several years later.

### **Career Insight**

Career insight is “the extent to which the person has realistic perceptions of him or herself and the organization and relates these perceptions to career goals” (London, 1983, p. 621). This insight is an antecedent of the learning and development necessary for various positive outcomes, such as organizational effectiveness and employee success (Maurer, Weiss, & Barbeite, 2003). Although being employed in the domain of one's calling is not a necessary precondition for experiencing a strong calling, previous research assumes people typically try to work in the domain of their calling, in part because they feel a sense of urgency or destiny about doing this work (Bunderson & Thompson, 2009; Dik & Duffy, 2009). We believe that in order to most effectively fulfill their callings, therefore, individuals with stronger callings will have a clearer sense of themselves and their career goals; that is, they will have greater career insight.

*Hypothesis 4:* Calling will be positively related to career insight, even several years later.

### **Professional Pursuit of the Calling Domain**

All previous empirical work on calling was cross-sectional (Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski, et al., 1997) and so could not explore the connection between calling and vocational choice. As a result, we do not know whether calling leads to vocational choice, such that people experience a calling they strive to fulfill in their work, or whether vocational choice leads to calling, such that people engage in retrospective rationalization (London, 1983) or cognitive dissonance reduction (Vroom, 1966) to explain their vocational choices. We take an initial step toward addressing this gap by testing the assumption that the stronger one's calling, the more likely one is to try to fulfill it in a professional context. In the context of pre-career individuals, such as students, we expect calling to be linked with two indicators of professional pursuit of the calling domain: attending a college program in the calling domain and intending to pursue the calling domain professionally. For people who have established their career paths, we expect calling to be related to involvement with professional associations in the domain of their calling, in this case, management. Among the services that most professional associations provide their members are continuing education, recruiting and job placement, community outreach, recognition and awards, and social networking (Gruen, Summers, & Acito, 2000). Thus involvement in such an organization allows deeper connection to the professional field (J. Weber, 1995).

*Hypothesis 5:* Calling will be positively related to attending a college program in the calling domain several years later.

*Hypothesis 6:* Calling will be positively related to intending to pursue the calling domain professionally, even several years later.

*Hypothesis 7:* Calling will be positively related to involvement with professional associations in the calling domain.

## Domain Differences

Wrzesniewski et al. (1997) found that all three work orientations—job, career, and calling—existed within a single profession, university administrators, but they also concluded “there are no doubt relations between occupation and distribution of people across the Job–Career–Calling dimension” (p. 31). Research has not yet explored differences in calling across domains. We test the popular assumption that people in certain domains—for example, those perceived as being more prosocial, lower-paying, creative, or arts-oriented—experience a stronger calling on average than people in other domains. In the present study, we expect the musicians and artists from Samples 1 and 2, respectively, to experience stronger callings toward their domains than the business students and professional managers from Samples 3 and 4.

*Hypothesis 8:* Calling will be higher in the music and art domains than in the business and management domains.

## Method

**Participants and Procedure.** Participants were the same ones introduced in Phase 2 as Samples 1 through 4. Table 1 displays a complete overview of measures used in each sample.

### Measures.

*Satisfaction.* We measured satisfaction with a single, domain-specific item: “Generally speaking, I am very satisfied with being a musician/being an artist/being in business/being a manager.” Participants used a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*) to rate this item. Satisfaction can be reliably measured with a single item (Wanous, Reichers, & Hudy, 1997).

*Career-Related Self-Efficacy.* We measured career-related self-efficacy with Higgins et al.’s (2008) 5-item scale. Participants responded to such items as “When I make career decisions,

I am confident that they are good ones” and “I am confident in my ability to grow and improve professionally” using a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*) (Cronbach’s alpha = .83 to .92 across data collections).

*Clarity of Professional Identity.* We measured clarity of professional identity with Dobrow and Higgins’ (2005) 4-item scale. Participants responded to such items as “I have developed a clear career and professional identity” and “I am still searching for my career and professional identity” (reverse coded) using a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*) (Cronbach’s alpha = .69 to .89 across data collections).

*Career Insight.* We measured career insight with three items adapted from Day and Allen (2004). Participants responded to “I have a strategy for achieving my career goals,” “I know what I need to do to reach my career goals,” and “I have a plan for my career” using a 7-point Likert scale (1 = *strongly disagree* and 7 = *strongly agree*) (Cronbach’s alpha = .81 to .92 across data collections).

*Professional Pursuit of the Calling Domain.* In Sample 1, we examined participants’ desire to pursue their calling domain professionally, in this case, music. We measured participants’ college programs by coding information they provided on the Times 3 and 4 surveys about the name of their schools, their primary affiliation within the schools (if applicable), and majors. We coded all music-oriented programs, such as conservatories, music majors, or joint majors between music and another subject as 1, whereas we coded all non-music-oriented programs as 0. We measured intention to pursue a career in music with the following item: “Do you intend to be a professional musician?” Participants responded 2 = Yes, 1 = Maybe, or 0 = No. In Sample 4, we examined participants’ involvement with professional associations in the calling domain, management. We gauged professional association

involvement via three items developed for this study. Participants responded 1 = Yes, 0 = No to the questions “Are you currently a member of a professional association targeted toward managers?” and “Have you attended a meeting or event hosted by this professional association in the last 12 months?” Participants also indicated the number of professional associations in the field of management in which they have active memberships. We analyzed these three items individually and as an aggregate scale measure (Cronbach’s alpha = .79).

## Results

Tables 2, 3, 4, and 5 present the correlations between calling and the criterion-related validity variables in Samples 1, 2, 3, and 4, respectively. In Hypothesis 1, we predicted calling would be positively related to satisfaction with the calling domain, even over the long term. As predicted, in Sample 1, initial calling was positively related to satisfaction with the calling domain, music, 3.5 years later ( $r = .23, p < .001$ ) and 7 years later ( $r = .18, p < .05$ ). We found a similar pattern of positive relationships between initial calling and satisfaction with art 6 weeks later in Sample 2 ( $r = .46, p < .01$ ), and between calling and satisfaction with business and management in Samples 3 and 4 ( $r_s = .54$  and  $.49, p_s < .001$ ). We also expected initial calling to positively relate to career-related self-efficacy, clarity of professional identity, and career insight over the long term in Sample 1 (Hypotheses 2, 3, and 4, respectively). Consistent with our expectations, initial calling was positively related to career-related self-efficacy 3.5 years later ( $r = .20, p < .01$ ) and 7 years later ( $r = .21, p < .01$ ), clarity of professional identity 3.5 years later ( $r = .21, p < .01$ ) and 7 years later ( $r = .18, p < .01$ ), and career insight 3.5 years later ( $r = .25, p < .001$ ) and 7 years later ( $r = .21, p < .01$ ). Samples 3 and 4 largely replicated these results, such that calling was positively related to career-related self-efficacy ( $r_s = .29$  and  $.30, p_s < .001$ ),

clarity of professional identity (Sample 3  $r = .34, p < .001$ ), and career insight ( $r = .48$  and  $.47, ps < .001$ ). Calling was not related to clarity of professional identity in Sample 4 ( $r = -.10, ns$ ).

Finally, we expected those with strong initial callings to be more likely to attend a college program in the calling domain several years later (Hypothesis 5), to intend to pursue professional careers in the calling domain several years later (Hypothesis 6), and to be involved with professional associations in the calling domain (Hypothesis 7). As expected, in Sample 1, calling positively related to choosing a music-oriented college program ( $r = .28, p < .001$ ), as well as to intentions to pursue a career in professional music 3.5 years later ( $r = .27, p < .001$ ) and 7 years later ( $r = .26, p < .001$ ). In Sample 2, calling positively related to intentions to pursue a career as a professional artist as measured 6 weeks later ( $r = .49, p < .01$ ). In Sample 4, calling positively related to being a member of a professional association targeted toward managers ( $r = .35, p < .001$ ), having attended a meeting of this association within the last 12 months ( $r = .20, p < .001$ ), the number of management-oriented professional associations in which participants reported maintaining active membership ( $r = .19, p < .001$ ), and the aggregate scale measure for these three items ( $r = .35, p < .001$ ). In sum, Hypotheses 5, 6, and 7 were fully supported.

Since we measured other existing measures of calling and closely related constructs, we tested whether the relationships reported above remained significant above and beyond the effect of these variables. We measured calling orientation in Samples 1, 3 and 4, and neoclassical calling, self-defined 2-item calling, work engagement, and job involvement in Sample 4. We conducted hierarchical multiple regression analyses, where we regressed each of the criterion-related validity variables on one of these related variables as a first step, and we added our measure of calling as a second step.<sup>7</sup> We present the standardized  $\beta$  coefficients for calling, the R-squared for the full model, and the change in R-squared as a result of adding calling to the

model in Table 7. Almost all previously reported relationships remained significant when controlling for the variables related to calling. Specifically, in all models testing the significant correlations reported earlier, the  $\beta$  coefficients for calling and the increase in the model R-squared due to the inclusion of calling into the model were significant. Thus our measure of calling explained variance in the variables examined for criterion-related validity over and above the influence of Wrzesniewski et al.'s (1997) calling orientation scale, Bunderson and Thompson's (2009) neoclassical calling scale, Duffy and Sedlacek's (2007) self-defined 2-item calling scale, Schaufeli and colleagues' (2006) work engagement scale, and Kanungo's (1982) job involvement scale. We summarize the results of the tests for Hypotheses 1 through 7 for all samples in Table 8.

Finally, we examined differences in calling across the four domains we sampled. Specifically, we predicted Samples 1 and 2 would report a stronger calling toward music and art, respectively, than Samples 3 and 4 would report toward business and management, respectively (Hypothesis 8). As predicted, Samples 1 and 2 did not differ from each other in their average levels of calling ( $M = 5.84$  and  $5.70$ ,  $SD = .83$  and  $.89$  in Samples 1 and 2, respectively,  $t = .52$ ,  $ns$ ), but the average levels of calling for Samples 3 and 4 were significantly lower than in Samples 1 and 2 (Sample 3:  $M = 4.20$ ,  $SD = .99$ ,  $t = 20.95$  and  $11.41$  with Samples 1 and 2, respectively, all  $ps < .001$ ; Sample 4:  $M = 4.40$ ,  $SD = 1.28$ ,  $t = 13.43$  and  $7.51$  with Samples 1 and 2, respectively, all  $ps < .001$ ).<sup>8</sup> Interestingly, the mean level of calling was significantly higher for the professional managers in Sample 4 than for the business students in Sample 3 ( $t = 2.86$ ,  $p < .01$ ). In sum, these analyses show that our calling measure was related to other established constructs to which it should theoretically relate and successfully differentiated

between theoretically distinct domain groups. The results of Phase 4 thus supported the criterion-related validity of the calling scale.

### **Discussion**

Despite the increasing amount of research on calling in the organizational behavior and career literatures, the measurement of calling has received little attention. Our purpose in the present study was to articulate a clear definition of calling and to create a reliable and valid scale to measure this definition. This scale can assist researchers in this burgeoning field of study as well as career counselors and people making career decisions. Utilizing multi-wave longitudinal, two-wave longitudinal, and cross-sectional data, our study included 2,278 observations from 1,500 participants in four separate domains: music, art, business, and management.

We established the strength of our scale in several ways. We initially developed the 12 items included in the final calling scale through a rigorous process that included field interviews, literature reviews of calling and calling-related constructs, psychometric analyses, and expert ratings. The analyses we presented here demonstrated the scale was psychometrically valid, with a unidimensional factor structure and strong internal consistency. We demonstrated convergent and discriminant validity between the calling scale and calling orientation, neoclassical calling, self-reported 2-item calling, work engagement, job involvement, career orientation, intrinsic motivation, extrinsic motivation, optimism, religiosity, age, and gender. We presented evidence that the calling scale is temporally stable, though substantive change in calling can occur over time. Further, we established the criterion-related validity of the calling scale in relation to several career-related variables, demonstrated that these relationships hold even when controlling for the effects of other existing measures of calling and closely related constructs, and examined how calling differs across domains.



This study extends previous cross-sectional research on calling to provide the first empirical evidence for the robustness of a calling scale over time. True longitudinal designs (i.e., those with three or more data collections) are rare in organizational behavior and career research, including construct validity research (Bennett & Robinson, 2000; Eby, Durley, Evans, & Ragins, 2008; Ferris, et al., 2008). Looking within Sample 1's 4 waves of data, the high test-retest reliability ( $r = .83$ ) between Times 1 and 2, which occurred 6 weeks apart, highlights the stability of the measure. Within this timeframe, calling appears to be trait-like. The longer time horizon between Time 1 and Times 3 and 4, 3.5 and 7 years apart, respectively, and the lower correlations of .41 and .38, respectively, suggests meaningful change in calling occurs over time, as opposed to change that might reflect an unreliable measure. Calling was negatively related to age for the professional managers in Sample 4 ( $r = -.29, p < .001$ ), consistent with findings that calling can decline over time (Dobrow, 2007). These results underscore the importance of conducting multi-wave longitudinal research to investigate construct validity: had we used only the first two timepoints of data, we would have erroneously concluded calling is trait-like. Instead, our 4 waves of longitudinal data in Sample 1 show that change in calling occurs and should therefore be viewed as a state-like construct (Dobrow, 2007). Future research should examine substantive questions about how and why this change in calling occurs. The criterion-related validity analyses further underscore the benefits of longitudinal analyses by demonstrating initial calling was related to several career constructs 3.5 years later. When we extended this timeframe to 7 years, the same overall pattern of results persisted. Thus our analyses provide evidence supporting the use of the calling scale in long-term career research.

This study also extends previous cross-sectional research on calling by providing the first empirical evidence for the relationship between calling and career outcomes over time. Calling

explained variance in theoretically related variables over the span of both 3.5 and 7 years. Further, the relationships establishing criterion-related validity held for both students embarking on careers within the calling domain as well as mid-career professionals. In addition to being related to other attitudinal variables, such as satisfaction with the calling domain, career-related self-efficacy, clarity of professional identity, and career insight, calling was also related to behavioral indicators, such as attending a college program oriented toward the calling domain, intending to pursue a professional career in the calling domain, and professional association membership and meeting attendance. Moreover, calling explained variance in these theoretically relevant variables above and beyond existing measures of calling and closely related constructs. In particular, when we recalculated the correlations to partial out the correlation between calling orientation, neoclassical calling, self-defined 2-item calling, work engagement, and job involvement and the criterion-related validity variables, the correlations between calling and behavioral indicators did not diminish. Thus, in regards to vocational choice, calling is a solid predictor of outcomes several years hence, and alternative measures and constructs do not reduce its predictive power.

Our study further extends previous research on calling by empirically demonstrating the generalizability of calling across domains and career stages. The criterion-related validity results—that musicians and artists experience a stronger calling toward their respective domains than do business students and professional managers toward theirs—indicate the calling scale successfully distinguishes theoretically different groups from one another. Our analyses also show that discriminant, convergent, and criterion-related validity results could be replicated across these groups; hence the measure is generalizable across domains. One exception to this consistency is that intrinsic motivation was positively related to calling in Samples 1, 2 and 4,

but not in Sample 3, whereas extrinsic motivation was positively related to calling in Samples 3 and 4 but not in Samples 1 and 2. As these results varied by domain, we recommend future research explore the relationship of calling with motivation in a broader array of contexts. Moreover, future studies should aim to understand the nuances of how and why calling varies by occupational group, such as by exploring how the characteristics of work itself or characteristics of the labor market may relate to calling.

Our study also extends previous research on calling by providing the first empirical test of the relationship between calling and religiosity. Counter to the expectations of previous research on calling (e.g., Hunter, et al., 2010; Weiss, et al., 2003), we found no significant relationship between calling and religiosity in three of our four samples. These findings provide initial support for the assertion in the organizational behavior and career literature that calling is a secular construct. As the non-significant results in Samples 1, 2, and 3 used a different measure of religiosity (a measure of the importance of religion in one's life) than the significant result in Sample 4 (a single-item measure of how religious one views oneself as being), we recommend future research examine the relationship between calling and other indicators of religiosity as well as measures of spirituality.

### **Practical Implications**

The calling scale can be a useful diagnostic tool in a variety of contexts. Our criterion-related validity results linking calling to several career-related outcomes suggest that people in career decision-making contexts, such as career counselors or individuals facing a career decision, can leverage this validated scale of calling. The self-assessment data provided by this scale can provide useful insights into career decision-making, encourage broader conceptions of career success beyond objective indicators like salary, and enable thinking about how work and

non-work activities fit together in life (Higgins & Dobrow, 2004). Similarly, management and psychology educators and their students can benefit from administering this scale in class to facilitate a discussion about what it means to experience a calling. From an organizational perspective, the scale could be helpful as part of human relations efforts to help employees understand more about their motivations for working, for example, as an exercise used during internal career development programs or new employee orientations. Administering the calling scale can also help managers develop their understanding of how their employees derive meaning from their work so they can adapt their management style and incentives accordingly. On the “dark side,” this approach includes some risk, as individuals with strong callings may be susceptible to exploitation by management (Bunderson & Thompson, 2009).

### **Limitations and Future Directions**

Our study has several limitations. All of our analyses rely on the same methodology: self-report surveys. This methodology is appropriate for assessing a psychological orientation like calling. However, future studies should consider using alternative sources of data, such as informant reports from friends, colleagues, or supervisors. Further, our surveys did not include measures of positive or negative affect or impression management, and thus we cannot account for these possible method effects (Watson, Clark, & Tellegen, 1988).

Our analyses utilized multi-wave longitudinal data, including testing calling at Time 1 as a predictor of dependent variables at subsequent time periods in Sample 1. Yet we cannot assert causality. Calling and these dependent variables may be reciprocally related, rather than one causing the other. In addition, we cannot claim to have controlled in our analyses for all variables that might be a common cause of both calling and the other variables, thus producing a spurious relationship. To establish criterion-related validity, demonstrating relationships between calling

and these variables is necessary, but demonstrating the causal direction of these relationships is not (Ferris, et al., 2008). We suggest future research utilize study designs that can address questions of causality. Further, we only examined career-related criterion-related validity variables that we expected to be positively related to calling, but future research should extend to consider non-career outcomes, such as life satisfaction and well-being. Future research should also further explore the “double-edged sword” nature of calling by examining negative outcomes of calling in addition to the positive outcomes scholars typically consider (Bunderson & Thompson, 2009).

### **Conclusion**

Our study describes the development of a definition of calling and a new, robust multi-item scale measure of calling. This scale makes significant contributions to both research and practice: it assesses people’s ability to experience their work or other activities in a domain as meaningful, thus providing a window into our primary drive in life: the quest for meaning (Frankl, 1959). The domain-oriented nature of our definition and scale suggests they can be generalized effectively into diverse settings. We hope the development of a reliable, valid measure of calling will encourage investigations into calling and its connection to career outcomes and other organizational behavior constructs across a wide variety of contexts.

### References

- Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The work preference inventory: Assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology, 66*(5), 950-967.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411-423.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.
- Bellah, R. N., Madsen, R., Sullivan, W. M., Swidler, A., & Tipton, S. M. (1985). *Habits of the Heart*. New York: Harper & Row.
- Bellah, R. N., Madsen, R., Sullivan, W. M., Swidler, A., & Tipton, S. M. (1996). *Habits of the Heart: Individualism and Commitment in American Life*. Berkeley: University of California Press.
- Bennett, R. J., & Robinson, S. L. (2000). Development of a measure of workplace deviance. *Journal of Applied Psychology, 85*(3), 349-360.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238-246.
- Bentler, P. M. (1995). *EQS Structural Equations Program Manual*. Encino, CA: Multivariate Software, Inc.
- Berg, J. M., Grant, A. M., & Johnson, V. (2010). When callings are calling: Crafting work and leisure in pursuit of unanswered occupational callings. *Organization Science, 21*(5), 973-994. doi: 10.1287/orsc.1090.0497

- Brown, S. P. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological Bulletin*, *120*(2), 235-255.
- 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
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, *56*, 81-105.
- Cronbach, L. J., & Meehl, P. C. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*, 281-302.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper.
- Day, R., & Allen, T. D. (2004). The relationship between career motivation and self-efficacy with protege career success. *Journal of Vocational Behavior*, *64*, 72-91.
- Deci, E. L., & Ryan, R. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum Press.
- DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, CA: Sage.
- 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.
- Dobrow, S. R. (2004). *Extreme subjective career success: A new integrated view of having a calling*. Best Papers Proceedings of the Academy of Management Conference, New Orleans, LA.
- Dobrow, S. R. (2006). *Having a calling: A longitudinal study of young musicians*. Ph.D. dissertation, Harvard University, Cambridge, MA.

- Dobrow, S. R. (2007). *The development of calling: A longitudinal study of musicians*. Best Paper Proceedings of the Academy of Management Conference, Philadelphia.
- Dobrow, S. R., & Higgins, M. C. (2005). Developmental networks and professional identity: A longitudinal study. *Career Development International*, *10*(6/7), 567-583. doi: 10.1108/13620430510620629
- Dreher, D. (2008). *Your Personal Renaissance: Twelve Steps to Finding Your Life's True Calling*. Cambridge, MA: Da Capo Press.
- Duffy, R. D., & Sedlacek, W. E. (2007). The presence of and search for a calling: Connections to career development. *Journal of Vocational Behavior*, *70*, 590-601. doi: 10.1016/j.jvb.2007.03.007
- Eby, L. T., Durley, J. R., Evans, S. C., & Ragins, B. R. (2008). Mentors' perceptions of negative mentoring experiences: Scale development and nomological validation. *Journal of Applied Psychology*, *93*(2), 358-373.
- Eisenhardt, K. M. (1989). Building theories from case study research. [Article]. *Academy of Management Review*, *14*, 532-550.
- Ferguson, E., & Cox, T. (1993). Exploratory factor analysis: A users' guide. *International Journal of Selection and Assessment*, *1*(2), 84-94.
- Ferris, D. L., Brown, D. J., Berry, J. W., & Lian, H. (2008). The development and validation of the workplace ostracism scale. *Journal of Applied Psychology*, *93*(6), 1348-1366.
- Finney, M. I., & Dasch, D. (1998). *Find Your Calling, Love Your Life: Paths to Your Truest Self in Life and Work*. New York, NY: Simon and Schuster.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.



- Frankl, V. (1959). *Man's Search for Meaning*. Boston, MA: Beacon Press.
- Garson, G. D. (2011). Reliability Analysis. *Statnotes: Topics in Multivariate Analysis* Retrieved February 23, 2011, from <http://faculty.chass.ncsu.edu/garson/pa765/statnote.htm>
- Grant, A. M., & Wade-Benzoni, K. A. (2009). The hot and cool of death awareness at work: Mortality cues, aging, and self-protective and pro-social motivations. *Academy of Management Review*, *34*(4), 800-822.
- Gruen, T. W., Summers, J. O., & Acito, F. (2000). Relationship marketing activities, commitment, and membership behaviors in professional associations. *Journal of Marketing*, *64*(34-39).
- Hall, D. T. (2002). *Careers In and Out of Organizations*. Thousand Oaks, CA: Sage Publications.
- Hall, D. T., & Chandler, D. E. (2005). Psychological success: When the career is a calling. *Journal of Organizational Behavior*, *26*(2), 155-176.
- Heslin, P. A. (2005). Conceptualizing and evaluating career success. *Journal of Organizational Behavior*, *26*(2), 113-136.
- Higgins, M. C., & Dobrow, S. R. (2004). Career Orientation Instrument (9-405-058) *Harvard Business School Course Exercise*. Boston, MA: Harvard Business School.
- Higgins, M. C., Dobrow, S. R., & Chandler, D. E. (2008). Never quite good enough: The paradox of sticky developmental relationships for elite university graduates. *Journal of Vocational Behavior*, *72*(2), 207-224. doi: 10.1016/j.jvb.2007.11.011
- Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*, 104-121.

- Hunter, I., Dik, B. J., & Banning, J. H. (2010). College students' perceptions of calling in work and life: A qualitative analysis. *Journal of Vocational Behavior, 76*, 178-186.
- Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly, 44*, 764-791.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*, 692-724.
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology, 67*(3), 341-349.
- Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of Religion and Health*. New York: Oxford University Press.
- Kossek, E. E., Roberts, K., Fisher, S., & Demarr, B. (1998). Career self-management: A quasi-experimental assessment of the effects of a training intervention. *Personnel Psychology, 51*(4), 935-962.
- Kreiner, G. E., Hollensbe, E. C., & Sheep, M. L. (2006). Where is the "me" among the "we"? Identity work and the search for optimal balance. *Academy of Management Journal, 49*(5), 1031-1057.
- Leider, R. J., & Shapiro, D. (2001). *Whistle While You Work: Heeding Your Life's Calling*. San Francisco: Berrett-Koehler.
- Levoy, G. (1997). *Callings: Finding and Following an Authentic Life*. New York, NY: Three Rivers Press.
- London, M. (1983). Toward a theory of career motivation. *Academy of Management Review, 8*(4), 620-630.
- Luther, M. (1883). *Werke Kritische Gesamtausgabe* (Vol. 63 vols.). Weimar: Hermann Bohlaus.

- Maurer, T. J., Weiss, E. M., & Barbeite, F. G. (2003). A model of involvement in work-related learning and development activity: The effects of individual, situational, motivational, and age variables. *Journal of Applied Psychology, 88*(4), 707-724.
- May, D. R., Gilson, R. L., & Harter, L. (1999). *Engaging the human spirit at work: exploring the psychological conditions of meaningfulness, safety, and availability*. Academy of Management, Chicago, IL.
- Nissen, B. (2001). The Players Retrieved 3/8/01, from <http://www.cnn.com/2001/CAREER/trends/03/08/nyphil.bass/index.html>
- Novak, M. (1996). *Business as a Calling: Work and the Examined Life*. New York: The Free Press.
- Peterson, C., Park, N., Hall, N., & Seligman, M. (2009). Zest and work. *Journal of Organizational Behavior, 30*, 161-172. doi: 10.1002/job.584
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903.
- Pratt, M. G., & Ashforth, B. E. (2003). Fostering meaningfulness in working and at work. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive Organizational Scholarship: Foundations of a New Discipline*. San Francisco: Berrett-Koehler Publishers, Inc.
- Roberts, L. M., Dutton, J. E., Spreitzer, G. M., Heaphy, E. D., & Quinn, R. E. (2005). Composing the reflected best-self portrait: Building pathways for becoming extraordinary in work organizations. *Academy of Management Review, 30*(4), 712-736.

- Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior, 30*, 91-127.
- Russell, D. W. (2002). In search of underlying dimensions: The use (and abuse) of factor analysis in Personality and Social Psychology Bulletin. *Personality and Social Psychology Bulletin, 38*(12), 1629-1646.
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire. *Educational and Psychological Measurement, 66*(4), 701-716. doi: 10.1177/0013164405282471
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the life orientation test. *Journal of Personality and Social Psychology, 67*(6), 1063-1078.
- Schein, E. H. (1978). *Career Dynamics: Matching Individual and Organizational Needs*. Reading, MA: Addison-Wesley.
- Schieman, S., Nguyen, K., & Elliott, D. (2003). Religiosity, socioeconomic status, and the sense of mastery. *Social Psychology Quarterly, 66*(3), 202-221.
- Schwab, D. P. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior, 2*, 03-43.
- Schwartz, S. H., & Huismans, S. (1995). Value priorities and religiosity in four western religions. *Social Psychology Quarterly, 58*(2), 88-107.
- Steger, M. F., & Dik, B. J. (2006). *Advances in spirituality research: The role of meaning in work*. Paper presented at Paper presented at the APA Division 36: Psychology of religion, Baltimore, MD.

- Thompson, J. A., & Bunderson, J. S. (2003). Violations of the principle: Ideological currency in the psychological contract. *Academy of Management Review*, 28(4), 571-586.
- Van Vianen, A. E. M. (1999). Managerial self-efficacy, outcome expectancies, and work-role salience as determinants of ambition for a managerial position. *Journal of Applied Social Psychology*, 29(3), 639-665.
- Vroom, V. (1966). Organizational choice: A study of pre-and post-decision processes. *Organizational Behavior and Human Performance*, 1, 212-225.
- Wanous, J. P., Reichers, A., & Hudy, M. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology*, 82(2), 247-252. doi: 10.1037/0021-9010.82.2.247
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.
- Weber, J. (1995). Influences upon organizational ethical subclimates: A multi-departmental analysis of a single firm. *Organization Science*, 6(5), 509-523.
- Weber, M. (1930). *The Protestant Ethic and the Spirit of Capitalism* (T. Parsons, Trans.). New York: Charles Scribner's Sons.
- Weiss, J. W., Skelley, M. F., Hall, D. T., & Haughey, J. C. (2003). Calling, new careers and spirituality: A reflective perspective for organizational leaders and professionals. In M. Pava (Ed.), *Research in Ethical Issues in Organizations* (Vol. 5, pp. 175–201).
- Wright, T. A., & Goodstein, J. (2007). Character is not “dead” in management research: A review of individual character and organizational-level virtue. *Journal of Management*, 33(6), 928-958.

Wrzesniewski, A. (1999). *Jobs, careers, and callings: Work orientation and job transitions*.

Ph.D. dissertation, University of Michigan, Ann Arbor.

Wrzesniewski, A. (2003). Finding positive meaning in work. In K. S. Cameron, J. E. Dutton &

R. E. Quinn (Eds.), *Positive Organizational Scholarship: Foundations of a New*

*Discipline*. San Francisco: Berrett-Koehler Publishers, Inc.

Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a job: Revisioning employees as active

crafters of their work. *Academy of Management Review*, 26(2), 179-201.

Wrzesniewski, A., McCauley, C. R., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and

callings: People's relations to their work. *Journal of Research in Personality*, 31, 21-33.

Table 1

*Overview of Measures Used in the Analyses, by Sample*

Purpose	Measure (Source)	Sample 1				Sample 2		Sample 3	Sample 4
		Music				Art		Business	Management
		Time 1	Time 2	Time 3	Time 4	Time 1	Time 2	Time 1	Time 1
Calling Measure	Calling (12-item measure)	X	X	X	X	X	X	X	
Convergent Validity	Calling orientation (Wrzesniewski et al., 1997)				X			X <sup>a</sup>	
	Adapted calling orientation: domain-specific		X			X		X <sup>a, b</sup>	
	Neoclassical calling (Bunderson & Thompson, 2009)							X	
	Self-defined 2-item calling (Duffy & Sedlacek, 2007)							X	
	Work engagement (Schaufeli et al., 2006)							X	
	Job involvement (Kanungo, 1982)							X	
Discriminant Validity	Career orientation (Wrzesniewski et al., 1997)		X			X		X <sup>a, b</sup>	
	Intrinsic motivation (Amabile et al., 1994)		X			X		X <sup>b</sup>	
	Extrinsic motivation (Amabile et al., 1994)		X			X		X <sup>b</sup>	
	Optimism (Scheier et al., 1994)			X				X	
	Religiosity (Various measures)	X	X			X		X <sup>a, b</sup>	
Criterion-related Validity	Satisfaction with domain			X	X	X		X <sup>b</sup>	
	Career-related self-efficacy (Higgins et al., 2008)			X	X			X <sup>a, b</sup>	
	Clarity of professional identity (Dobrow & Higgins, 2005)			X	X			X <sup>a</sup>	
	Career insight (Day & Allen, 2004; London, 1983)			X	X			X <sup>a, b</sup>	
	Attend calling-oriented college program			X	X				
	Intention to pursue calling professionally			X	X	X			
	Professional association involvement							X	

Note. <sup>a</sup> = assessed in undergraduate business students; <sup>b</sup> = assessed in graduate business students.

Table 2

*Descriptive Statistics, Zero Order Correlations, and Alphas for Sample 1: Music*

	Mean	S.D.	N	1	2	3	4	5	6	7
1. Calling (12-item measure) (T1)	5.73	0.91	426	<b>0.88</b>						
2. Calling orientation (T4)	5.56	1.34	187	0.19**	<b>0.87</b>					
3. Adapted calling orientation: domain-specific (T2)	5.84	0.83	223	0.69***	0.17*	<b>0.73</b>				
4. Career orientation (T2)	5.38	1.09	223	0.22***	0.05	0.35***	<b>0.47</b>			
5. Intrinsic motivation (T2)	3.17	0.43	227	0.28***	0.17*	0.34***	0.27***	<b>0.75</b>		
6. Extrinsic motivation (T2)	2.98	0.64	227	0.09	0.03	0.06	0.31***	0.10	<b>0.69</b>	
7. Optimism (T3)	4.94	1.09	214	0.02	0.23***	-0.03	0.09	0.13	0.08	<b>0.83</b>
8. Religiosity (T1 & T2)	10.18	12.00	346	0.03	0.14*	-0.01	-0.04	-0.11	0.05	0.15*
9. Age (years) (T1)	17.34	0.94	391	0.07	-0.10	0.15*	0.02	0.05	-0.12*	0.07
10. Gender (T1)	0.76	0.43	406	0.03	0.12	0.08	-0.12	0.05	0.01	0.01
11. Satisfaction with domain (T3)	5.53	1.32	210	0.23***	0.24***	0.20**	0.13	0.04	-0.02	0.24***
12. Satisfaction with domain (T4)	5.66	1.24	141	0.18*	0.41***	0.26***	0.09	0.14	0.06	0.24***
13. Career-related self-efficacy (T3)	5.70	0.85	214	0.20**	0.27***	0.03	0.16*	0.13	0.11	0.57***
14. Career-related self-efficacy (T4)	5.79	0.84	191	0.21**	0.36***	0.12	0.17*	0.15*	0.06	0.32***
15. Clarity of professional identity (T3)	4.04	1.59	214	0.21**	0.19**	0.03	0.15*	0.09	0.19**	0.26***
16. Clarity of professional identity (T4)	4.29	1.56	191	0.18**	0.44***	-0.04	0.10	0.22**	0.11	0.26***
17. Career insight (T3)	4.95	1.40	214	0.25***	0.27***	-0.01	0.19**	0.04	0.20**	0.30***
18. Career insight (T4)	5.09	1.41	191	0.21**	0.34***	0.09	0.15	0.08	0.11	0.27***
19. Attend calling-oriented college program (T3 & T4)	0.57	0.50	322	0.28***	-0.01	0.23***	0.04	-0.02	0.02	-0.17**
20. Intention to pursue calling professionally (T3)	0.82	0.38	231	0.27***	-0.10	0.29***	-0.02	0.02	0.02	-0.14
21. Intention to pursue calling professionally (T4)	0.69	0.46	212	0.26***	-0.04	0.27***	0.09	0.03	-0.11	-0.18**

*Note.* Alphas are along the diagonal in bold. Gender was coded 1 = female, 0 = male.

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .



Table 2 (Continued)

*Descriptive Statistics, Zero Order Correlations, and Alphas for Sample 1: Music*

	8	9	10	11	12	13	14	15	16
8. Religiosity (T1 & T2)	-								
9. Age (years) (T1)	-0.03	-							
10. Gender (T1)	0.08	-0.16***	-						
11. Satisfaction with domain (T3)	0.10	0.07	-0.08	-					
12. Satisfaction with domain (T4)	0.09	-0.04	0.03	0.47***	-				
13. Career-related self-efficacy (T3)	0.12	0.02	-0.16*	0.42***	0.28***	<b>0.83</b>			
14. Career-related self-efficacy (T4)	0.12	-0.10	-0.02	0.23***	0.44***	0.36***	<b>0.83</b>		
15. Clarity of professional identity (T3)	0.12	0.03	-0.04	0.33***	0.22**	0.55***	0.19**	<b>0.89</b>	
16. Clarity of professional identity (T4)	0.15*	-0.01	0.02	0.32***	0.50***	0.34***	0.44***	0.47***	<b>0.89</b>
17. Career insight (T3)	0.02	0.04	-0.08	0.25***	0.20**	0.61***	0.26***	0.74***	0.42***
18. Career insight (T4)	0.18*	-0.06	0.01	0.21**	0.42***	0.35***	0.57***	0.39***	0.64***
19. Attend calling-oriented college program (T3 & T4)	0.05	0.17**	-0.13**	0.35***	0.06	-0.01	-0.05	0.16**	0.17**
20. Intention to pursue calling professionally (T3)	0.07	0.12	-0.02	0.25***	0.10	-0.13	-0.01	0.18**	-0.03
21. Intention to pursue calling professionally (T4)	0.06	0.09	-0.15*	0.29***	0.24**	-0.13	0.07	0.12	-0.05

	17	18	19	20
17. Career insight (T3)	<b>0.81</b>			
18. Career insight (T4)	0.47***	<b>0.91</b>		
19. Attend calling-oriented college program (T3 & T4)	0.07	0.07	-	
20. Intention to pursue calling professionally (T3)	-0.07	0.13	0.53***	-
21. Intention to pursue calling professionally (T4)	-0.06	0.11	0.67***	0.63***

*Note.* Alphas are along the diagonal in bold. Gender was coded 1 = female, 0 = male.

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

Table 3

*Descriptive Statistics, Zero Order Correlations, and Alphas for Sample 2: Art*

	Mean	S.D.	N	1	2	3	4	5	6	7	8	9
1. Calling (12-item measure) (T1)	5.70	0.89	96	<b>0.90</b>								
2. Adapted calling orientation: domain-specific (T2)	5.98	0.87	28	0.76***	<b>0.80</b>							
3. Career orientation (T2)	5.37	1.38	28	0.31†	0.66***	<b>0.41</b>						
4. Intrinsic motivation (T2)	3.11	0.49	31	0.45**	0.59***	0.69***	<b>0.75</b>					
5. Extrinsic motivation (T2)	2.94	0.77	31	0.23	0.46**	0.43*	0.20	<b>0.69</b>				
6. Religiosity (T2)	8.10	9.37	80	0.10	0.19	0.16	-0.10	0.25	-			
7. Age (years) (T1)	16.91	0.92	95	0.31**	0.18	0.10	0.30†	-0.09	-0.13	-		
8. Gender (T1)	0.79	0.41	96	-0.15	-0.18	-0.11	0.06	0.18	0.20†	-0.12	-	
9. Satisfaction with domain (T2)	6.36	0.83	28	0.46**	0.56***	0.30	0.49**	0.01	0.18	0.11	-0.03	-
10. Intention to pursue calling professionally (T2)	0.67	0.35	84	0.49**	0.34**	0.09	0.15	-0.02	-0.08	0.11	-0.11	0.20

*Note.* Alphas are along the diagonal in bold. Gender was coded 1 = female, 0 = male.

†  $p < 0.10$ . \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

Table 4

*Descriptive Statistics, Zero Order Correlations, and Alphas for Sample 3: Business*

	Mean	S.D.	N	1	2	3	4	5
1. Calling (12-item measure)	4.21	0.99	529	<b>0.90</b>				
2. Calling orientation	5.25	0.94	169	0.27***	<b>0.79</b>			
3. Adapted calling orientation: domain	4.67	0.99	529	0.78***	0.29***	<b>0.73</b>		
4. Career orientation	6.06	0.80	529	0.28***	0.16*	0.27***	<b>0.43</b>	
5. Intrinsic motivation	3.18	0.41	142	0.06	-	0.17*	0.09	<b>0.72</b>
6. Extrinsic motivation	2.85	0.58	142	0.21*	-	0.01	0.24***	0.07
7. Religiosity	3.35	2.32	345	-0.05	0.06	-0.07	-0.09	-
8. Age (years)	22.95	4.83	383	0.02	0.04	0.07	0.16***	-
9. Gender	0.43	0.50	560	-0.08	0.08	-0.14**	-0.03	-0.01
10. Satisfaction with domain	5.70	0.95	142	0.54***	-	0.64***	0.28***	0.23**
11. Career-related self-efficacy	6.15	0.65	259	0.29***	0.26***	0.28***	0.29***	0.22**
12. Clarity of professional identity	4.21	1.41	174	0.34***	0.17*	0.36***	0.22**	-
13. Career insight	5.27	1.24	259	0.48***	0.25***	0.39***	0.25***	-0.07

  

	6	7	8	9	10	11	12	13
6. Extrinsic motivation	<b>0.66</b>							
7. Religiosity	-	-						
8. Age (years)	-	-0.08	-					
9. Gender	-0.03	0.01	-0.01	-				
10. Satisfaction with domain	0.04	-	-	-0.12	-			
11. Career-related self-efficacy	0.04	-0.12	0.08	-0.14*	0.31**	<b>0.84</b>		
12. Clarity of professional identity	-	-0.04	0.12	-0.14	-	0.34***	<b>0.88</b>	
13. Career insight	0.20	-0.04	0.02	-0.08	0.29**	0.44***	0.62***	<b>0.90</b>

*Note.* Alphas are along the diagonal in bold. Gender was coded 1 = female, 0 = male.

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

Table 5

*Descriptive Statistics, Zero Order Correlations, and Alphas for Sample 4: Management*

	Mean	S.D.	N	1	2	3	4	5	6	7
1. Calling (12-item measure)	4.40	1.28	241	<b>0.94</b>						
2. Calling orientation	4.66	1.27	241	0.61***	<b>0.83</b>					
3. Neoclassical calling	4.59	1.39	239	0.59***	0.73***	<b>0.92</b>				
4. Self-defined 2-item calling	5.09	1.35	241	0.48***	0.59***	0.74***	<b>0.90</b>			
5. Work engagement	5.13	1.09	240	0.58***	0.68***	0.63***	0.61***	<b>0.94</b>		
6. Job involvement	3.99	1.17	239	0.68***	0.73***	0.68***	0.50***	0.60***	<b>0.88</b>	
7. Career orientation	4.94	1.52	241	0.43***	0.44***	0.39***	0.30***	0.49***	0.36***	<b>0.82</b>
8. Intrinsic motivation	3.08	0.53	241	0.39***	0.42***	0.42***	0.48***	0.66***	0.31***	0.43***
9. Extrinsic motivation	2.81	0.70	241	0.51***	0.38***	0.37***	0.36***	0.50***	0.42***	0.54***
10. Optimism	4.94	1.09	241	-0.11	-0.05	0.01	0.05	0.29***	-0.17**	0.10
11. Religiosity	3.95	1.96	241	0.24***	0.18**	0.19**	0.14*	0.19**	0.10	0.13*
12. Age (years)	43.66	8.73	241	-0.29***	-0.24***	-0.21***	-0.05	-0.08	-0.25***	-0.31***
13. Gender	0.49	0.50	237	-0.11	0.00	-0.08	0.08	0.08	-0.15*	0.04
14. Satisfaction with domain	5.44	1.2	240	0.49***	0.46***	0.48***	0.40***	0.63***	0.35***	0.30***
15. Career-related self-efficacy	5.78	0.91	240	0.30***	0.36***	0.43***	0.47***	0.68***	0.20**	0.40***
16. Clarity of professional identity	5.29	1.13	241	-0.10	-0.04	0.04	0.19**	0.18**	-0.17**	-0.06
17. Career insight	5.29	1.17	241	0.47***	0.38***	0.43***	0.46***	0.57***	0.26***	0.52***
18. Professional association involvement	0.56	0.86	241	0.35***	0.33***	0.34***	0.25***	0.28***	0.33***	0.23***

	8	9	10	11	12	13	14	15	16	17	18
8. Intrinsic motivation	<b>0.85</b>										
9. Extrinsic motivation	0.55***	<b>0.76</b>									
10. Optimism	0.24***	0.12	<b>0.79</b>								
11. Religiosity	0.15*	0.11	0.03	-							
12. Age (years)	-0.01	-0.22***	0.21***	0.02	-						
13. Gender	0.12	0.01	0.07	-0.02	0.14*	-					
14. Satisfaction with domain	0.44***	0.33***	0.28***	0.12	0.00	0.08	-				
15. Career-related self-efficacy	0.60***	0.39***	0.49***	0.12	0.04	0.19**	0.62***	<b>0.92</b>			
16. Clarity of professional identity	0.16**	0.01	0.58***	-0.06	0.30***	0.16**	0.30***	0.42***	<b>0.69</b>		
17. Career insight	0.52	0.54***	0.29***	0.13*	-0.17**	0.08	0.58***	0.64***	0.34***	<b>0.92</b>	
18. Professional association involvement	0.17**	0.30***	-0.11	0.16**	-0.14*	-0.01	0.17**	0.15*	-0.12	0.29***	<b>0.79</b>

Note. Alphas are along the diagonal in bold. Gender was coded 1 = female, 0 = male.

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ .

Table 6

*Summary of Convergent and Discriminant Validity Results for All Samples*

<b>Purpose</b>	<b>Dependent Variable</b>	<b>Sample 1: Music</b>	<b>Sample 2: Art</b>	<b>Sample 3: Business</b>	<b>Sample 4: Management</b>
Convergent Validity	Calling orientation (Wrzesniewski et al., 1997)	X	-	X	X
	Adapted calling orientation: domain-specific	X	X	X	-
	Neoclassical calling (Bunderson & Thompson, 2009)	-	-	-	X
	Self-defined 2-item calling (Duffy & Sedlacek, 2007)	-	-	-	X
	Work engagement (Schaufeli et al., 2006)	-	-	-	X
	Job involvement (Kanungo, 1982)	-	-	-	X
Discriminant Validity	Career orientation (Wrzesniewski et al., 1997)	X	<i>ns</i>	X	X
	Intrinsic motivation (Amabile et al., 1994)	X	X	<i>ns</i>	X
	Extrinsic motivation (Amabile et al., 1994)	<i>ns</i>	<i>ns</i>	X	X
	Optimism (Scheier et al., 1994)	<i>ns</i>	-	-	<i>ns</i>
	Religiosity (Various measures)	<i>ns</i>	<i>ns</i>	<i>ns</i>	X
	Age	<i>ns</i>	X	<i>ns</i>	X
	Gender	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>

*Note.* X = significant ( $p < .05$ ) relationship between calling and this variable; *ns* = not significant. - = variable not measured in this sample.

Table 7

*Criterion-Related Validity Analyses: Multiple Regression Results for All Samples*

Hypothesis	Dependent Variable	Comparison Measure	Sample 1: Music					
			Time 3 DVs			Time 4 DVs		
			B Calling (12-item measure)	Full Model R-Squared	Δ R-Squared	B Calling (12-item measure)	Full Model R-Squared	Δ R-Squared
1	Satisfaction with domain	Calling orientation	0.15*	0.08	0.02*	0.12	0.18	0.02
		Neoclassical calling	-	-	-	-	-	-
		Self-defined 2-item calling	-	-	-	-	-	-
		Work engagement	-	-	-	-	-	-
		Job involvement	-	-	-	-	-	-
2	Career-related self-efficacy	Calling orientation	0.16*	0.15	0.03*	0.13*	0.14	0.02*
		Neoclassical calling	-	-	-	-	-	-
		Self-defined 2-item calling	-	-	-	-	-	-
		Work engagement	-	-	-	-	-	-
		Job involvement	-	-	-	-	-	-
3	Clarity of professional identity	Calling orientation	0.19*	0.08	0.03*	0.10	0.18	0.01
		Neoclassical calling	-	-	-	-	-	-
		Self-defined 2-item calling	-	-	-	-	-	-
		Work engagement	-	-	-	-	-	-
		Job involvement	-	-	-	-	-	-
4	Career insight	Calling orientation	0.25***	0.16	0.05***	0.14*	0.13	0.02*
		Neoclassical calling	-	-	-	-	-	-
		Self-defined 2-item calling	-	-	-	-	-	-
		Work engagement	-	-	-	-	-	-
		Job involvement	-	-	-	-	-	-
5	Attending calling-oriented college program	Calling orientation	0.19**	0.04	0.04**	-	-	-
6	Intention to pursue calling professionally	Calling orientation	0.27***	0.07	0.07***	0.25***	0.08	0.06**
7	Professional association involvement	Calling orientation	-	-	-	-	-	-
		Neoclassical calling	-	-	-	-	-	-
		Self-defined 2-item calling	-	-	-	-	-	-
		Work engagement	-	-	-	-	-	-
		Job involvement	-	-	-	-	-	-

*Note.* As a first step, we regressed the dependent variables on the comparison measures. In the next step, we added calling to the model. We report the R-squared for the full model, with the delta R-squared showing the increase due to adding calling.

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ . - = variable(s) not measured in this sample.

Table 7 (Continued)

*Criterion-Related Validity Analyses: Multiple Regression Results for All Samples*

Hypothesis	Dependent Variable	Comparison Measure	Sample 3: Business			Sample 4: Management		
			Time 1 DVs			Time 1 DVs		
			B Calling (12-item measure)	Full Model R-Squared	Δ R-Squared	B Calling (12-item measure)	Full Model R-Squared	Δ R-Squared
1	Satisfaction with domain	Calling orientation	-	-	-	0.33***	0.28	0.07***
		Neoclassical calling	-	-	-	0.32***	0.29	0.06***
		Self-defined 2-item calling	-	-	-	0.39***	0.27	0.11***
		Work engagement	-	-	-	0.19**	0.42	0.02**
		Job involvement	-	-	-	0.47***	0.24	0.12***
2	Career-related self-efficacy	Calling orientation	0.30***	0.16	0.08***	0.13	0.14	0.01
		Neoclassical calling	-	-	-	0.07	0.19	0.00
		Self-defined 2-item calling	-	-	-	0.10	0.23	0.01
		Work engagement	-	-	-	-0.14*	0.47	0.01*
		Job involvement	-	-	-	0.30***	0.09	0.05***
3	Clarity of professional identity	Calling orientation	0.32***	0.11	0.09***	-0.12	0.01	0.01
		Neoclassical calling	-	-	-	-0.19*	0.03	0.03*
		Self-defined 2-item calling	-	-	-	-0.25***	0.08	0.04***
		Work engagement	-	-	-	-0.30***	0.09	0.06***
		Job involvement	-	-	-	0.03	0.03	0.00
4	Career insight	Calling orientation	0.43***	0.24	0.17***	0.37***	0.23	0.08***
		Neoclassical calling	-	-	-	0.32***	0.26	0.07***
		Self-defined 2-item calling	-	-	-	0.32***	0.29	0.07***
		Work engagement	-	-	-	0.20**	0.35	0.03**
		Job involvement	-	-	-	0.54***	0.22	0.15***
5	Attending calling-oriented college program	Calling orientation	-	-	-	-	-	-
6	Intention to pursue calling professionally	Calling orientation	-	-	-	-	-	-
7	Professional association involvement	Calling orientation	-	-	-	0.23**	0.14	0.03**
		Neoclassical calling	-	-	-	0.21**	0.15	0.03**
		Self-defined 2-item calling	-	-	-	0.29***	0.13	0.07***
		Work engagement	-	-	-	0.27***	0.13	0.05***
		Job involvement	-	-	-	0.22**	0.13	0.02**

*Note.* As a first step, we regressed the dependent variables on the comparison measures. In the next step, we added calling to the model. We report the R-squared for the full model, with the delta R-squared showing the increase due to adding calling.

\*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$ . - = variable(s) not measured in this sample.

Table 8

Summary of Criterion-Related Validity Results for All Samples

Hypothesis	Dependent Variable	Sample 1				Sample 2	Sample 3		Sample 4					
		Music				Art	Business		Management					
		Time 3 DVs		Time 4 DVs		Time 2 DVs	Time 1 DVs		Time 1 DVs					
		Main Effect	Controlling for Calling Orientation	Main Effect	Controlling for Calling Orientation	Main Effect	Main Effect	Controlling for Calling Orientation	Main Effect	Controlling for Calling Orientation	Controlling for Neoclassical Calling	Controlling for Self-Defined 2-item Calling	Controlling for Work Engagement	Controlling for Job Involvement
1	Satisfaction with domain	X	X	X	ns	X	X	ns	X	X	X	X	X	X
2	Career-related self-efficacy	X	X	X	X	-	X	X	X	X	ns	ns	X	X
3	Clarity of professional identity	X	X	X	ns	-	X	X	ns	-	-	-	-	-
4	Career insight	X	X	X	X	-	X	X	X	X	X	X	X	X
5	Attending calling-oriented college program	X	X	-	-	-	-	-	-	-	-	-	-	-
6	Intention to pursue calling professionally	X	X	X	X	X	-	-	-	-	-	-	-	-
7	Professional association involvement	-	-	-	-	-	-	-	X	X	X	X	X	X

Note. We measured calling at Time 1 in all samples. Of the other calling measures, we measured calling orientation in Samples 1, 3, and 4 only and neoclassical calling, self-defined 2-item calling, work engagement, and job involvement in Sample 4 only.

X = significant ( $p < .05$ ) relationship between calling and this variable; ns = not significant. - = variable(s) not measured in this sample.



## Appendix

*Calling Scale Items*

The italicized text indicates the domain-specific segment of the text—music, art, business, management—that can be adapted for use in other domains. Respondents used 7-point response scales for all items, where 1 = *strongly disagree* and 7 = *strongly agree*.

1. I am passionate about *playing my instrument/singing/engaging in my artistic specialty/business/being a manager*.
2. I enjoy *playing music/engaging in my artistic specialty/business/being a manager* more than anything else.
3. *Playing music/Engaging in my artistic specialty/Business/Being a manager* gives me immense personal satisfaction.
4. I would sacrifice everything to be *a musician/an artist/in business/a manager*.
5. The first thing I often think about when I describe myself to others is that I'm *a musician/an artist/in business/a manager*.
6. I would continue being *a musician/an artist/in business/a manager* even in the face of severe obstacles.
7. I know that being *a musician—either professionally or as an amateur—/an artist—either professionally or as an amateur—/in business/a manager* will always be part of my life.
8. I feel a sense of destiny about being *a musician—either amateur or professional/an artist—either amateur or professional/in business/a manager*.
9. *Music/My artistic specialty/Business/Being a manager* is always in my mind in some way.
10. Even when not *playing music or practicing/engaging in my artistic specialty/doing business activities/acting as a manager*, I often think about *music/my artistic specialty/business/being a manager*.
11. My existence would be much less meaningful without *my involvement in music/my involvement in my artistic specialty/my involvement in business/my being a manager*.
12. *Playing music/Engaging in my artistic specialty/Being in business/Being a manager* is a deeply moving and gratifying experience for me.

### Footnotes

<sup>1</sup> Calling's visibility to the public is evidenced by calling's strong presence on the Internet. A Google search of the phrase "find your true calling" yielded approximately 630,000 results, whereas a search of the phrase "have a calling" yielded 2.4 million results (June 2010). Additionally, the slogan for Monster.com, the largest job search engine in the world, is "Your calling is calling."

<sup>2</sup> We also assessed work involvement, which captures the relative importance of the domain of work as a whole in one's life. We used Kanungo's (1982) 6-item scale (Cronbach's alpha = .81 in Sample 4). We will report these results in a footnote.

<sup>3</sup> Calling was also significantly related to the calling orientation measure that we adapted to be oriented toward the music, art, and business domains ( $r_s = .69, .78$  and  $.76$  in Samples 1 through 3, respectively, all  $p_s < .001$ ).

<sup>4</sup> Calling was significantly related to work involvement ( $r = .66, p < .001$  in Sample 4).

<sup>5</sup> Our calling measure was differentiable from the domain-oriented version of the calling orientation scale via CFA for Sample 1,  $\Delta X^2(1, N = 205) = 32.11, p < .001$ , but not Sample 3,  $\Delta X^2(1, N = 524) = .39, ns$ . The Fornell and Larcker (1981) tests reveal the shared variance between these constructs was higher than the average squared factor loadings for each construct (.64 vs. .35 for Sample 1, .98 vs. .41 for Sample 3). Increasing the similarity between the underlying construct Wrzesniewski et al.'s (1997) items measured and the underlying construct our scale measured (i.e., we reworded calling orientation items to be oriented toward a particular domain rather than toward work in general) yielded expected results: the domain-specific calling orientation items were more similar to our calling items than were the generally-worded items.

<sup>6</sup> The results of the CFA tests showed that calling was separable from work involvement in Sample 4,  $\Delta X^2(1, N = 227) = 429.60, p < .001$ . Further, the average of the squared factor loadings was higher than the shared variance (.59 vs. .47), suggesting that calling and work involvement are discriminant constructs.

<sup>7</sup> We could not conduct these analyses for Sample 3 satisfaction because we measured calling orientation and satisfaction in different subsets of the sample.

<sup>8</sup> In our business sample, given that the MBA students had been committed to their career paths longer than the undergraduate business students, they might be more directly comparable to the musician and artist sample. We therefore compared the mean calling for the MBA students only against the mean for musicians and artists. We found the relationship held in these analyses; that is, calling for Sample 3 was significantly lower than in Samples 1 and 2 ( $M = 4.11, SD = .96, t = 19.41$  and  $11.90$  with Samples 1 and 2, respectively, all  $ps < .001$ ).