The Dynamics of Calling:
A Longitudinal Study of Musicians

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Abstract

The dominant view of calling among management scholars is that it is a stable construct that does not change. This view has resulted in a research void about calling's early development and subsequent evolution. Insight into the dynamic process through which callings develop is fundamental to understanding its role in people's careers and lives. In this study, I focus on the antecedents of calling, a consuming, meaningful passion people can experience toward a domain. I propose a *dynamic* model in which calling can change over time and can be shaped by antecedent factors, specifically, through people's ability, behavioral involvement and social comfort in the area toward which they feel a calling. I tested these ideas in a 7-year, 4-wave prospective longitudinal survey study of 450 amateur musicians. Multilevel analyses indicate individuals who were more behaviorally involved and felt higher social comfort in the calling domain (e.g., music) experienced higher levels of calling early on, but experienced a decline in calling over time. Individuals' ability in the calling domain was not related to initial calling or change in calling. Implications for theory and research on calling, meaning of work, and the dynamics of careers are discussed.

The quest for meaning may be our primary drive in life (Frankl, 1959). For organizational scholars, understanding how people find meaning in work is of theoretical and practical significance (Pratt & Ashforth, 2003; Wrzesniewski, 2003). Not only is meaningful work critical to the subjective career success of individuals (Heslin, 2005), but it is also central in creating positive organizations (Pratt & Ashforth, 2003). Yet cultivating and maintaining meaningful work is challenging. For example, regarding a key outcome of meaningful work, job satisfaction (Rosso, Dekas, & Wrzesniewski, 2010; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997), the *New York Times* reported that only 45 percent of Americans were satisfied with their jobs in 2010—down from 61 percent in 1987 (Korkki, 2010). A long tradition of organizational behavior research has sought ways to counteract this type of trend through improving people's subjective experiences of their work (e.g., Grant, 2007; Hackman & Oldham, 1976; Wrzesniewski & Dutton, 2001), which can ultimately influence important organizational outcomes (Rosso *et al.*, 2010). More recently, scholars have turned their attention to people who view their work as particularly meaningful (Pratt & Ashforth, 2003; Wrzesniewski, 2003). Such people experience a strong sense of *calling* (Dobrow & Tosti-Kharas, 2011). Developing a scholarly understanding of calling and its implications "promises important insights into the complex reality of deeply meaningful work" (Bunderson & Thompson, 2009, p. 55).

To date, the dominant view of calling is that it is a stable construct that does not change (Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski *et al.*, 1997). In this view, people come to experience a calling through a process of "searching for" and then "finding" it (Duffy & Sedlacek, 2007). Accordingly, researchers have looked at calling "as a cause rather than as a consequence" of various positive career and life outcomes (Bunderson & Thompson, 2009, p. 53).

The view that callings are unchanging and findable has resulted in a research void about their early development and subsequent evolution (cf. Bunderson & Thompson, 2009; Dik & Duffy, 2009; Duffy & Sedlacek, 2007; Hall & Chandler, 2005). Insight into the dynamic process through which callings develop is fundamental to understanding the role they play in people's careers and lives. As many people aspire to derive deep meaning from their work—that is, to experience their work as "meaningful" (Pratt & Ashforth, 2003; Rosso *et al.*, 2010)—researchers and practitioners alike must understand how people first experience callings. Must people go look for a calling or can they make concerted efforts to develop it? Does calling predict career choices or do career choices predict calling? Once people have found or developed a calling, understanding its nature over time is critical. Can people assume a calling is stable for life or can it change? Indeed, previously published empirical work on calling is cross-sectional (e.g., Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski *et al.*, 1997) and thus does not explore questions about the dynamic nature of calling.

This study provides the first examination of calling's dynamics over time. Specifically, I focus on foundational questions about the antecedent factors that shape both the early stages and evolution of calling over time. This focus extends previous work that views calling solely as a cause not a consequence. Drawing on career research demonstrating the dynamic nature of subjective constructs such as career satisfaction, career-related self-efficacy and perceptions of career success (Higgins, Dobrow, & Chandler, 2008; Ng, Eby, Sorensen, & Feldman, 2005), I propose a *dynamic* model of calling: calling can change over time and can be shaped by antecedent factors, specifically, people's ability, behavioral involvement and social comfort in the area toward which they feel a calling. To test these ideas, I conducted a 7-year, 4-wave prospective longitudinal survey study of 450 amateur musicians at formative stages of their

careers. I then used these data to examine the relationship between the proposed antecedent factors and two characteristics of calling over time: its early stages and its evolution. This study provides an empirical contribution to the literature through its analysis of multi-year, multi-wave longitudinal data, necessary for understanding how calling changes over the course of individuals' careers.

This paper extends our understanding of calling by demonstrating that calling can, indeed, change and that behavioral involvement and social comfort in the calling domain are linked to higher initial levels of calling and a subsequent decline over time. Theoretically, this study extends prior calling research by testing previously unexplored implicit assumptions about calling. These results encourage a new way of viewing calling in the literature, including taking calling's dynamic nature into account in future models of careers and meaning of work and examining additional factors that shape calling over time. The results further imply that the language used to describe calling should change. Rather than "finding" a calling, people can seek to "develop" a calling through involvement in a prospective calling domain. Rather than "having" a calling, people "experience" a calling that may or may not be sustainable. In fact, calling's decline over time raises questions about the role calling can and should play in individuals' career decision-making as well as the challenges inherent in maintaining a calling over the span of many years. Additional implications for theory and research on calling, meaning of work, and careers are discussed.

A Dynamic View of Calling

Scholars have called for "an understanding of how a calling develops" (Duffy & Sedlacek, 2007, p. 599), "longitudinal research [that] assess[es] the development of calling and vocation over time" (Dik & Duffy, 2009, p. 439), and "longitudinal research from childhood to

career . . . to fully disentangle . . . causality questions" about the development of calling, career choices, and occupational commitment (Bunderson & Thompson, 2009, p. 53). This study responds to these requests by proposing a dynamic model of calling in which calling can change over time and antecedent factors, specifically, ability, behavioral involvement and social comfort in the calling domain, can shape it. This study does not test a causal theory directly (i.e., that these factors cause calling); rather, it uses longitudinal data to explore the possibility that factors may influence calling over time (Menard, 2002; Singer & Willett, 2003). This investigation provides an initial foundation for a dynamic model of calling and, through its focus on calling's antecedents, sheds further light on the question of whether callings are "found" or developed.

To achieve these research aims, the present study uses the following definition of calling: *a consuming, meaningful passion people experience toward a domain* (Dobrow & Tosti-Kharas, 2011). This definition views calling as a psychological construct: it exists within individuals' minds and reflects the sentiments people experience toward a domain. As these sentiments could vary over time, this definition allows for the possibility of change in calling and is therefore appropriate for studying a dynamic model of calling. Other definitions of calling differ in their views of what or where a calling 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)" (Dobrow & Tosti-Kharas, 2011, p. 1004). By considering calling as relatively objective and external, these definitions generally assume calling is inherently fixed, which precludes questions about calling's dynamics. In contrast, Dobrow and Tosti-Kharas's (2011) definition of calling is logically consistent with the possibility that calling can change. Further, their construct validity work demonstrates their

calling definition is conceptually related to, yet differentiable from, other calling definitions (Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski *et al.*, 1997) and additional career and meaning-of-work constructs, and also establishes calling's position in its nomological network (Dobrow & Tosti-Kharas, 2011).

Dobrow and Tosti-Kharas (2011) highlighted three distinctive characteristics of their calling definition (pp. 1005-1006): First, a calling is oriented toward a specific *domain*, rather than being oriented toward work in general, as is Wrzesniewski et al.'s calling orientation (1997). Domains span a diverse range, including professions, extracurricular activities, family, or concepts (e.g., "healthcare reform"). Second, while previous empirical work used continuous measures of calling, the language used to describe it is binary: people "have" or "don't have" a calling (Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski, 1999). Here, callings can cover the continuum from weak to strong, both conceptually and empirically. Third, in contrast to previous calling research (e.g., Bunderson & Thompson, 2009; Hall & Chandler, 2005; Wrzesniewski, 1999), one does not have to work in a domain to feel a calling toward it (Berg, Grant, & Johnson, 2010). For instance, amateur musicians, such as the participants at the inception of this study, are not employed as musicians, yet many experience a strong calling toward music. In comparison to cross-sectional calling research that examined calling and working in the calling domain simultaneously, the decoupling of these two factors enables a dynamic analysis of the relationship between calling and possible antecedent factors.

Whereas scholars have debated the definition of calling, they have been more consistent in their perspectives of how people come to experience a calling: either they are explicit that callings are found or they do not address calling's origins. Extant research does not consider that antecedent factors might shape the early stages and evolution of calling. Collectively, calling

research assumes the following sequence: the existence of a calling is the starting point, an individual "finds" it, and then when that person "has" it, it is a predictor of career and general life consequences. Calling has been positively linked to life and job satisfaction, better health, and fewer missed days of work (Peterson, Park, Hall, & Seligman, 2009; Wrzesniewski *et al.*, 1997), zest (Peterson *et al.*, 2009), a willingness to sacrifice and perceived organizational duty (Bunderson & Thompson, 2009), fostering tension between personal and social identities in challenging occupations (Kreiner, Hollensbe, & Sheep, 2006), and career development constructs (Duffy & Sedlacek, 2007). In addition, construct validity research on calling established its convergent and criterion-related validity in relation to several career-related behavioral, cognitive, and affective outcomes (Dobrow & Tosti-Kharas, 2011).

Moreover, as previous empirical research on calling used a cross-sectional approach and studied people once they were in their occupations (e.g., zookeepers in Bunderson & Thompson, 2009; university employees in Wrzesniewski *et al.*, 1997), it is agnostic about whether people chose their work to fulfill a pre-existing calling toward the work domain or whether they used calling as a form of retrospective rationalization (London, 1983) or cognitive dissonance reduction (Vroom, 1966) to explain why they were in their current work situation. This previous research has elucidated calling's correlation with career and life variables, but it was not designed to test a dynamic model of calling. Here, I test the previously unexplored notion that calling may not be the starting point; that is, rather than being "found," calling may be developed by antecedent factors.

Predicting Calling

Previous empirical research has not examined predictors of calling. However, the conceptual connections between calling and both the motivation and meaning of work literatures

suggest three categories of factors that may predict the development of calling: ability, behavioral factors, and social factors. Research showing that antecedent factors, including those comparable to the three categories considered here, shape other subjective career constructs such as career satisfaction (Ng *et al.*, 2005) supports the focus on this set of three predictors. First, high *ability* is connected to several calling-related constructs, including intense motivation, passion, and urgency (Winner, 2000). The second and third categories, *behavioral* and *social* factors, were proposed by Pratt and Ashforth (2003) as the roots of meaningfulness in work. I focus on one exemplar within each of the behavioral and social factors categories: amount of behavioral involvement and degree of social comfort in the calling domain.

Ability. Ability refers to a person's capacity or competence in doing the activities associated with the calling domain. In general, ability is positively associated with several constructs related to calling, including intense motivation, passion, and urgency (Winner, 2000). High intrinsic motivation and the "rage to master," much like the behaviors of people with strong callings, are the outcome of high ability or giftedness (Winner, 2000). The activities that foster optimal "flow" experiences, which could be viewed as episodic manifestations of a calling, are characterized by being challenging and requiring appropriate skills (Csikszentmihalyi, 1990). This suggests a positive relationship between ability and the development of calling. Therefore, based on the connections found between ability and calling-related constructs, I predict:

> *Hypothesis 1 (H1): Individuals' ability in the calling domain will be positively related to their degree of calling.*

Behavioral involvement. Behavioral involvement refers to doing activities associated with the calling domain, independent of ability. Several aspects of behavioral involvement suggest it should be positively associated with calling. Repeated exposure leads to greater positive affect toward a stimulus (see Bornstein, 1989, for a meta-analysis of the relationship

between exposure and affect; Zajonc, 1968). Therefore, the repeated exposure individuals experience through higher levels of behavioral involvement in the calling domain should also lead to greater positive affect, including a stronger calling. Intense, purposeful behavioral involvement in a particular work domain, called deliberate practice, is connected to motivation and enjoyment, suggesting it could also be linked to stronger callings (Ericsson, Krampe, & Tesch-Romer, 1993). Next, "individuals' educational, personal, and professional experiences that can enhance their career attainment"—akin to their behavioral involvement—are linked to career satisfaction (Ng *et al.*, 2005, p. 370), suggesting that these experiences could also be linked to calling. Lastly, professional identity development may be a mechanism through which behavioral involvement translates into the development of a calling. As young people consider which career path to pursue, they may experiment with a trial identity, or "provisional self," in a prospective career area, such as through internships or extracurricular activities, before fully committing to this professional identity (Ibarra, 1999). Experiences in a prospective career domain thus provide people with the opportunity to test a provisional self. The insights one gains through this process may result in the development of a stronger or weaker calling, depending on the fit of this provisional self. Taken together, these areas of research suggest stronger callings may initially develop as a result of greater behavioral involvement in the calling domain.

> *Hypothesis 2 (H2): Individuals' amount of behavioral involvement in the calling domain will be positively related to their degree of calling.*

Social comfort. Social comfort is a relational or interpersonal aspect of domain involvement, specifically feeling comfort, enjoyment, and fit with being around others (Lawrence, Fauerbach, Heinberg, Doctor, & Thombs, 2006; Lawrence, Rosenberg, Rimmer, Thombs, & Fauerbach, 2010). I expect social comfort to be related to the development of calling for several reasons. Broadly speaking, social factors shape workplace identity and identification

(Sluss & Ashforth, 2007) and work meaning (Pratt & Ashforth, 2003; Wrzesniewski, 2003) and so they likely play a role in the development of calling, too. Career and organizational behavior research has demonstrated the importance of incorporating a relational perspective for understanding subjective career phenomena, including career success (de Janasz, Sullivan, & Whiting, 2003; Higgins & Kram, 2001), work satisfaction (van Emmerik, 2004), and career-related self-efficacy and perceptions of career success (Higgins *et al.*, 2008). In this relational view, "individuals learn and grow in their work-related experiences through connections with others" (Kram, 1996, p. 133). In order for individuals to experience this type of connection, they need to feel a high degree of social comfort. When individuals experience this high degree of comfort with those involved in the same domain, they likely feel they can develop and express their true selves—and so develop a sense of calling toward this domain. One musician participant in this study expressed the high degree of social comfort she experiences around her fellow musicians: "I love other musicians. I feel more comfortable. The relationships are different—they understand why we have to practice and not go the movies." Thus, I predict:

> *Hypothesis 3 (H3): Social comfort in the calling domain will be positively related to individuals' degree of calling.*

Change in Calling

The traditional view of calling is that it does not change. Further, research on related constructs such as intrinsic motivation, work interests, and personal values suggests these constructs do not change—and so, by extension, neither should calling (Amabile, Hill, Hennessey, & Tighe, 1994; Feldman, 2002). In contrast to this traditional view, several lines of research suggest scholars should instead view calling as malleable.

First, people pursue "unanswered" callings through job and leisure-crafting activities (Berg *et al.*, 2010). Such activities change the meaning of work, which suggests this process

could affect calling, a type of work meaning (Wrzesniewski, 2003; Wrzesniewski & Dutton, 2001). Second, although Wrzesniewski (1999) concluded the stability of the calling orientation was "quite high" between two measures of calling six months apart, the moderate correlation (r = .5) suggests the possibility of substantive change over time. Third, childhood and adult development theories characterize life as being full of change, such that by default, researchers should assume calling changes as well (e.g., Erikson, 1963; Ginzberg, 1951; Super, 1992). For example, in a stage model of development, adults pass through predictable, alternating phases of stability and change (Levinson, Darrow, Klein, Levinson, & McKee, 1978). During early adulthood, people develop a "dream" they strive to fulfill as adulthood continues (Levinson *et al.*, 1978). The dream is roughly analogous to the domain toward which a calling is oriented. As the dream's role in people's lives strengthens or weakens, so should their calling toward their dream.

Previous calling research has not explored change in calling and so does not provide insight into the *direction* of this possible change. Thus, to do so, I draw on research in areas related to calling. This research provides considerable support for the notion that the three hypothesized predictors of calling—ability, behavioral involvement, and social comfort—should predict an increase in calling *and* a decrease in calling. Therefore, to untangle these conflicting predictions, I examine the following exploratory research question: does calling change – and if so, are higher ability, behavioral involvement, and social comfort in the calling domain related to a subsequent increase or decrease in calling over time?

Increase. The logic in support of Hypotheses 1, 2, and 3—that ability, behavioral involvement, and social comfort positively predict calling—suggests these same factors should be associated with an increase in calling over time. The mechanisms linking these predictors and

calling should persist over time and therefore should lead to an increase in calling over time. A positive cycle may occur in which higher ability, behavioral involvement, and social comfort initially create a stronger calling, which then creates improved ability, more behavioral involvement, and greater social comfort, which then results in an increase in calling over time (Lindsley, Brass, & Thomas, 1995). Moreover, high ability, behavioral involvement, and social comfort may create the conditions for escalation of commitment over time (Staw, 1981), which may be manifested as an increase in calling over time.

Decrease. The same variables that positively predict initial calling—ability, behavioral involvement, and social comfort—may also predict a subsequent decrease in calling over time for two main reasons. First, a high level of these predictors may result in a "big-fish—little-pond" effect on calling. As documented in an academic context, this effect results in equally able students having lower academic self-concepts when surrounded by high-ability students at school than when surrounded by low-ability students (Marsh & Hau, 2003). A high level of ability, behavioral involvement, and social comfort in the calling domain likely results in ongoing engagement in this domain. In turn, people who continue to be engaged will increasingly be around others who are engaged in the same domain, particularly other high-ability individuals, rather than attrit (Schneider, 1987). The big-fish—little-pond effect suggests being surrounded by these high-ability individuals could result not only in a decrease in self-concept, but also in calling.

Second, I draw on research on the longitudinal nature of job satisfaction, a construct positively related to calling (Dobrow & Tosti-Kharas, 2011; Peterson *et al.*, 2009; Wrzesniewski *et al.*, 1997). Boswell et al. (2009) documented a "honeymoon-hangover effect" for job satisfaction among organizational newcomers. Initially, newcomers experience job satisfaction

higher than in their previous job ("honeymoon"), but then job satisfaction declines over the next year ("hangover"). Ganzach et al. (2011) extended this timeframe to several decades and found that while job satisfaction generally increases as people age, it decreases with tenure in a given job. Moreover, a study of professional musicians' job satisfaction—which many participants in this study aspire to be someday—shows that even though young classical musicians may anticipate that performing in a professional orchestra is their dream job, the musicians who win these coveted orchestra jobs later express relatively low levels of job satisfaction. Of 13 occupations studied, orchestra musicians ranked 7th, just below federal prison guards (Allmendinger, Hackman, & Lehman, 1996). A variety of mechanisms, such as burnout (e.g., Maslach, Schaufeli, & Leiter, 2001), habituation, or changing values and priorities over time, could explain these results. Taken together, these job satisfaction findings suggest that calling, too, may display a "honeymoon-hangover" pattern such that ability, behavioral involvement, and social comfort foster high calling early on (H1-3), yet also contribute to a decline in calling even as involvement in the calling domain continues.

Method

Participants and Procedure

Participants were individuals enrolled at two U.S. summer high school music programs in 2001. All students attending the summer program were invited to join the study, a 7-year (2001–8), 4-wave prospective longitudinal survey study ($N = 450$). The surveys included measures of calling, behavioral involvement and social comfort in the calling domain, and additional items regarding their career-related behaviors, cognitions, affect, and general background. The summer programs provided the ability measure from their archives. See Table 1 for a complete overview of measures collected in at each time period.

Insert Table 1 about here

The first data collection occurred at the beginning of the summer program ("Time 1," n = 422) and the second occurred 6 weeks later at the end of the summer program ("Time 2," n = 340). Individuals who had completed at least one of the Times 1 or 2 surveys and who provided contact information (N = 450) were invited to participate in the next survey ("Time 3"), which occurred 3 ½ years later (n = 305; response rate = 68%). All individuals who had completed at least one of the Times 1, 2, or 3 surveys and who provided contact information (n = 421) were invited to participate in the final survey ("Time 4"), which occurred 3 ½ years after Time 3 (n = 261; response rate = 64%). Participants advanced from high school through college through post-college life (e.g., starting graduate school or work) over the course of the study. Across the four time points of the study, participants completed 1,328 surveys.[1] Sixty-nine percent of the participants were female, 82% were Caucasian, and the mean age at the beginning of the study was 17.34 years (SD = .94).

The two field sites are prestigious summer music programs that attract a concentrated number of talented high school musicians. They offer two months of music immersion, including both musical training and a preview of playing music full time (Wanous, 1992). This study's focus on talented young musicians, rather than a more general sample, effectively addresses questions about the factors that shape calling for three reasons: (1) This sample is an "extreme" one in which people experiencing relatively strong callings were likely to exist and in which the development of calling is "transparently observable" (Eisenhardt, 1989). (2) Many of these amateur musicians were considering trying to fulfill a calling toward music by pursuing music professionally. At Time 1, 50% intended to pursue music professionally, 14% did not, and the

[1] In addition to the survey data collection, this study includes qualitative data from 78 interviews conducted with participants at Time 1 (n = 48) and Time 2 (n = 30). Although not the focus of the present analyses, these data shed light on points in the theoretical discussion and aid in the interpretation of the quantitative results.

remaining 36% were undecided. (3) This sample's early-career stage is salient for professional identity exploration (Ibarra, 1999; Schein, 1978) and a critical transition in occupational choice theory: the shift from making tentative choices in early and late adolescence to making realistic choices during early adulthood (Ginzberg, 1951; Levinson *et al.*, 1978).

This sample, younger than populations generally studied in career and organizational behavior research, provides a real-time window into calling's evolution. Studying an older sample would yield retrospective assessments, which are prone to biases (e.g., Golden, 1992; Smith, 1984), and would have a limited capacity for elucidating the relationship between antecedent factors and the evolution of calling. This study's longitudinal timeframe spans the period in participants' lives (i.e., from high school to college to post-college life) when they might take initial steps toward pursuing professional music careers, including choosing whether or not to major in music in college. This design thus provides insight into the development of callings that could soon impact participants' vocational choices. Further, the study focuses on people not currently pursuing a career in the calling domain and so eliminates retrospective rationalization and cognitive dissonance effects (London, 1983; Vroom, 1966).

The intervals between the data collections occurred for the following reasons: Time 1 to Time 2 allowed a measurement of calling at the beginning and end of the summer music programs. By Time 3, most participants had fully transitioned into college. By Time 4, most participants had begun to transition into their post-college lives. These intervals enabled an examination of the factors associated with calling over a substantive amount of time and as participants transitioned across school and/or work contexts.

Measures

Calling. The analyses used Dobrow and Tosti-Kharas' (2011) 12-item scale to assess

calling toward a domain (e.g., "music;" see items in Appendix 1). Psychometric analyses demonstrate the scale's unidimensional factor structure, its temporal stability, and convergent, discriminant, and predictive validity (Dobrow & Tosti-Kharas, 2011). I assessed calling four times over seven years (Times 1 to 4). Items such as "I am passionate about playing my instrument/singing" and "My existence would be much less meaningful without my involvement in music" were rated on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*) and averaged to create the scale (possible range of 1 = weak calling to 7 = strong calling; Cronbach's alpha = .88, .89, .90, and .90 for Times 1 to 4, respectively).

Ability. Audition ratings assessed participants' ability in the calling domain, music. Rather than capturing raw musical talent only, audition ratings assess several abilities critical to involvement in music: performing under pressure, presenting oneself to an audience, and preparing adequately for an audition—the most critical gate-keeping activity for determining which musicians gain access to performance opportunities, school admission, employment in music ensembles, and so forth. To gain admission to the summer music programs, applicants performed a live or taped audition rated by expert musician judges. As these auditions occurred before Time 1, these ratings temporally precede all measures of calling in the analyses. The summer programs provided these audition ratings for use in this study; they did not inform participants of their ratings. The two summer programs used different audition rating scales.[2] I thus z-scored the raw ratings within each site, resulting in a variable indicating the degree to which each rating was above or below the site average.

[2]Site 1 used a 5-point scale (1 = *low* to 5 = *high* in .25-point gradations; $M = 3.54$, $SD = .89$; range = 1.50-5.00). Site 2 used a 4-point scale (1 = *Weak, not admissible*, 2 = *Adequate*, 3 = *Good*, 4 = *Exceptional/outstanding*, with plus and minus gradations; $M = 3.24$, $SD = .64$; range = 1.67 ("2-") – 4.33 ("4+"). These descriptive results indicate considerable variance even within this sample, including that almost 25% of accepted students at both sites scored below 3 in their auditions.

Behavioral involvement. Participants provided information about the range of their behavioral involvement in music on the Time 1 survey, which prompted them to think about the musical activities they engaged in during the school year. Because this timeframe preceded the summer music program, this measure conceptually captured participants' level of behavioral involvement in music prior to the measures of calling in the analyses. From a list of 10 music activities (e.g., chamber groups, orchestra, private lessons, etc.), participants checked all activities in which they engaged (coded as 1 = yes, 0 = no). The sum of these responses constituted the behavioral involvement measure, with a possible range of 0 (low) to 10 (high).

Social comfort. A two-item scale assessed participants' social comfort in the calling domain at Time 1. Consistent with Lawrence and colleagues' social comfort research (2006; 2010), I developed this scale based on qualitative interview data suggesting that although many young musicians felt like misfits in their high schools, they blossomed and felt they could express their true selves in the social context of other musicians—that is, they felt more socially comfortable. Participants rated the two items, "I feel more comfortable around musicians than around any other group of people" and "I enjoy socializing with musicians more than with any other group of people," on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*), which were averaged to create the scale (Cronbach's alpha = .87).

Controls. Because individual demographic differences could affect calling, the analyses controlled for gender (1 = female, 0 = male); family socioeconomic status (5 = upper class, 4 = upper-middle class, 3 = middle class, 2 = lower-middle class, 1 = lower class); and ethnicity (1 = Caucasian, 0 = non-Caucasian).

Because recent research (Duffy & Sedlacek, 2007) and calling's historical roots as a religious construct (Weber, 1930) suggest religiosity could affect the development of calling, the

analyses controlled for participants' subjective, global assessment of the importance of religion in their lives (Koenig, McCullough, & Larson, 2001; Schieman, Nguyen, & Elliott, 2003). A survey item instructed participants: "Please divide 100 points among the following seven parts of life to indicate their relative importance to you in your life: music, school, extracurricular activities, leisure, work, religion, and family." The points allocated to religion constituted the religiosity measure, such that a higher amount of points indicates a higher degree of religiosity.

The analyses controlled for several aspects of participants' musical, educational, and familial backgrounds that could have affected their experience of a calling: (1) their type of musical involvement (1 = instrumentalist and 0 = non-instrumentalist, e.g., singer, composer, conductor); (2) their college major (1 = music-oriented, e.g., music major or joint major between music and another subject, and 0 = non-music oriented); (3) whether they attended a specialized arts high school (1 = yes, attended, 0 = no, did not attend); (4) the age at which they first began their musical activities; and whether they received career advice supportive of pursuing a calling toward music (5) from their parents or (6) from their primary music teacher. Participants responded to the question, "What career advice do your parents (primary music teacher) give you?" by indicating whether they had received each type of career advice listed. This list included two calling-oriented types of career advice: "Follow your heart/Do what you love" and "Go into music professionally" (coded as 0 = received neither piece of advice, 1 = received either one of the two pieces of advice, 2 = received both pieces of advice).

Analysis

I tested the hypotheses using multilevel modeling, which is also called individual growth modeling, hierarchical linear modeling, random coefficient regression, or mixed modeling (Ployhart & Vandenberg, 2010; Singer & Willett, 2003) and is functionally analogous to using

structural equation modeling's latent growth modeling. Multilevel modeling hypothesizes that the continuous dependent variable (e.g., calling) is a specified function of time plus error, called the individual growth trajectory, for each individual (Lenzenweger, Johnson, & Willett, 2004).

This type of model estimates two main parameters, an intercept and a slope, that determine the shape of each individual's "true trajectory of change" (Singer & Willett, 2003). The intercept parameter represents an individual's true value of calling at the beginning of the study—that is, their "initial calling." The slope parameter represents an individual's true rate of change in calling over time—"change in calling." Two levels comprise the multilevel model. The individual growth trajectory representing individual change over time is specified at level 1. Then, at level 2, the model can be specified to test hypotheses about how the intercept and slope parameters from level 1 are related to between-subjects factors (e.g., ability, behavioral involvement, and social comfort).

A multilevel approach offers several benefits (Ployhart & Vandenberg, 2010; Singer & Willett, 2003). The multiple measures collected at Times 1 to 4 provide a more accurate, powerful representation of "true" underlying levels of calling during this career phase than would a single measure (e.g., examining variables associated with Time 1 calling only). Second, in contrast to traditional repeated measures analysis of variance (ANOVA), multilevel modeling is "highly tolerant of missing data" (Lenzenweger *et al.*, 2004, p. 1017), allowing the analyses to include participants with missing outcome data. In this study, participants with 1 (n = 30), 2 (n = 54), 3 (n = 78), or 4 (n = 63) measures of calling could be included in the analyses as long as they had complete data for all 13 predictor variables (10 control variables and 3 hypothesized predictors). Third, a multilevel approach does not require equal spacing of the data collection waves (Singer & Willett, 2003). In sum, each individual's growth trajectory can include a unique

number of waves with unique time spacing, thus allowing participants with one or more time points of data to be included in the analyses (Singer & Willett, 2003).

A set of multilevel models was fitted to the data using full maximum likelihood estimation in SPSS's mixed procedure. The data in this study meet the requirements for applying multilevel modeling (Barnett, Marshall, & Singer, 1992; Singer & Willett, 2003). Just as in multiple regression models, the parameter estimates and corresponding *p*-values of the predictor variables reflect the direction, size, and significance of their relationships to calling. The time variable, AGE, captured each participants' age in years over the course of the study. Participants' age at Time 1 served as their initial measure of age. I calculated age at Time 2 as initial age plus .125 (i.e., 6 weeks later), age at Time 3 as initial age plus 3.5 (i.e., 3 ½ years after Time 1), and age at Time 4 as initial age plus 7 (i.e., 7 years after Time 1). To facilitate interpreting the models' parameter estimates, I centered AGE by subtracting the average age at Time 1, 17 years (Singer & Willett, 2003). Without centering the age variable, the intercept would represent the level of initial calling for a 0-year-old person. With centering, the intercept represents the level of initial calling for participants at age 17. As the longitudinal dataset spans 7 years, the model thus estimates growth trajectories spanning ages 17 through 24.

I estimated two models to examine systematic inter-individual differences in intercept and/or slope as a function of between-subject predictors (see Appendix 2). The first model ("controls model") includes the control variables as predictors of the intercept. The second model ("full model") includes the control variables and the three hypothesized variables (i.e., ability, behavioral involvement, and social comfort) as predictors of both the intercept and slope (i.e., to explain level 2 between-person variation in initial calling and rate of change in calling parameters). These two models must include identical observations to be compared to one

another. Thus these analyses utilized the maximum number of observations included in both models: 624 observations from 225 people, an average of 2.77 observations per person. An additional 54 people provided data for the controls model, but incomplete data for the full model.

I conducted an attrition analysis to test for possible demographic differences between the 225 participants who provided full data and the 54 who provided enough data only for the controls model. Of the ten control variables examined in one-way ANOVA analyses, the only significant difference was for type of musical involvement, such that participants who provided incomplete data were more likely to be non-instrumentalists than those who provided complete data (.54 vs. .74, $p < .01$, 1 = instrumentalist, 0 = non-instrumentalist). These results suggest that, overall, attrition was not systematic with regard to this study's control variables.

Results

Table 2 shows means, standard deviations, and correlations for all measures. On average, participants' initial calling was 5.86 ($SD = .81$) on a 7-point scale, which indicates that participants experienced a relatively high level of calling. The average level of calling decreased to 5.32 ($SD = 1.07$; $p < .001$) during the 7 years between Times 1 and 4.

Initial Calling

Hypotheses 1, 2, and 3 predicted that individuals with higher levels of ability, behavioral involvement, and social comfort in music will experience higher levels of initial calling, respectively. Hypothesis 1, which suggested a positive relationship between ability and initial calling, was not supported. Behavioral involvement and social comfort were significant, positive predictors of initial calling ($\beta = .08$, $p < .01$ and $\beta = .20$, $p < .001$, respectively), thus providing support for Hypotheses 2 and 3. (See Table 3, Model 2).

Change in Calling

In response to the traditional view of calling as fixed, the exploratory research question addressed whether calling changes, and if so, whether higher ability, behavioral involvement, and social comfort in the calling domain related to a subsequent increase or decrease in calling over time. Descriptive analyses show that the mean level of calling changed, such that it decreased at each time point (from 5.86 to 5.68 to 5.51 to 5.32 at Times 1 to 4, respectively), a total of .54 points (or 8% of the 7-point scale).

The multilevel analyses also show that calling changed over time. The controls model, which does not include the predictors of this change, shows an average decrease in calling of .08 per year ($p < .001$) (Table 3, Model 1). The statistical significance of this parameter estimate indicates the average slope in the sample is different from zero, leading to the conclusion that on average calling changes. Further the model predicts a total decrease of .56 over 7 years (i.e., a decrease of .08 times 7 years). This amount is highly consistent with the amount of change in calling in the descriptive analyses (i.e., -.54 over 7 years), thus offering initial support for the good fit of the multilevel model to the data. Level-1 variation in the model indicates whether or not there was change *within* individuals by capturing the scatter of participants' actual observations around the growth trajectory predicted by the model. The controls model shows significant variation within individuals (within-person random effect = .23, $p < .001$), thus demonstrating that there was within-individual change in calling over time. That is, on average and within individuals, calling is variable, such that people's calling can increase, decrease, or even stay the same.

I explored whether individuals with higher ability, behavioral involvement, and social comfort in the calling domain would experience an increase or decrease in calling over time. The full model results show behavioral involvement and social comfort were significant, negative

predictors of change in calling ($\beta = -.02$, $p < .05$ and $\beta = -.02$, $p < .01$, respectively). Ability was not significantly associated with change in calling (see Table 3, Model 2). These analyses provide support for the notion that higher levels of behavioral involvement and social comfort were linked to a *decrease*, not to an increase, in calling over time.

Control Variables

Two musical background control variables were significant predictors of initial calling: type of musical involvement, such that instrumentalists started out with lower calling than non-instrumentalists, and college major, such that those who went on to music-oriented majors started off with higher calling. None of the other control variables, including all demographic variables, were significant predictors of calling.

Insert Tables 2 and 3 about here

Goodness-of-Fit and Sensitivity Analyses

The level 2 variance components for intercept and slope estimated in the full model were significantly different from zero (both *p*s < .001). Therefore, variability in initial calling and rate of change in calling remains to be explained by factors beyond the three hypothesized predictors (i.e., ability, behavioral involvement, and social comfort). Table 3 summarizes model fit statistics. A comparison of the deviance statistics (-2 Log-Likelihood) revealed significant differences in the fit of the full model relative to the fit of the control variables model ($p < .001$, 6 d.f.), thus indicating that the variables involved in the hypotheses made a significant contribution to model fit.

A pseudo-R^2 statistic measures the total amount of variation in outcomes the predictors in a multilevel model explain (Singer & Willett, 2003) and is calculated as the squared correlation of the predicted and observed measures of calling for each person at each time point. The

pseudo-R^2 statistic is .19 for the control variables model and .24 for the full model. The predictors in the full model thus account for 24 percent of the variation in calling over a 7-year time period. Table 3 reports two additional pseudo-R^2 statistics: the full model explains 46% of the variation in intercept (R^2 Intercept) and 11% of the variation in rate of change (R^2 Slope).

As a sensitivity analysis, I estimated an alternative version of the full model in which I eliminated all insignificant control variables. This alternative full model included 820 observations from 306 people, an average of 2.68 observations per person. The model produced a pattern of results similar to the core analyses: both behavioral involvement and social comfort were significant, positive predictors of initial calling ($\beta = .08$, $p < .01$ and $\beta = .20$, $p < .001$, respectively). Social comfort continued to be a significant, negative predictor of change in calling ($\beta = -.02$, $p < .01$). Behavioral involvement continued to have a negative parameter estimate, but it was no longer a significant predictor of change in calling ($\beta = -.01$, $p = .14$, 95% confidence interval: -.02 to .00). As in the full model, ability was not a significant predictor of either initial calling ($\beta = .04$, $p = .43$) or change in calling ($\beta = .00$, $p = .96$).[3] The consistent pattern of results across the core analyses shown in Table 3 and this sensitivity analysis reinforces the strength and robustness of the findings regarding the connection between behavioral involvement and social comfort with calling. Further, I conducted post-hoc analyses to investigate whether change in calling follows a nonlinear trajectory over time. Analyses testing for quadratic and cubic change in calling over time yielded insignificant results for the time predictor variables, thus supporting the choice of linear modeling in the core analyses.

Synthesis of Results: Fitted Growth Trajectories

To interpret the results of the full model and the effects of the two significant

[3] When this analysis is run on the exact same observations as included in the core analysis full model, rather than allowing the maximum number of observations to be included, behavioral involvement is a significant predictor of change in calling.

predictors—behavioral involvement and social comfort—in particular, I calculated predicted values of calling for five prototypical participants. Four of these prototypical participants correspond to a 2 x 2 framework with each combination of low (25th percentile) and high (75th percentile) behavioral involvement and social comfort. The remaining variables in the model were held constant at their means. The fifth prototypical participant is average on all variables, including behavioral involvement and social comfort. For each of these prototypical participants, Table 4 displays the predicted values of calling at the beginning and end of the study for average-aged participants (17 and 24 years old at Times 1 and 4, respectively), as well as the total amount of change in calling. Figure 1 provides a graphical representation of the trajectories of calling for Table 4's prototypical participants.

Participants who were high on both behavioral involvement and social comfort started out with the highest initial calling, whereas those who were low on both measures started out with the lowest initial calling. As time unfolded, all prototypical participants declined in calling. Participants who were low behavioral and high social had the highest predicted calling at the end of the study. Participants who were high behavioral and low social, however, had the lowest predicted calling at the end of the study. At age 24, the five prototypical types experienced calling levels relatively similar to one another. If these results were based on two measurement occasions, then regression to the mean might be suspected. However, the use of multi-wave data—as in the present study—and the calling scale's reliability over time (Dobrow & Tosti-Kharas, 2011) deflects much of this concern (Nesselroade, Stigler, & Baltes, 1980).

These predicted values help untangle the relative impact of behavioral involvement and social comfort on initial calling and change in calling. Social comfort had a larger impact than behavioral involvement, such high social and low behavioral participants experienced a higher

initial calling than low social and high behavioral participants. Both variables predicted a decline in calling such that the smallest declines in calling were predicted for low behavioral and social participants, and the largest declines were predicted for high behavioral and social participants.

Insert Table 4 and Figure 1 about here

Discussion

The dominant view of calling is that it is a stable, unchanging construct. In this view, once people "find" their calling, it acts "as a cause rather than as a consequence" of positive outcomes (Bunderson & Thompson, 2009, p. 53). This study's analyses, conducted on a 7-year, 4-wave prospective longitudinal sample of musicians, demonstrate that calling can, indeed, change over time and can be shaped by antecedent factors. The study supports the hypotheses (H2 and H3) that individuals who were more behaviorally involved and socially comfortable in the calling domain experienced higher initial calling. Ability was not related to higher initial calling (H1). The study also supports the notion that calling changes. In particular, individuals who were more behaviorally involved and were more socially comfortable experienced a decrease in calling over time. These findings offer contributions to theory and research on calling, meaning of work, and careers.

Theoretical Contributions

The central contribution of this research is its establishment of a dynamic model of calling. Examining change in any variable over time requires three or more waves of data (Singer & Willett, 2003; Willett, 1989). Although numerous scholars have advocated the importance of undertaking longitudinal research (e.g., Barley, 1989; Hall, 2002; Ployhart & Vandenberg, 2010), this 4-wave study design is nonetheless rare in organizational behavior and career research. Extant published research has considered calling from a cross-sectional perspective

only (Bunderson & Thompson, 2009; Duffy & Sedlacek, 2007; Wrzesniewski *et al.*, 1997). As a result, these studies could not examine a dynamic model of calling, including whether antecedent factors shaped its early stages or evolution. The specific finding that calling can change highlights that future theoretical and empirical research on calling must view it as dynamic. More broadly, the 4-wave longitudinal design of the present study, which permits an analysis of change over time, serves as a general contribution to the literature.

This study's second contribution is that it highlights the need for researchers to focus on calling as a consequence and not solely as a cause. This shift has implications for both practitioners and scholars who advocate that people should strive to "find" their calling in order to improve their career decision-making and their lives overall. The existence of antecedents of calling, such as behavioral involvement and social comfort in the present analyses, suggests callings develop—and then deteriorate—through a process of purposeful activity in the calling domain, rather than that individuals discover them in "eureka" moments. Future research that considers a dynamic model linking antecedents, calling, and subsequent outcomes, including the consideration of reciprocal relationships among these variables, would lead to a fuller understanding of the significance of callings in career and, more generally, in life.

This study's third contribution is the exploration of which antecedents shape calling. Aspects of participants' behavioral and social experiences in music predicted initial calling, but, unexpectedly, ability and demographic factors did not. These findings contribute to the literature by providing empirical support for the proposition that a dynamic process involving behavioral cues and social processes determines work meaning (Wrzesniewski, Dutton, & Debebe, 2003). Further, the lack of a significant relationship between ability and calling indicates these constructs are not proxies for one another, and future research should continue to explore them

separately.

The fourth contribution of this study is its suggestion of a possible downside to calling. Regarding whether calling increases or decreases over time, the analyses showed individuals who were more behaviorally involved and socially comfortable in the calling domain experienced a *decrease* in calling over time. This result challenges the notion that people "find" a calling and suggests instead that people first develop a calling through behavioral and social factors and then "lose" it through these same factors. A strong calling is thus difficult to sustain, to the extent that the spread between high and low calling individuals becomes much narrower over time. The decline in calling experienced by this study's young musicians is a harbinger of findings about professional orchestra musicians' relatively low job satisfaction (Allmendinger *et al.*, 1996). Musicians start making career decisions at the end of high school (i.e., Times 1 and 2 in this study). The analyses show that even as these young amateur musicians begin to pursue a music-oriented path (i.e., controlling for whether they study in a music-oriented college program), their calling declines. Over time, an increasing discrepancy may arise between participants' behaviors, such as majoring in music or starting to pursue music professionally, and their psychological experiences of these behaviors. Future research should examine the nuances of why behavioral involvement and social comfort lead to a decrease in calling as well as what factors enable callings to sustain. Building on this study's sensitivity analyses indicating that change in calling is linear, future research should also explore the possibility of nonlinear change in calling (e.g., U-shaped trajectories, accelerated or decelerated decline in calling) that could occur as individuals shift from pre- and early-career stages to later career stages.

Shedding light on the complexity of calling's role in vocational choice is this study's fifth contribution. Previous calling research's cross-sectional approach meant studying people after

they were in their occupations (Bunderson & Thompson, 2009; Wrzesniewski *et al.*, 1997) and so did not explore how calling affected individuals' entry into these occupations. Further, research has not considered people who experience a strong calling but do not work in the calling domain, such as those who, like this study's participants, are about to begin their careers (for an exception, see Berg *et al.*, 2010). By demonstrating that calling can change and that behavioral involvement and social comfort in the calling domain can shape it, this study contributes to the broader goal of investigating calling's role in affecting career choices and career outcomes. These analyses suggest calling transcends particular work settings, and so future research should explore the conditions under which a calling toward a domain does and does not lead to employment in that domain.

Moreover, this study's findings hold for participants who are likely to pursue music professionally and those who are not. The analyses controlled for whether participants attended a music-oriented or non-music-oriented college program, a variable highly correlated with participants' intentions to pursue music professionally ($r = .67$, $p < .001$, Time 3). This approach is akin to dividing participants into two groups, those going into music professionally and those who are not. The college program variable is a significant, positive predictor of calling (see Table 3, Model 2), thus showing individuals who pursue a music-oriented education for college start out with higher initial calling than those who do not pursue a music-oriented education. As behavioral involvement and social comfort were significant, positive predictors of initial calling and significant, negative predictors of change in calling—even while controlling for college program type—the effects demonstrated in the analyses cannot be attributed to differences between participants who view music as a potential profession versus as a hobby.

Limitations and Future Directions

The use of a single sample of participants represents a limitation of this research. Given the early stage of empirical calling research, conducting deep research on an exemplar group such as musicians—that is, a group whose members experience relatively strong callings—is imperative to developing an understanding of how people can cultivate meaningful work (Wrzesniewski, 2003). Moreover, selecting the time period in this population's lifespan that would shed light on questions about the early stages and evolution of calling was critical. That this period began during late adolescence for musicians necessitated studying a relatively untraditional age group in career and organizational behavior research. This work can serve as a platform from which to consider generalizations to other populations and to understand calling with greater specificity (Chatman & Flynn, 2005; Eisenhardt, 1989). Future research can elucidate the extent to which calling is an important construct across different occupations, including examining which occupational characteristics encourage or discourage the development of callings. Further, building on recent studies that explore generational differences in work values and the workplace more broadly, future research can explore how generational, age, or career-stage factors affect calling (Cennamo & Gardner, 2008; Dries, Pepermans, & De Kerpel, 2008; Smola & Sutton, 2002).

This study is also limited by its focus on highly talented young musicians. To test a dynamic model of calling in the broader context of calling's role in shaping career choices, this study needed to include people who had the most viable shot of succeeding on the challenging professional music career path—namely, this study's talented sample. Yet it is noteworthy that within this sample, ability was not related to initial calling or change in calling. Additional research across a wider range of musical abilities and other occupations is needed to solidify our understanding of the relationship between ability and calling. Future research can test whether

ability and calling are positively related over a broader range of ability levels, whether the relationship between ability and calling is different at the tail ends of the ability spectrum than in the middle of the spectrum, including testing for ceiling or floor effects, and whether their relationship might be non-linear. Additionally, the lack of connection between ability and calling in these analyses suggests researchers should consider alternative perspectives of ability, including examining subjective, rather than objective, assessments of ability. Rosso et al. proposed that "individuals' beliefs that they have the power and ability to produce an intended effect or to make a difference"—that is, their self-efficacy—is a mechanism through which work can become meaningful (Rosso *et al.*, 2010, p. 109). Similarly, Dobrow and Heller (2012) found a strong relationship between calling and perceived ability above and beyond the effects of objective ability, though in contrast to Rosso et al.'s (2010) prediction, they find that calling leads to perceived ability and not the reverse.

This study's analyses suggest a causal connection between behavioral involvement and social comfort with calling. However, definitively claiming these factors cause calling or even that the causality is stronger from these factors toward calling than from calling toward them is beyond the scope of the analyses (Edwards, 2008). Further, these analyses used focal predictors measured at a single time point: prior to Time 1 for ability and at Time 1 for behavioral involvement and social comfort. Strengths of this approach include the conceptual clarity of focusing on the impact of factors occurring during the important early stage of individuals' careers on their careers over time (cf., Higgins *et al.*, 2008), as well as analytical parsimony, particularly in terms of predicting change in calling over time. Yet they cannot account for the possible differential effects of the various independent variables over time. Future theoretical and empirical work that untangles these causal questions is critical to furthering our understanding of

calling and its implications for careers.

With the exception of the ability measure, I collected all measures in the analyses via self-report. Future research could explore more direct measures of behavioral involvement, such as the number of hours participants spend on music, and social comfort, such as collecting data from people in individuals' social context (e.g., peers, parents, and teachers). Future research should also extend the current findings by examining the relationship between calling and additional behavioral and social factors, as well as additional categories of predictors.

Practical Implications and Conclusion

This research suggests implications for calling's role in career decision-making. Both initial calling and change in calling were linked to two factors over which individuals might exert some control. This result suggests people stop trying to "find" a calling, a process fraught with indecisiveness, discomfort, and lack of self clarity (Duffy & Sedlacek, 2007). Instead, they can actively engage in influencing or developing the degree of calling they feel toward a domain by immersing themselves in work-related activities and closely monitoring the degree to which they enjoy being around their peers. This opportunity for intervention may be most salient early in their careers (e.g., Gersick, 1988; Lieberman, 1956).

This research also offers implications for career counselors. Consistent with previous scholarly views of calling, counselors typically advise clients to first find their calling and then make career decisions. Counselors should instead aim to replace the myth that callings can only be "found" with the view that callings can be developed. They should then encourage clients to engage in activities that may help them develop a calling. Yet people should exercise caution regarding the degree to which they attempt to increase their calling toward a domain. Even though callings are generally viewed positively, career counselors should be aware of their

"double-edged sword" nature (Bunderson & Thompson, 2009). Experiencing a calling may be akin to being a compulsive gambler in that it fosters tunnel vision and obliviousness to risky decisions, particularly for young people embarking on their careers (Dobrow & Heller, 2012; Dobrow & Tosti-Kharas, In press; Wakin, 2004).

Counter to the traditional view that callings do not change, this study establishes that callings can change over time and that they can be shaped by antecedent factors. These empirical, longitudinal findings provide novel contributions to understanding callings, careers, and the meaning of work. They also raise questions about the dynamics and impact of calling over time horizons beyond seven years. What is the relationship between calling and a broad set of career and life consequences, including objective career success or failure and human beings' quest for meaning in life (Frankl, 1959)? Future research that explores these important topics—particularly long-term longitudinal research, even with its methodological challenges—stands to make both scholarly and practical contributions about the role of callings in life.

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Table 1

Overview of Measures Used in the Analyses

Variables	Source				
	Pre-Time 1	Time 1	Time 2	Time 3	Time 4
Control Variables					
Gender		X			
Socioeconomic status		X			
Ethnicity (dummy)		X			
Religiosity		X			
Type of musical involvement (dummy)		X			
Music-oriented major (dummy)				X[a]	X[a]
Attended arts high school (dummy)		X			
Age of initial involvement in music		X			
Calling-oriented career advice from parents		X			
Calling-oriented career advice from music teacher		X			
Hypothesized Predictors					
Ability	X				
Behavioral involvement		X			
Social comfort		X			
Dependent Variable					
Calling[b]		X	X	X	X

Note. [a]This time-invariant measure was collected at either/both Times 3 and 4. [b]Participants with one, two, three, or all four measures of calling can be included in multilevel analyses.

Table 2

Descriptive Statistics and Correlations among the Study Variables

Variable	*X*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Gender	.69	.46										
2. Socioeconomic status	3.63	.72	.00									
3. Ethnicity (dummy)	.82	.38	.04	.20 **								
4. Religiosity	10.56	12.79	-.01	-.02	-.04							
5. Type of musical involvement (dummy)	.74	.44	.05	.07	-.09	-.05						
6. Music-oriented major (dummy)	.62	.49	-.08	.01	.02	.03	.04					
7. Attended arts high school (dummy)	.22	.42	-.06	-.04	-.28 **	.13	.00	.06				
8. Age of initial involvement in music	7.25	3.44	-.16 *	-.11	-.03	-.01	-.14 *	.05	.05			
9. Calling-oriented career advice from parents	1.38	.59	.04	-.11	-.03	.05	-.05	.31 **	.03	.05		
10. Calling-oriented career advice from music teacher	1.50	.58	.10	-.10	-.07	.04	-.09	.20 **	-.02	-.02	.30 **	
11. Ability	.05	.93	-.02	.02	-.05	.08	.04	.16 *	.14 *	-.02	.12	.07
12. Behavioral involvement	5.70	1.80	.14 *	-.12	.03	.16 *	.15 *	.13	.01	-.09	.17 *	.09
13. Social comfort	4.79	1.62	-.03	-.10	-.01	-.13 *	.17 *	.16 *	.02	.04	.05	-.01
14. Calling: Time 1	5.86	.81	-.02	-.11	.04	-.04	-.08	.24 **	.03	.05	.21 **	.17 *
15. Calling: Time 2	5.68	.82	.04	-.16 *	.05	-.05	-.02	.33 **	.14	.06	.19 *	.05
16. Calling: Time 3	5.51	.94	-.14	.01	.09	.03	-.13	.41 **	.09	.06	.10	.20 *
17. Calling: Time 4	5.32	1.07	-.08	.06	.00	.18	-.03	.39 **	.09	.04	.13	.11

Variable	11	12	13	14	15	16
11. Ability						
12. Behavioral involvement	.24 **					
13. Social comfort	.07	.18 **				
14. Calling: Time 1	.18 *	.30 **	.45 **			
15. Calling: Time 2	.21 **	.32	.41 **	.82 **		
16. Calling: Time 3	-.05	-.04	.12	.39 **	.52 **	
17. Calling: Time 4	.13	.10	.08	.41 **	.58 **	.67 **

Table 3

Multilevel Models: The Relationship between Ability, Behavioral Involvement, and Social Comfort with Initial Calling and Change in Calling

	Model 1: Controls		Model 2: Full	
Parameter	Estimate	Std. Error	Estimate	Std. Error
Intercept				
Intercept	5.46 ***	.35	4.11 ***	.37
Gender	.04	.10	.05	.09
Socioeconomic status	-.09	.07	-.05	.06
Ethnicity (dummy)	.12	.13	.11	.12
Religiosity	.00	.00	.00	.00
Type of musical involvement (dummy)	-.14	.11	-.30 **	.10
Music-oriented major (dummy)	.53 ***	.10	.37 ***	.09
Attended arts high school (dummy)	.20 t	.12	.18 t	.11
Age of initial involvement in music	.01	.01	.01	.01
Calling-oriented career advice from parents	.07	.09	.05	.08
Calling-oriented career advice from music teacher	.09	.08	.09	.08
Ability			.07	.05
Behavioral involvement			.08 **	.03
Social comfort			.20 ***	.03
Slope				
Age (centered at 17 years)	-.08 ***	.01	.12 *	.06
Ability			-.01	.01
Behavioral involvement			-.02 *	.01
Social comfort			-.02 **	.01
Pseudo R^2 Statistics and Goodness-of-fit				
Pseudo R^2 Overall model	0.19		0.24	
Pseudo R^2 Intercept	0.18		0.46	
Pseudo R^2 Slope	0.02		0.11	
Deviance (-2 Log Likelihood)	1380.21		1319.08	

Number of observations = 624; number of individuals = 225.

t p < .10, * $p < .05$, ** $p < .01$, ***$p < .001$

Table 4

Predicted Level of Initial Calling, Ending Level of Calling, and Change in Calling Over 7 Years for Combinations of Low (25th Percentile) and High (75th Percentile) Behavioral Involvement and Social Comfort; All Other Variables Set at Sample Average

Key Predictors		**Predicted Calling**		
Behavioral Involvement	**Social Comfort**	**Initial Level (Age 17)**	**Ending Level (Age 24)**	**Change (Total)**
High	High	6.18	5.32	-0.86
Low	High	6.02	5.37	-0.65
Average	Average	5.81	5.29	-0.52
High	Low	5.71	5.21	-0.50
Low	Low	5.54	5.26	-0.29

Appendix 1

Calling Items with Reliability Estimates

Cronbach's alpha for this 12-item scale was .88, .89, .90, and .90 for Times 1 through 4, respectively. 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.
2. I enjoy playing music more than anything else.
3. Playing music gives me immense personal satisfaction.
4. I would sacrifice everything to be a musician.
5. The first thing I often think about when I describe myself to others is that I'm a musician.
6. I would continue being a musician even in the face of severe obstacles.
7. I know that being a musician—either professionally or as an amateur—will always be part of my life.
8. I feel a sense of destiny about being a musician—either amateur or professional.
9. Music is always in my mind in some way.
10. Even when not playing music or practicing, I often think about music.
11. My existence would be much less meaningful without my involvement in music.
12. Playing music is a deeply moving and gratifying experience for me.

Appendix 2

Definitions and Formulae for Multilevel Models

Table 3 displays the results of the following two multilevel models estimated for the outcome variable, calling (per Singer & Willett, 2003):

(1) Model with controls: This model includes all control variables plus the time variable, AGE (centered at 17 years). These control variables are tested as predictors of initial calling. The level 1 and level 2 models for this model and the full model can be combined into a composite model:

$$\hat{C}alling_{it} = \hat{\beta}_{00} + \hat{\beta}_{01}\text{Gender} + \hat{\beta}_{02}\,\text{SES} + \hat{\beta}_{03}\,\text{Ethnicity} + \hat{\beta}_{04}\text{Religiosity} + \hat{\beta}_{05}\text{Type of Musical Involvement} + \hat{\beta}_{06}\,\text{Music-Oriented Major} + \hat{\beta}_{07}\text{Arts High School} + \hat{\beta}_{08}\,\text{Age of Initial Involvement in Music} + \hat{\beta}_{09}\,\text{Calling-Oriented Career Advice from Parents} + \hat{\beta}_{010}\,\text{Calling-Oriented Career Advice from Music Teacher} + \hat{\beta}_{10}\text{AGE}_{it}$$

Here, $\hat{C}alling_{it}$ is the predicted value of calling for $Person_i$ at AGE_t. $\hat{\beta}_{00}$ is the estimated intercept (the estimated value of the outcome when the centered predictor AGE = 0, i.e., when participants were 17 years old). $\hat{\beta}_{01}$ through $\hat{\beta}_{010}$ are the estimated coefficients for the 10 control variables. $\hat{\beta}_{10}$, the slope coefficient, quantifies the estimated amount of change in the outcome per each unit of AGE (i.e., 1 year).

(2) Full model: This model includes all control variables as predictors of initial calling, ability, behavioral involvement, and social comfort as predictors of initial calling and change in calling, and the time variable, AGE. The fitted full model equation is:

$$\hat{C}alling_{it} = \hat{\beta}_{00} + \hat{\beta}_{01}Gender + \hat{\beta}_{02}\,SES + \hat{\beta}_{03}\,Ethnicity + \hat{\beta}_{04}Religiosity + \hat{\beta}_{05}Type\ of\ Musical\ Involvement + \hat{\beta}_{06}\,Music\text{-}Oriented\ Major + \hat{\beta}_{07}Arts\ High\ School + \hat{\beta}_{08}\,Age\ of\ Initial\ Involvement\ in\ Music + \hat{\beta}_{09}\,Calling\text{-}Oriented\ Career\ Advice\ from\ Parents + \hat{\beta}_{010}\,Calling\text{-}Oriented\ Career\ Advice\ from\ Music\ Teacher + \hat{\beta}_{011}\,Ability + \hat{\beta}_{012}Behavioral\ Involvement + \hat{\beta}_{013}Social\ Comfort + \hat{\beta}_{10}AGE_{it} + \hat{\beta}_{011}\,Ability^{*}\,AGE_{it} + \hat{\beta}_{012}Behavioral\ Involvement^{*}\,AGE_{it} + \hat{\beta}_{013}Social\ Comfort^{*}AGE_{it}$$

Here, $\hat{\beta}_{01}$ through $\hat{\beta}_{010}$ again represent the estimated coefficients for the 10 control variables, and $\hat{\beta}_{011}$ through $\hat{\beta}_{013}$ are the estimated coefficients for the three hypothesized predictor variables.

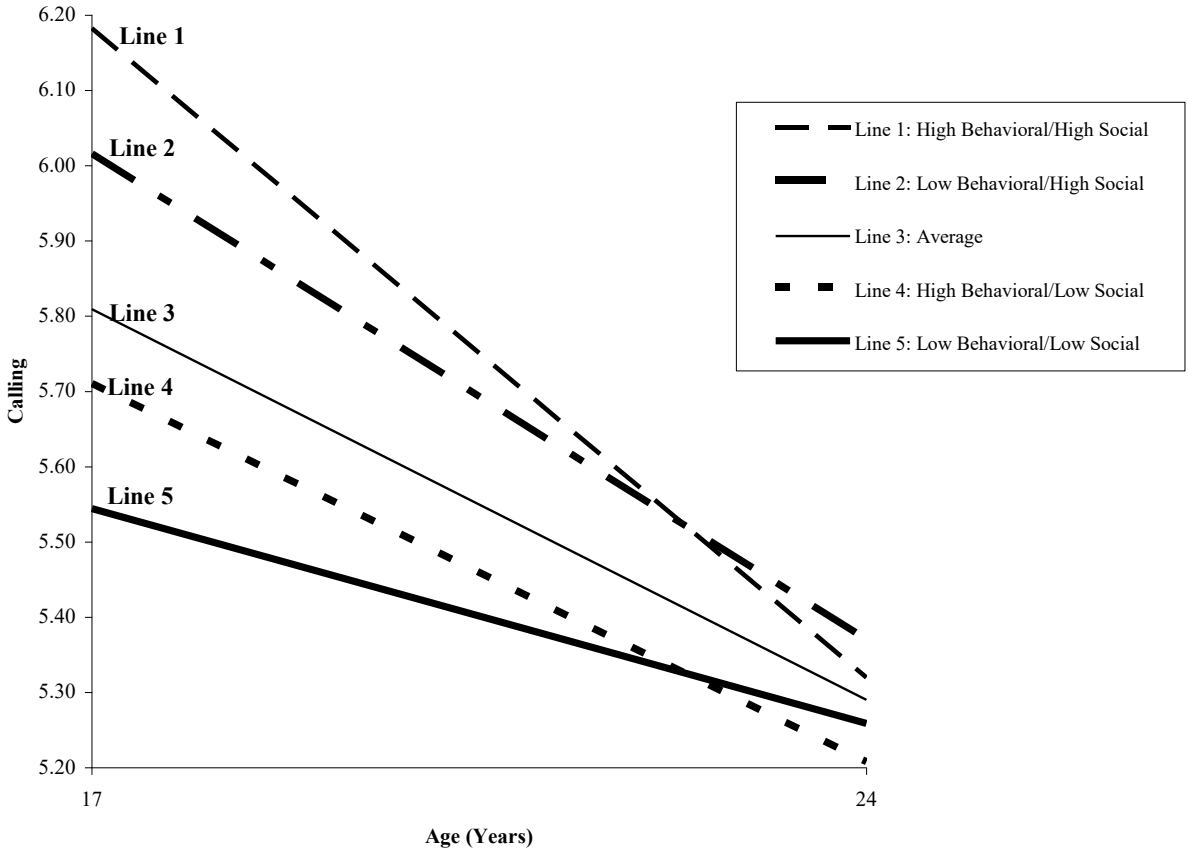

Figure 1. Trajectories of calling over time as a function of low (25th percentile) and high (75th percentile) levels of behavioral involvement and social comfort.